ANNUAL
REPORT
2017

PTA

Pakistan Telecommunication Authority

PTA Headquarters, F-5/1, Islamabad | www.pta.gov.pk

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Acknowledgements

Annual Report 2017

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VISION

"Create a fair regulatory regime to promote investment, encourage competition, protect consumer interest and ensure high quality ICT services"

Pakistan Telecommunication Authority

Contents

ABBREVIATIONS

ALF	Annual License Fee		LUMS	Lahore University of Management and Sciences
AMA	Asaan Mobile Accounts		M&RITT	Monitoring and Reconciliation of International Telephone Traffic
ARPU	Average Revenue Per User		MNO	Mobile Network Operator
BISP	Benazir Income Support Program		MNP	Mobile Number Portability
CAPP	Connected Agriculture Platform Punjab		MoU	Memorandum of Understanding
CDNS	Central Directorate of National Savings		MTR-I	Mobile Termination Rate – International
CGAP	Consultative Group to Assist the Poor		MVNO	Mobile Virtual Network Operator
CMO	Cellular Mobile Operators		NBP	National Bank of Pakistan
CNIC	Computrized National Identity Card		NFIS	National Financial Inclusion Strategy
CVAS	Class Value Added Services		NUST	National University of Science & Technology
CVCT	Cellular Village Connection Trial		OTC	Over-the-Counter
DFS	Digital Financial Services		P2A	Person-to-Application
DSL	Digital Subscriber Line		P2G	Person to Government
FAB	Frequency Allocation Board		PIM	Pakistan Institute of Management
FDI	Foreign Direct Investment		PITB	Punjab Information Technology Board
FED	Federal Excise Duty		PMIC	Pakistan Microfinance Investment Company
FLL	Fixed Local Loop		PTA	Pakistan Telecommunication Authority
G2P	Government-to-Person		PTCL	Pakistan Telecommunication Company Limited
GDP	Gross Domestic Product		PWD	Persons with Disabilities
GST	General Sales Tax		QoS	Quality of Service
ICT	Information Communication Technology		SBP	State Bank of Pakistan
IMEI	International Mobile Equipment Identity		SCO	Special Communications Organization
I-ME-WE	India-Middle East-Western Europe		SIM	Subscriber Identity Module
IP	Internet Protocol		SMS	Short Messaging Service
IPv6	Internet Protocol version 6		SMW3	South-East Asia-Middle East-Western Europe 3
ITU	International Telecommunication Union		TPSP	Third Party Service Provider
KPIs	Key Performance Indicators		VAS	Value Addred Services
LDI	Long Distance International		WLL	Wireless Local Loop
LL	Local Loop			

AUTHORITY

Dr. Syed Ismail Shah
Chairman

Mr. Tariq Sultan
Member (Finance)

Mr. Abdul Samad
Member (Compliance
& Enforcement)

It is my privilege to present the PTA Annual Report 2017 that outlines PTA's efforts for the development of telecom and ICT sector in Pakistan during the fiscal year 2016-17.

The world stands at the brink of the 'Fourth Industrial Revolution' that will place the digital technologies at the center of our everyday lives. For a nation to stay relevant in the upcoming era of digital world, it is of utmost importance to put the sustainable ICT development and disruptive technologies at the top of its national agenda. PTA is following this progressive approach by providing telecom and internet access to the citizens of Pakistan through international fiber optic cables, backhaul networks, and wireless solutions such as 3G, 4G LTE. Today, more than 87% of the population of Pakistan falls under the cellular mobile signal, out of which 70% are covered by 3G services while 30% can access 4G LTE services. Internet and broadband services are spreading to every nook and corner of the country, pushing the demand for more international and national connectivity. Therefore, the international internet bandwidth is also increasing regularly. Resultantly, digital economy is making a strong foothold in line with the National Financial Inclusion Strategy. PTA believes that fostering digital entrepreneurship in the youth can convert the aspiring pool of millions into self-sustained office holders. One of the best opportunities for youth lies in the buzzing e-commerce sector. Pakistan's e-commerce market is expected to grow up to US $1 billion by 2020, subject to the introduction of reliable payment systems. International e-commerce giant Alibaba and other companies have shown interest in capitalizing on the immense online commerce potential of Pakistan. ICTs are also helping in good governance by providing security, efficiency and citizen-centric services by the Government. On the other hand, private sector is focused on taking early advantage of the immense possibilities in the solutions based on Internet of Things (IoT).

PTA performed its regulatory role and carried out the assigned responsibilities with professional excellence and determination. To meet the growing demand for mobile broadband resources, PTA

carried out another round of Next Generation Mobile Services auction where Jazz won a spectrum lot of 10 MHz at the base price of US$ 295 million plus 10% tax of the auction winning price as the tax to the Federal Government of Pakistan. Pakistan's efforts for the proliferation of telecom services and bridging the digital divide were recognized with the 'GSMA Government Leadership Award 2017' at the biggest annual telecom industry gathering at the Mobile World Congress in Barcelona, Spain. PTA has developed a comprehensive spectrum trading framework in pursuance of the Telecom Policy 2015. To check the compliance level of the Biometric Verification System (BVS), third party audit of the system was carried out using specialized audit software. Moreover, quality of service of the cellular mobile operators was assessed through cross country surveys in the last fiscal year and the observations/deficiencies were taken up with the operators for remedial actions. PTA also issued orders to all the operators/organizations not to misuse the allotted short codes by offering prize schemes. Minimum sale price of SIM was declared to be set at Rs. 200 and surveys were carried out to verify the implementation of the same. For the facilitation of the citizens, an online NOC portal has been developed for the clearance of imported mobile handsets. In order to ensure that emergency telecom services are available to the consumers in case of a disaster, PTA carried out a survey to verify the accuracy and quality of support of the emergency helpline numbers by the operators. A major step forward has been taken with the launch of device identification and blocking system called DIRBS that will reduce the illegal handset imports by leaps and bounds. PTA believes that ersons with Disabilities (PWDs) can be inclusive members of the society and held a mobile application development competition under the name of "Pakistan Mobile App Awards 2016" where the Honorable President of Pakistan, Mr. Mamnoon Hussain was the chief guest. To develop regional harmony for information sharing and technology discussions, PTA held the South Asian Network Operators Group (SANOG) 29 in collaboration with other partners at Islamabad. To improve the network efficiency and enable substantial cost savings for operators, PTA took the lead to establish Pakistan's first Internet Exchange Point (IXP) in line with the directions of the Telecom Policy 2015.

The digital landscape of Pakistan is one of the key constituents of the Pakistan's quest to achieve the UN's Sustainable Development Goals (SDGs). ICTs are the cross-cutting enablers that can play a central role in achieving the goals and targets set under the SDGs. The Government of Pakistan has shown full commitment towards achieving the SDGs by becoming the world's first Parliament to formally adopt SDGs as the nation's development agenda in 2016. The Ministry of Planning, Development and Reform has devised integrated monitoring framework in the shape of Federal SDG Support Unit, in coordination with UNDP, linked with provincial SDG Units. The Government and private sector should capitalize on the digital profile of Pakistan and devise forward-looking Policies and initiatives that place the ICTs at the nucleus of our national strategy to achieve the SDGs.

Mobile banking and Digital financial services are believed to be the cornerstone of the economy in the future. PTA is actively playing its part as member of the National Financial Inclusion Strategy

(NFIS) and has also enabled interoperability in the mobile financial services (Branchless Banking Domain) by the introduction of Third Party Service Providers (TPSP) licenses. State Bank of Pakistan is also in the process to launch Asaan Mobile Account scheme under which an integrated platform will allow an individual to carry out a digital transaction from anywhere, anytime. Moreover, branchless banking agents are also being trained, government payments digitized, FinTechs being funded, interest-free loans being given to small farmers in rural areas via mobile wallets etc. As a result of all these initiatives, m-wallet accounts have now reached at 20 million with close to Rs. 2.097 billion being transacted through mobile banking accounts in 2016.

It is imperative for a visionary telecom regulator to learn and collaborate with the international telecom fraternity. Therefore, PTA Authority and officers participated in various international conferences, workshops and capacity building events to present Pakistan's viewpoint on the emerging issues and challenges of the telecom world. Some of the notable events include the high level meeting on World Summit on Information Society (WSIS), GSMA Mobile World Congress, ITU Global ICT Indicators' Symposium, 17th meeting of the SATRC, US Commercial Law Development Program, ITU World Telecommunication Seminar etc.

In the midst of all the national and international responsibilities, PTA kept the consumer protection at the forefront of its regulatory agenda. Consumers were also informed of the deceptive, fraudulent, unsolicited communication via media campaigns while also requesting public assistance in finding the blasphemous and objectionable content on the web. Moreover, PTA website provides updated prepaid/postpaid/ data services tariff for ease of subscribers to check all CMOs' tariffs in one place. To ensure the judicious deduction of consumer mobile credit, PTA has carried out a billing verification survey and also uploads consumer awareness bulletin and tariff guide on a regular basis. In addition, 99,748 mobile handsets have been blocked during the fiscal year 2016-17 that were reported to be stolen, missing or snatched. PTA received 34,723 consumer complaints against mobile operators, PTCL, ISPs and WLL operators during the FY 2016-17, out of which 99% were resolved.

PTA has proactively dealt with the issues of the telecom sector while keeping the national interests intact. However, new challenges emerge each year in accordance with the rapidly changing technologies. PTA aims to continuously undertake initiatives such as revision of the licensing framework, spectrum refarming, regulating the OTT Services, blocking of the unregistered mobile handsets, development of the telecom disaster and emergency framework, security of data and critical infrastructure and carrying out its role under the Telecommunication Policy 2015.

I truly believe that PTA has managed to pass the fruits of the technological revolution to the common man with the help of abovementioned efforts and achievements. In line with the Government Policies, we believe in providing high quality ICT services at affordable rates to every

corner of the country. At the same time, PTA is also standing tall with the telecom industry to resolve their issues and protect their legitimate business interests.

I expect this report to be an informative and indulging source of knowledge and reference for you about Pakistan's telecom sector.
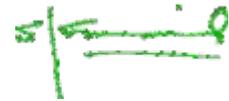
Syed Ismail Shah Ph.D
Chairman, PTA

Mobile App Award 2016

As per commitment to promote innovation and accessibility, PTA and Internet Society (ISOC) Asia-Pacific Bureau launched "Pakistan Mobile App Awards 2016" in collaboration with Ministry of IT, Telenor and Special Talent Exchange Program (STEP). The competition's theme "Embracing Mobile Accessibility" focuses upon the development of mobile applications on the needs of PWDs in Pakistan.

IXP
Internet Exchange Point
27 January 2017, Islamabad, Pakistan

Internet Exchange Points (IXPs) are vital elements of Internet infrastructure that enable networks to exchange traffic with each other. Multiple Internet Service Providers (ISPs) can connect at a single IXP, creating the potential for a range of technical and economic benefits for the local Internet community. By keeping local traffic local and avoiding international links, local operators and users can reap substantial cost savings, optimize substantial local bandwidth, and significantly improve local Internet performance.

Friday 27th January, 2017

SANOG
23 - 30 January, 2017 Islamabad, Pakistan

This year, Pakistan has the honor of hosting this prestigious event at Islamabad, Pakistan. The SANOG Event was a great success and much appreciated by international community. SANOG helped to gather IT & Telecom industry and academia under one roof to find solutions for the challenges faced and get updates for the latest technological developments in the field of networking.

...nce Presentations, Tutorials & Hands-on Wor...

23-30 January, 2017
Islamabad, Pakistan

NGMS 2017
Information Session For Prospective Applicants

3 May, 2017

PTA Received Bid for NGMS

17-5-2017

Digital Piracy

Presentation on Cyber Security Issues
14-3-2017

Seminar on Telecommunications and Cyber issues
8-9 Feb 2017 PTA HQs Islamabad

INFOGRAPHIC ELEMENTS

Teledensity

Teledensity as of June 2017

72.4%
Percentage

Cellular Mobile | FLL & WLL

2016-17	70.85	1.6 72.4
2015-16	69.1	2.0 71.1
2014-15	60.7	2.2 62.9
2013-14	76.5	12 79.6
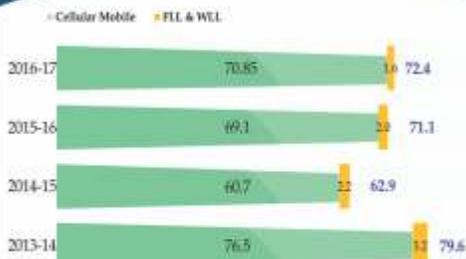
Cellular Mobile Subscribers

Cellular Mobile Subscribers as of June 2017

139.8
Million

139.97	114.70	133.24	139.76
2013-14	2014-15	2015-16	2016-17

Cellular Mobile Subscribers Share

Jue 2017

PMCL (Jazz)
Telenor
CMPak (Zong)
PTML (Ufone)

38%

Mobile Broadband Penetration

Mobile Broadband Penetration as of June 2017

20.6%
Percentage

2014-15	7.14
2015-16	15.32
2016-17	20.62
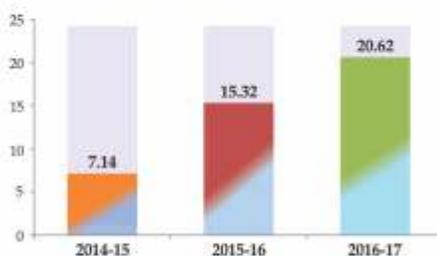
Mobile Broadband Subscribers

Mobile Broadband Subscribers as of June 2017

42.1
Million

13.5	29.5	42.1
2014-15	2015-16	2016-17

Mobile Broadband Subscribers Share

June 2017

PMCL (Jazz)
CMPak (Zong)
Telenor
PTML (Ufone)

11.7%
27.0%
28.4%
32.9%
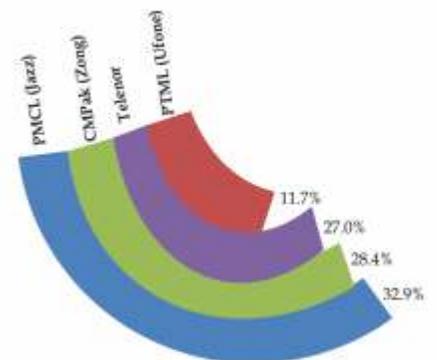
Broadband Penetration Mobile & Fixed

Broadband Penetration as of June 2017

22.6%
Percentage

- 8.86 — 2014-15
- 16.17 — 2015-16
- 22.61 — 2016-17

Broadband Subscribers Mobile & Fixed

Broadband Subscribers as of June 2017

44.6
Million

- 16,752,796 — 2014-15
- 32,220,357 — 2015-16
- 44,586,733 — 2016-17

Broadband Subscribers Share by Technology

June 2017

- Fixed BB 6.0%
- Mobile BB 94.0%
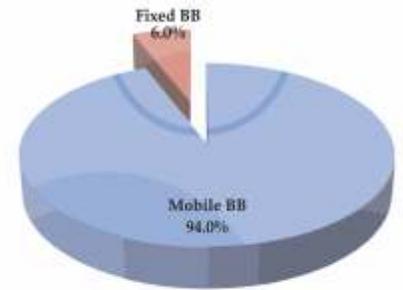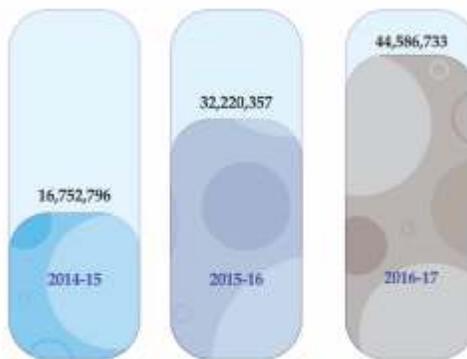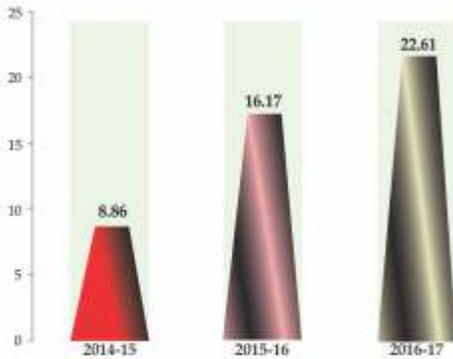
Mobile Data Usage

MBB Data Usage as of During 2017

68,929
Tera Bytes

2G ■3G ■4G ■Total

	2014-15	2015-016	2016-17
4G			615,670
3G		280,997	170,639
		96,942	412,223
	71,662	168,701	32,809
2G	27,396	35,353	

Cellular Mobile Cell Sites

Total Number of Cell Sites as of March, 2017

44,126

- 37,576 — 2013-14
- 40,705 — 2014-15
- 41,931 — 2015-16
- 44,126 — Mar-17

Percentage of Population Covered by Cellular Mobile Operators

as of Jun 2017

- 2016-17 — 84.5%
- 2015-16 — 83.6%
- 2014-15 — 81.8%
- 2013-14 — 79.9%
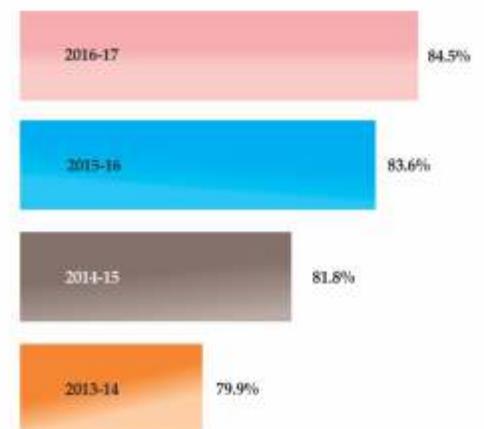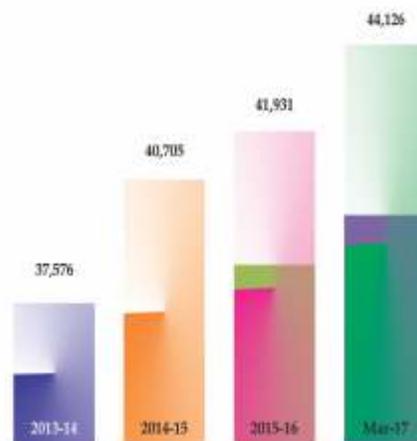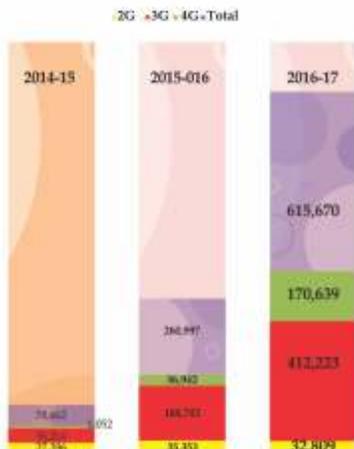
Lit/Equipped International Bandwidth Traffic

725,100 (TBs)

as of Dec, 2016

Dec-2014	Dec-2015	Dec-2016
310,935	473,519	725,100

Subscribers with Mobile Broadband Enabled Handsets/Smartphones

55.1 Million

Subscribers Broadband Enable with hand cell as of June 2017 (E)

Sep - 16	Dec-16	Mar -17	Jun-17 (E)
45,040,386	46,739,078	50,754,679	55,115,281
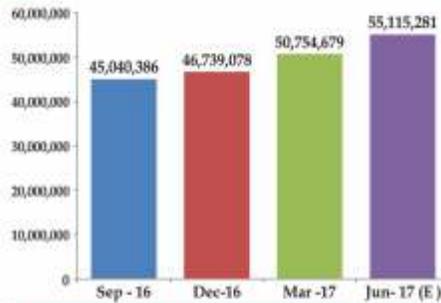
M2M Mobile-Network Subscriptions

609,359

June 2017 (E)

Sep - 16	Dec-16	Mar -17	Jun- 17 (E)
310,453	336,254	452,658	609,359

Telecom Revenues

467.6 Rs. Billion

Telecom Industry Revenues During FY 2016-17 (E)

	2014-15	2015-16 (R)	2016-17 (E)
Total	442.3	457.0	467.6
	73.7% / 26.3%	71.3% / 28.7%	70.8% / 29.2%
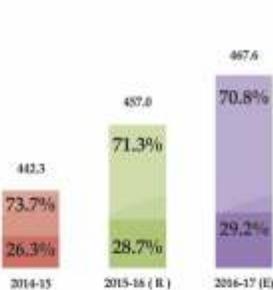
Telecom Investment

634.9 US$ Million

Telecom Industry Investment During FY 2016-17 (E)

2013-14	2014-15	2015-16 (R)	2016-17 (E)
1,815.60	1,001.00	722.30	634.90

Telecom Contribution

161.4 Rs. Billion

Total Telecom Contribution to the National Exchequre

Legend: ■ GST ■ PTA's Deposits ■ Others

	2013-14	2014-15	2015-16 (R)	2016-17 (E)
Total	235.76	126.26	160.18	161.43
GST	60.12	45.77	44.25	46.20
PTA's Deposits	96.5	7.00	34.11	33.13
Others	79.16	73.49	81.82	82.10
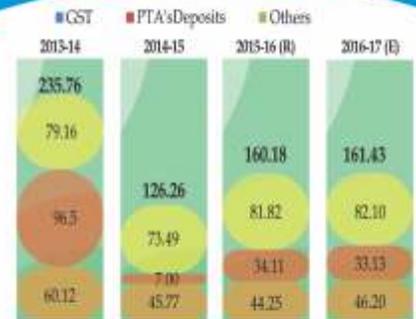
FDI Inflow

	FDI Inflow	2016-17 US$ Million Net FDI
Telecommunication	116.4	-91.0
Pakistan	3,434.5	2,730.9
%age Telecom Share of Telecom	3.4	-3.37

FDI inflow in Telecom during FY 2016-17

116.4 US$ Million

Chapter 1

DIGITAL LANDSCAPE OF PAKISTAN

The world has undergone many transformations inspired by technological innovations over centuries, often termed as 'Industrial Revolutions". Whereas the first, second and third industrial revolution changed the world and social living by leaps and bounds, we now stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. The 'Fourth Industrial Revolution' will blur the lines between the physical, digital, and biological spheres. Endless possibilities will be created by connecting billions of people and mobile devices, with unprecedented processing power, storage capacity, and access to knowledge, multiplied by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing. When compared with previous industrial revolutions, the Fourth is evolving at an exponential rather than a linear pace.

Pakistan's ICT roadmap is well on course to take full benefit of the fourth industrial revolution. Over the past two decades, 'Business as usual' has been regularly transformed by disruptive technologies and rapid ICT diffusion. In Pakistan, the digital landscape started to change in the early 90s with the introduction of cellular mobile phones. From thereon, every major milestone in the telecom sector of Pakistan led to new business possibilities, better consumer experience and most importantly, access to information and communication for the people of Pakistan. Despite challenges and externalities, telecom sector of Pakistan has reached remarkable heights, enabling the environment that is necessary to spur sustainable economic growth in the country. An overview of the major ICT developments in the various sectors of the economy is given below:

Access and Infrastructure

Reliable, uniform, widespread and uninterrupted access to telecom services is the fundamental prerequisite for ICT revolution in a country. The non-availability of the mobile broadband services was the biggest hurdle in the introduction of latest ICT innovations in the country. PTA implemented the

Policies of the Government of Pakistan and carried out fair and transparent spectrum auction for 3G, 4G LTE services in April, 2014. Since then, the exponential growth of mobile broadband subscriptions and ICT solutions/services has brought true digital transformation in Pakistan. The Graph depicts digital evolution of Pakistan in terms of key landmarks in the

Enabling Digital Evolution in Pakistan

Sector Growth

- **1990-91** — 2 cellular (AMPS) issued To Paktel & Instaphone
- **1992** — 1st GSM Operator "Mobilink" Launched Services
- **2001** — UFONE Started its Operations as 2nd GSM Operator
- **2002** — TWA Becomes 2nd under Sea fiber optic carrier after PTCL
- **2003-4** — Deregulation 2 Cellular licenses 14 LDI licenses 84 FLL licenses 93 WLL licenses
- **2004** — 1st Spectrum Auction Telenor & Warid
- **2007** — CMPAk "ZONG" Acquires Paktel
- **2014** — NGMS Auction (3G/4G)
- **2016** — Award of 850Mhz Spectrum for 3G/4G
- **2017** — NGMSA Auction In May 2017 / TPSP licensing launched

national connectivity. NGMS auction in 2014 has triggered a new wave of digital innovation as the Government had to carry out two more rounds of spectrum auctions in 2016 and 2017 to meet the connectivity demands of the industry. By the end of March 2017, 3G cellular mobile signal covers more than 70% of the population in Pakistan. Similarly, 4G LTE services are accessible to more than 30% of the population. Now, Pakistan has set its eyes on launching the 5G technology by 2020 and preparations have started to test 5G cellular connectivity that will be the first of such tests in the South Asia.

Apart from cellular and wireless connectivity, Pakistan has also made significant progress in the national and international connectivity. The total length of fiber optic now stands at 85,549 Kms with multiple international undersea fiber optic links also to carry the traffic in and out of the country. PTCL added another submarine cable in addition to I-ME-WE, SEA-ME-WE3 and SEA-ME-WE4 to meet growing demand. The Lit/equipped international internet bandwidth of the country has also

International Internet Bandwidth
(Mbit/s)

Year	Used Int. Bandwith	Lit/Equipped Int. Bandwidth
2013	109,693	205,299
2014	145,227	310,935
2015	403,253	473,519
2016	493,435	725,100

Digital Landscape of Pakistan
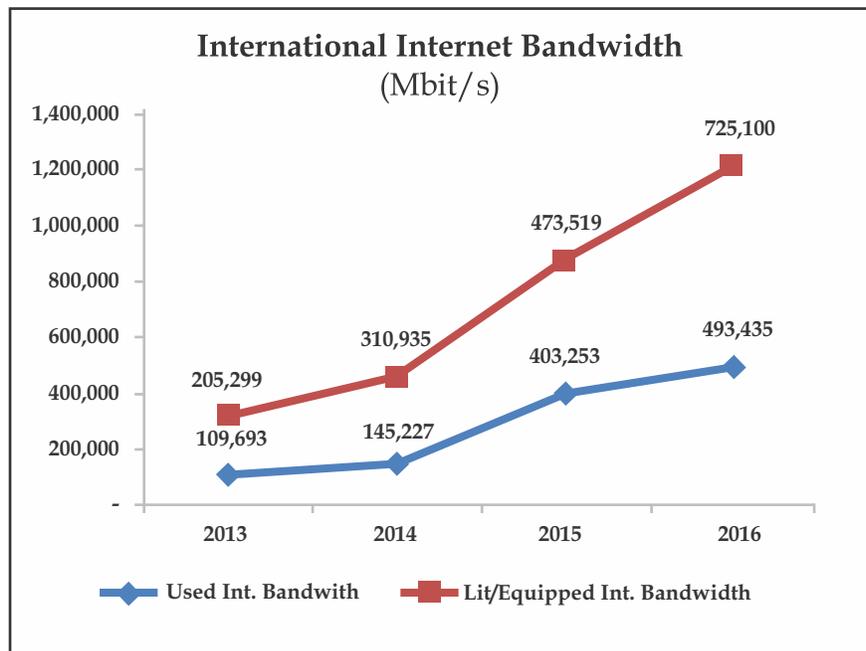
improved considerably over the past few years as depicted in the graph. The exponential increase in data usage has led to more data revenues for the operators, who in turn are investing more into the access infrastructure of the country.

Digital Economy

Digital access and digital payment solutions are prerequisite for an efficient and flourishing digital economy. Studies by the GSMA and the Word Bank have estimated that a 1% increase in mobile phone subscriptions boosts GDP growth by 0.28 percentage points. With a mobile penetration of 70%, mobile broadband penetration of 19.2%, and formally financially served adult population of 23%, Pakistan has immense potential for growth in the digital economy.[1] Digital economy has the potential to drive sustainable economic development by creating jobs and empowering the youth, especially women.

The Government of Pakistan in its draft Digital Pakistan Policy has also set a specific Goal to *"Generate sustainable innovation, entrepreneurship and employment opportunities for the Nation's rapidly growing generation of technologically sophisticated and entrepreneurial youth population"*. Moreover, Government of Pakistan has also strategized to empower the youth of Pakistan with the training programs on cutting edge technologies to enhance their employability. The Government of Pakistan has also launched the National Financial Inclusion Strategy (NFIS) which aims to enhance formal financial access to the adult population in far flung areas. The main objectives of NFIS for the year 2020 are[2]:

- increase the number of adults with a formal account (bank account or mobile wallet account) to 50%
- increase the number of female adults with a formal account to 25%
- increase the percentage of adults living within 5 kilometers of an access point
- increase the percentage of savers that have used a formal financial service to save to 10%

State Bank of Pakistan is currently developing the regulatory framework for the 'Digital bank' which will operate through internet only, without having any physical presence. This will allow the customers to do all sorts of financial transactions while staying online through website or mobile apps. Another important development is the interconnection between the branchless banking service providers, banks and mobile operators. The Government (PTA and SBP) introduced a Third Party Service Provider (TPSP) model where banks and operators could amalgamate their resources and provide mobile financial services. The private sector is also rolling out new ventures and collaborations to make the best use of the rising digital economy in Pakistan. Apart from launching the 'digital only' branches by major banks, the first Digital Saving Centre has also been launched by a mutual funds company recently[3].

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[1] http://www.sbp.org.pk/Finc/finc.asp
[2] National Financial Inclusion Strategy, Ministry of Finance.
[3] https://www.mcbah.com/digital-saving-centre-launched-in-lahore/

Digital Landscape of Pakistan

Pakistan is estimated to have nearly 100 million youth under the age of 24 and the economy is required to grow at about 7 percent a year to absorb this pool of youth into productive economic participation[4]. Therefore, it is imperative that start-ups, incubation programs, angel investments are commissioned which allow the youth for self-sustained growth of the business ideas rather than long queues at the job interviews. Pakistan has witnessed the launch of several incubation and startup facilitators over the past year with the help of National ICT R&D Fund. National Incubation Centre is a prime example of the Government's commitment to encourage and support the digital entrepreneurship culture in Pakistan. Entrepreneurs are using internet to connect people with jobs as well such as rozee.pk and brightspyre.com. Similarly, mobile applications are being used to find travel jobs such as Careem, Uber, Travly that are making a big impact on the self-sustainability in Pakistan. According to a local source, a person can earn monthly wage of around Rs. 60,000 to 70,000 per month by becoming Careem 'Captain' (cab driver). On other hand, mobile money has already created a network of agents providing direct and indirect business/job opportunity to hundreds of thousands of people.

Digital economy is also an effective and fast track opportunity to empower the underused potential of female workforce in becoming more inclusive in the society. A report by PBS states that there are only 22 employed females out of 100 in Pakistan as opposed to 77 employed males out of 100. The major reasons behind this gender gap are the low literacy rate, social and cultural taboos and norms that impede active participation of women in national economic activity. The Draft Digital Pakistan Policy has a specific goal that states *"Ensuring that women & girls have equal access to ICTs will help reduce inequalities (Goal 10 of UN SDGs) and support gender equality (Goal 5 of UN SDGs). The value of ICTs is largely seen through increased productivity, improved access to health, education, equitable participation in social, political, and economic spheres and breaking barriers of isolation".* The Government has also made it a part of its IT strategy to provide equal opportunity to women for IT training & entrepreneurship and also to encourage their participation in the IT workforce. There are a number of ways by which ICTs are helping women in becoming more self-sufficient in the form of startup funding, incubation programs, freelance work and Government payments to women through Benazir Income Support Programme (BISP). On the other hand, we also see a rising trend of female entrepreneurship in the field of e-commerce, facebook pages, food apps and blogs. On the Government level, BISP has also been an astounding success story where debit cards coupled with efficient ICT solutions and biometric verification systems are used to disburse the monthly allowance of Rs. 1500/- to 4.7 million poor households across Pakistan. Most of the disbursements are directly made to the women in the household thereby increasing the efficient management of limited resources.

E-Commerce

E-commerce is one of the most important drivers of a digital Pakistan. The most important element of the e-commerce ecosystem is the Payment Gateway that will enable entry of credible international players in e-commerce ecosystem of Pakistan and will resolve longstanding barrier to growth of

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[4] http://blogs.worldbank.org/endpovertyinsouthasia/impactevaluations/
governance/ppps/ic4d/dmblog/how-become-digital-innovator-pakistan

Pakistani e-commerce market. Recent Policy and regulatory development have paved the way for credible international players to enter into Pakistan's e-Commerce market. World's largest e-commerce company, Alibaba, has shown its interest in Pakistani market and signed a MoU with the Trade Development Authority of Pakistan to bring the small and medium enterprise in the realm of e-commerce platform. Engagements with Alibaba can transform the reach of Pakistani products to international markets and help promote e-commerce and financial services in Pakistan. Regulations regarding Framework for Payment System Operators (PSO) and Payment Service Providers (PSP) has been devised and approved by the State Bank of Pakistan (SBP). Moreover, development of E-commerce Policy framework is also under process to cater to all elements of user, merchant trust with dispute resolution and remedial mechanisms. On the directions of the Prime Minister, Ministry of Commerce has also formulated "e-Commerce Policy Board" under the chairmanship of the Minister of Finance to monitor progress and ensure coordinated cross institutional efforts for the development of e-Commerce in Pakistan.

In the private sector, entrepreneurs have launched the e-commerce initiatives for consumers (B2C) that have been success stories such as daraz.pk, olx.com, homeshopping.pk. It is estimated that the size of Pakistan e-commerce market falls between US$ 60 – 100 million (2015) and expected to grow up to US $1 billion by 2020.[5] Pakistan is generally a cash driven economy as the number of debit/credit card holders is small and m-wallet accounts are also very low due to which more than 95% of the e-commerce transactions are done by Cash on Delivery system. Pakistan is also making good progress on the Business to Business (B2B) front as the software industry aims to achieve the goal of US $5 billion export mark by the year 2020. Furthermore, the IT industry has various medium-sized IT firms earning nearly $530 million, mainly in software development and service outsourcing. However, Pakistan's share in the global IT sales is just US$ 2.8 billion out of the global US $3.2 trillion global market.

Consumer buying trend in Pakistan is not just limited to buying products online, there are also websites for cars, property and travel which shows that the consumers in Pakistan are using internet to experience a wide range of economic activities. Some of local portals have emerged as leading online businesses in

| 2000 e-retailers | $100 million worth transactions per year | >90% transactions via Cash on delivery |
| >375 merchants accept digital payments | 41 million persons have acccess to internet | 5 million online shoppers |
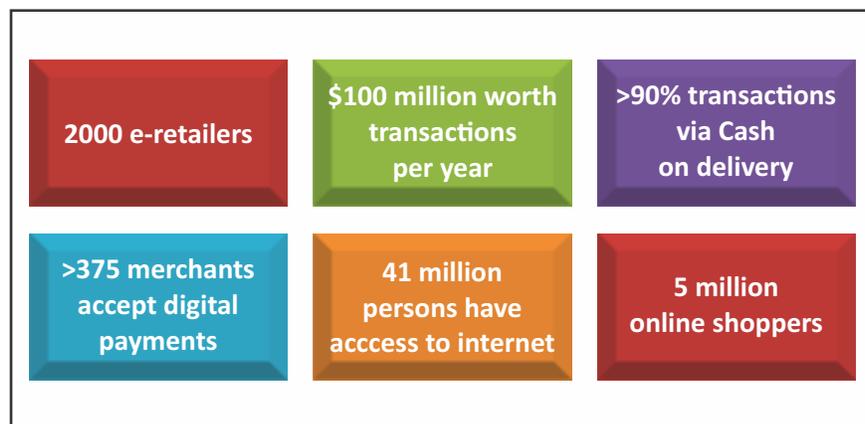
Pakistan. The auto portal PakWheels has emerged as the leading online car buying and selling website in Pakistan. It has reached a listing of over 160,000 cars and over 24,000 motorcycles and is accessed by more than 100,000 unique visitors every day. Zameen.com is the leading online real estate database

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[5] https://propakistani.pk/2017/02/14/primed-growth-analysis-pakistans-ecommerce-market-2016/

that connects real estate dealers, developers, estate agencies with general buyers, sellers and renters in Pakistan. Food Panda, Pakistan's leading food delivery app, estimates that it has generated a staggering one billion rupees in additional sales for the restaurant industry during the last year. Rozee.pk enjoys an exalted standard as Pakistan's #1 job website with plenty of nationwide vacancies advertised each day. Daraz.pk is the largest on-line shopping mall, which provides platform to multiple vendors and one-stop shop to consumers. All leading brands for fashion, food, accessories etc. are also offering online shopping facility to their customers. These portals are now also providing mobile and online solutions for payments. However, it is imperative that the Government and private sector enable safe, reliable and unrestricted environment for the consumers for e-commerce activities.

The success of such online ventures has made the e-commerce market of Pakistan a lucrative market for foreign investment in the digital world. Daraz.pk recently managed to secure an investment of US$55 Million for its operations in Pakistan, Bangladesh and Myanmar from Asia Pacific Internet Group (APACIG) and Commonwealth Development Corporation Group, UK. Zameen.com raised US$29 Million in two rounds of international funding from Catch Group and Frontier Digital Ventures. Careem has raised an investment of US$60 Million from Abraaj Group (Abraaj) as lead investor for its operations in Pakistan and MENA region. Rozee.pk raised US$6.5 Million in a Series C funding round with VostokNafta and Piton Capital Lead Investment as the main investors.

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Governance

e-Governance is one of the important constituents of the digital landscape of Pakistan. By digitizing the Government services, citizens can make use of the internet to save their time, cost and effort. Government organizations are working extensively to offer online services to the citizens, businesses, employees and other Government departments. Safe City project makes use of the cameras and RF readers for safeguard and surveillance of the sensitive locations and for risk management. Moreover, the kiosk and e-sahulat service are offering bill payments, cash disbursement and verification services to the citizens. Replacing the traditional registration book system, a chip-based vehicle registration system has been deployed. Moreover, an Integrated Border Management System and Afghan National Registration system have also helped in the better management of the foreign nationals and border

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[6] http://www.pseb.org.pk/success-stories/19-why-pakistan
[7] https://www.techinasia.com/pakistan-marketplace-raises-65-million-series-funding

security. On top of the core e-governance services, Arms License, pension and Zakat disbursement, e-toll collection, mobile apps and other innovative ICT solutions are also being offered. ICT based services also include the e-filing of the tax returns, online tax payer verification, rebate claim management, import and export general manifest etc.

Internet of Things

Internet of Things (IoT) refers to the use of internet and digital devices to interconnect the machines, electronic devices, buildings, vehicles and other objects thereby establishing internetworking for machine-to-machine communication. IoT is considered to be the next big thing in the digital world and it is estimated that there will be 50 billion connected devices by the year 2020. IoT has gained considerable momentum globally recently and Pakistan is not far behind. After the availability of necessary connectivity through the 3G, 4G LTE services, a number of startups and cellular mobile operators have ventured into the IoT arena. Telenor held the first IoT expo at Lahore in 2015 whereas the startup centers and incubation labs also started to fund IoT projects. Today, Pakistan's IoT market has a number of award-winning startups such as 'Smart Devices' that uses a smart switchboard to convert any electrical appliance of a house into a Wi-Fi connected smart device that can be controlled by a mobile phone. Similarly, another award winning product called Jal Bujh by Zaheen Machines has been designed by works with standard household gas water geysers and allows the temperature to be controlled intelligently such that the geysers are operational only when they are required and at other times they go into a sleep mode. SNGPL has contracted the company for manufacturing of Jal Bujh devices. Similarly, there are a number of other ventures of IoT in the field of health, veterinary care, smart homes, energy efficiency, automated security, car maintenance etc. Moreover, dedicated labs for IoT in the educational institutes are also being established such as the Al-Khwarizmi Institute of Computer Science (KICS).

The number of Machine-to-machine subscriptions is given in the Graph.

M-TO-M SUBSCRIPTIONS GRAPH

Period	Subscriptions
Sep 2016	310,453
Dec 2016	336,254
Jan-Mar 2017	380,004
Apr-Jun 2017	609,359
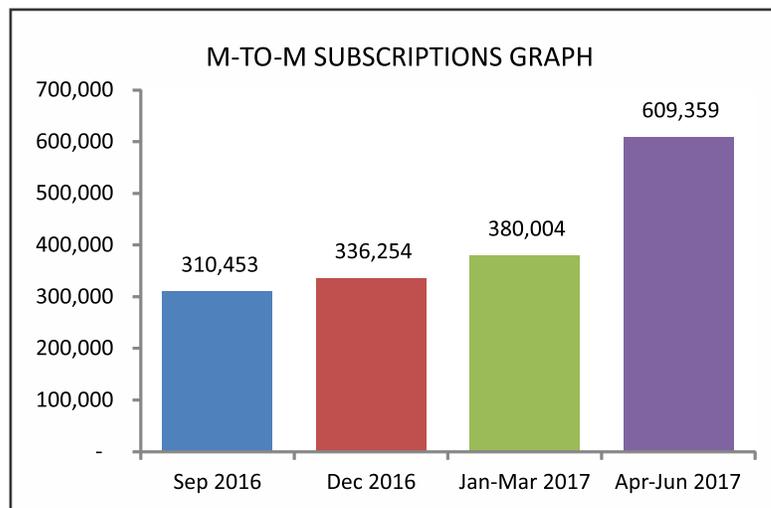
Chapter 2

Enabling Progressive Telecom Environment

Pakistan Telecommunication Authority, as regulator of the telecom sector of Pakistan, strives to establish a competitive, fair, progressive, consumer oriented and business friendly regulatory environment in the country. As the world moves from basic regulatory reforms to collaborative regulations, the vision of a digitally enabled Pakistan remains to be the focus of PTA. The Authority carried out its responsibilities to protect consumer interest, ensure Quality of Service, ICT development and enabling regulatory framework in the country. The activities of the Authority during the period under review have been detailed in the ensuing pages which were performed to achieve the aforementioned objectives of PTA:

Next Generation Mobile Services (NGMS) Auction

The advent of NGMS services in 2014 sparked a mobile broadband revolution in the country. The demand for more spectrum resources kept on increasing day by day as mobile broadband subscribers, data usage, coverage and revenue from data services has reached an all-time high. In view of this extraordinary demand, the Government of Pakistan decided to hold another round of spectrum auction of 10 MHz in the 1800 MHz band. For this purpose, the Honourable Prime Minister of Pakistan constituted an Advisory Committee for overseeing the auction headed by the Minister of State for IT& Telecom. The advisory committee was mandated to determine the base price of spectrum and propose a policy directive for the purpose.

The Advisory Committee for the Auction of unsold Next Generation Mobile Services (NGMS) spectrum (4G) issued the Policy Directive for the auction of 4G spectrum and set the base price for one 10MHz block at $295 million. Accordingly, the Information Memorandum (IM) was published with the deadline to receive the bids set at 17th May, 2017. Jazz submitted the bid to win the offered spectrum and after completing all due formalities, the operator was declared winner of the auction at the base price of US$ 295 million plus 10% tax of the auction winning price to the Federal Government

of Pakistan. Resultantly, the license was awarded to the Jazz in a ceremony presided over by the Federal Minister for Finance, Mr. Mohammad Ishaq Dar.

Pakistan Wins GSMA Government Leadership Award 2017

Pakistan's efforts for the proliferation of telecom services and bridging the digital divide have been recognized on the international level. Pakistan has been declared winner of the 'GSMA Government Leadership Award 2017' at the biggest annual telecom industry gathering at the Mobile World Congress in Barcelona, Spain. On behalf of the Government of Pakistan, the Honourable Minister of State for Information Technology, Ms. Anusha Rehman Ahmed Khan received the prestigious award, accompanied by Chairman PTA, Dr. Syed Ismail Shah.

Implementation of Mobile Banking Interoperability

In order to formulate the mechanism of introducing an interoperable mobile banking model, PTA issued the 'Regulations for Technical Implementation of Mobile Banking, 2016'. Under these regulations, PTA has invited applications for the issuance of Third Party Service Providers (TPSP) licenses that will bring true interoperability between the CMOs and financial institutions. TPSP licenses also specify the quality of service benchmarks and security standards required for protecting consumer sensitive data and transaction data. Authorized banks and CMOs are also required to put in place an effective complaint handling mechanism. It is expected that the TPSP licenses will contribute towards Government's National Financial Inclusion Strategy (NFIS) for inclusion of the financially un-served population into the documented economy.

Third Party Audit of Biometric Verification System (BVS)

Biometric re-verification of SIMs project produced a clean, streamlined and verified pool of cellular mobile subscriber data as every issued SIM is mapped against a CNIC. However, in order to ensure that the desired results of BVS have been attained, PTA contracted an independent company to carry out a third party audit of Biometric Verification System (BVS). Specialized audit software was developed and tested and subsequently bulk/production BVS data from CMOs and NADRA was obtained and loaded into the system. The audit was carried out in phases and observations were forwarded to CMOs for justifications (if any) before preparing final report. The responses received from CMOs were evaluated and the final audit report was approved by the Authority to initiate the Transfer of Technology (ToT).

Cellular Mobile Operators' Quality of Service Surveys (QoS)

It is one of the assigned responsibilities of PTA to regularly assess the quality of service being provided to the consumers. In this regard, a joint QoS Survey with CMOs was conducted in Sibbi, Zhob, Loralai, Khuzdar, Quetta, Katalng, Mardan, Khanewal, Dera Ghazi Khan, Vehari, Muzaffarghar, Bahwalpur, BahawalnagharRajanpur), Torghar, Gadani, Gwadar, Peshawar - Rawalpindi Motorway, Chiniot,

Enabling Progressive Telecom Environment

Layyah, Jamshoro, Bhimber, Mirpur, Jhelum, Bannu, Ziarat, Noshki & Gilgit during the FY2016-17. The results containing observation of the each survey was shared with the concerned CMOs for taking corrective measures to ensure provision of quality services as per their respective licensed KPIs.

Setting the Minimum Sale Price for SIMs

Cellular mobile market of Pakistan is highly competitive and often the operators offer excessive free resources such as absorption of activation tax, free voice minutes and data, and concessions to acquire or retain new customers. Therefore, customers often switch networks to avail these lucrative offers using Mobile Number Portability (MNP) or by simply buying a new SIM. However, the operators tried to counter this trend by imposing a fee for disowning of the SIMs. PTA believes that such a market practice is against the spirit of the competition that also results into huge number of dormant/churned numbers.

PTA has now set the minimum sale price of Rs. 200 for a SIM at the retail level for Pakistan and AJ&K and GB. Furthermore, CMOs are not allowed to demand and / or charge the customers for disowning of SIMs. The decision was implemented on 9th December 2016 effective immediately across Pakistan and AJK & GB. Moreover, in order to verify the implementation of the decision, PTA carried out a number of surveys in a phased manner. Observations /concerns noted during the surveys were conveyed to the CMOs with the intimation that the violators will be dealt with strictly under the current legal framework.

Online NOC Portal

Citizens of Pakistan often bring new handsets from abroad which require NOC from PTA before clearance by the Customs Department in order to ensure that only genuine and type-approved mobile handsets are being used. PTA issues NOC to such individuals after completing the due process for which the customers used to visit the PTA office or email the requisite documents. For the ease of general public, PTA has introduced an online NOC portal system for personal NOC issuance (http://mip.pta.gov.pk/noc/). The portal provides web-based NOC issuance service without the need of the consumer to personally visit the PTA office. The automation of the NOC issuance system has also optimized the working procedures and reduced the time for NOC issuance for the consumers.

Survey to Check Access of Mobile Subscribers to Emergency Services

In emergency situations, swift and smooth access to government emergency services, including connections to local police, fire and ambulance assistance etc. becomes very important. All cellular mobile operators have set-up emergency codes for the consumers. However, the verification, accuracy and quality of support offered by the operators were checked through a special survey by PTA's zonal offices. During the survey, a total of 21 Emergency Short Codes were checked in Zones. The observations were taken up with operators to update backend numbers which has been taken care of.

Enabling Progressive Telecom Environment

Pre-intimation to PTA for Introduction of New/Changed Tariff Packages

With the introduction of 3G/4G services and merger of Mobilink and Warid, a significant reshuffling of tariff plans, offers, bundles, packages etc. has been observed. CMOs are introducing new plans as well as changing current tariffs at regular intervals. In order to keep an eye on the market in terms of price offers, bundles, packages and plans, PTA has directed the industry to inform the Authority prior to launching any new tariff plans and/or change in tariffs so that any undue price war or unfair market practices can be avoided.

Action against Violation of Short Codes

PTA observed with great concern that Inami (prize) schemes are being launched using short codes allocated by PTA which is a clear violation of the terms and conditions for allocation of short codes. Therefore, PTA actively started a campaign against illegal and fraudulent prize schemes that were causing problems to telecom consumers. PTA has recently launched a compliance drive, to check illegal use of short codes by the operators. Operators / organizations found in violation are sent warning letters to immediately halt all such activities. Furthermore, PTA has also issued a generic Order, where all operators/organizations have been warned not to run any prize/Inami/promotional schemes/Lottery/Lucky Draw/Game of change otherwise they will face strict action by PTA. Moreover, to further strengthen the regulatory framework on the matter, PTA amended the Telecom Consumer Protection Regulations 2009. Pursuant to the amendments in Regulations, the operators are required to inform the Authority about any commercial scheme along with its key features including the tariff and other charges applicable to it. PTA, on receipt of the information may alter, restrict, suspend or impose any additional conditions in the commercial activity or Telecom Promotional scheme if deemed necessary.

Device Identification Registration Blocking System (DIRBS)

As per Section 9.6 of Telecommunication Policy 2015, the Government of Pakistan has mandated PTA to develop a regulatory framework for the type approval of imported devices, blocking of stolen and duplicate devices etc. in consultation with the relevant stakeholders. For the purpose, PTA is developing a specialized system that will identify, register and block the devices. The system will check that all SIM based devices must have a valid and a unique IMEI and the blocked/invalid devices are not operational on any network. At the same time, PTA is also devising comprehensive framework and relevant Regulations that will govern the operations of the system.

Internet Exchange Points (IXPs) in Pakistan

Internet Exchange Points (IXPs) are vital elements of Internet infrastructure that enable networks to exchange traffic with each other. Multiple Internet Service providers (ISPs) can connect at a single IXP, creating the potential for a range of technical and economic benefits for the local Internet community. By keeping local traffic local and avoiding international links, local operators and users can reap

substantial cost savings, optimize local bandwidth, and significantly improve local Internet performance. Telecom Policy 2015 also advocates the establishment of Internet Exchange Points with the consultation of all stakeholders.

PTA took the leading role in making consensus amongst all stakeholders of IXP, under the instructions of Dr. Ismail Shah, Chairman, PTA. A series of meetings were conducted amongst all stakeholders of IXP, comprising of PTA, ISPs, mobile phone operators and academia. Resultantly, HEC was selected as a neutral and independent venue for hosting IXP. With the cooperation of HEC, eight operators including PTCL, Nayatel, Telenor, Wateen, Multinet, Cybernet, Wi-Tribe and PERN have terminated their fiber at HEC and are exchanging local Internet traffic with each other, where aggregate traffic has reached 2.5 Gbps, during peak hours of test connectivity, whereas rest of the operators are in the process of terminating their fiber. It is expected that more traffic will be exchanged at Karachi and Lahore IXPs.

Mobile App Awards 2016

PTA continues its efforts to promote innovation and foster entrepreneurship culture among the young software developers of the country. 'Pakistan Mobile App Awards' is one such initiative of PTA where the best mobile application developers are rewarded each year. This year, the competition was based on mobile application development for Persons with Disabilities (PWDs). PTA expects that the rapid technological developments in the mobile segment will enable the PWDs to lead a better life, be more independent, self-sufficient and more importantly, become an earning hand for their families. Therefore, the mobile application developers were invited to develop mobile applications that

specifically address the needs of PWDs. The winners were awarded with cash prizes by the Honourable President of Pakistan, Mr. Mamnoon Hussain as the Chief Guest who signified the Government's patronage by gracing the prize distribution in a grand ceremony of the event, which was attended by representatives from the telecom sector, government, academia, ICT companies, students and more importantly, the PWDs themselves.

Enabling Progressive Telecom Environment

Chapter 3

ICT the Key to Achieve Sustainable Development Goals

United Nations' Sustainable Development Goals (SDGs) represent unified commitment of 193 countries to end poverty, combat hunger, and disease, injustice by promoting peace, social justice and human dignity. In September 2000, world leaders committed to partner together to reduce extreme poverty in all its forms – a commitment that was expressed by the Millennium Development Goals (MDGs) set to be achieved by 2015. Although the world made progress on MDGs, yet the targets could not be achieved. Therefore, it was realized by the world leaders that the sustainable economic, social and environmental development are linked and must be addressed in a cohesive manner in order to achieve the shared vision of a better future. Hence, SDGs represent a global, multi-stakeholder, action-oriented commitment by the nations of the world.

ICTs are the cross-cutting enablers that can play a central role in achieving the goals and targets set under the SDGs. Just like the SDGs cover all important areas of human and planetary development, ICTs have established their role as the bedrock of innovation in every walk of life. The world is getting more connected day by day with rapid technology diffusion, especially broadband. According to recent projections by Ericsson, mobile broadband coverage worldwide will go from almost 1 billion subscribers in 2010 to 7.7 billion subscribers, covering roughly 90 percent of the world's population with almost 6.1 billion Smartphone subscriptions by the end of 2020. Hence, ICTs presence and influence on the social, economic and environmental sectors will be crucial to achieving the SDGs.

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SUSTAINABLE DEVELOPMENT GOALS

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ICTs Recognized in the SDGs

ICTs are cross-cutting enablers that are explicitly mentioned under four different goals to ensure inclusive and equitable quality education, achieve gender equality, build infrastructure and strengthen the global partnership for sustainable development. However, the role of ICTs is much more elaborate and profound in every Goal and target set under the SDGs. ICTs will play a special role in today's low-income countries, a point strongly and cogently emphasized by the UN's Broadband Commission. In essence, ICTs are helping the world population to "leapfrog" by developing

transformational technologies, enabling all countries to close many technology gaps at record speed.[8] Information dissemination, reducing the cost of service, better public governance and ease of doing business are some of the key areas that ICTs can empower in the near future. The collective advantage of these ICT developments will be the important catalyst in the world's efforts to achieving the SDGs.

Pakistan's Roadmap for Achieving SDGs

The Government of Pakistan has shown full commitment towards achieving the SDGs by becoming the world's first Parliament to formally adopt SDGs as the nation's development agenda in 2016. The Ministry of Planning, Development and Reform has devised integrated monitoring framework in the shape of Federal SDG Support Unit, in coordination with UNDP, linked with provincial SDG Units. The Government also conducted discussions on post-Millennium Development Goals (MDGs) with all stakeholders for coordinating and streng- thening efforts at federal and provincial levels to achieve Pakistan's sustain- able development and poverty reduction targets. The consultation process emphasized the need for national categorization of SDGs, improved data collection and enforce-

139.6 million Cellular Mobile Suscbribers	**40.6 million** Mobile Broadband Subscribers	**70%** Mobile Broadband Coverage
18 million SmartPhone Users	**19%** Internet Users	**1.56 GB** Average Mobile Data Usage per subscriber per month
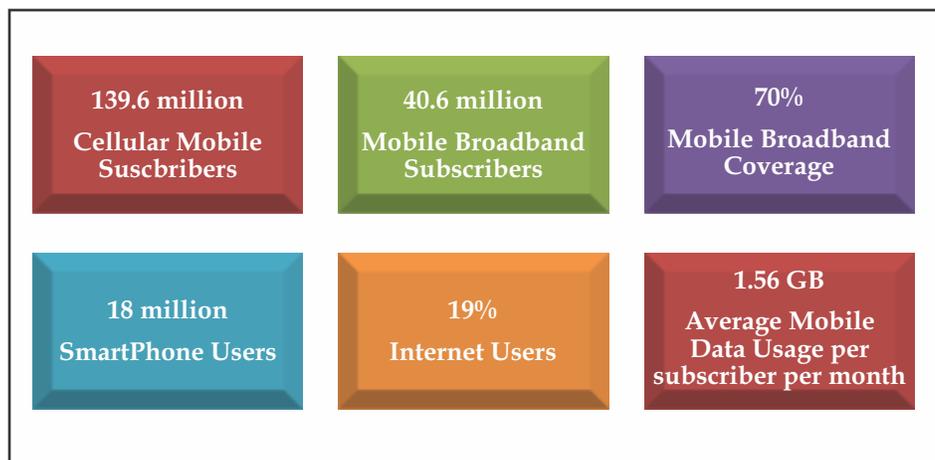
ment of monitoring mechanisms. The seven pillars of Vision-2025 are fully aligned with the SDGs, providing a comprehensive long-term strategy for achieving inclusive growth and sustainable development.

Digital Profile of Pakistan has improved substantially over the last few years, especially after the introduction of mobile broadband (3G, 4G LTE). Internet and broadband penetration has spiked which in turn, accelerated the growth of e-/m-services such as e-commerce, mobile banking, e-agriculture, telemedicine, e-health, e-education, travel and most importantly e–governance. Access, infrastructure, adoption and use of the ICTs has spanned across every sector of the economy. The digital profile of Pakistan, as depicted in the figure signifies the potential of the ICTs to achieve the SDGs.

Role of ICTs

SDGs have also been given significant prominence in the Ministry of Information Technology's upcoming Digital Pakistan Policy 2017. The Policy specifically mentions the use of ICTs for education (SDG 4), for women and youth empowerment (SDG 5 and 10) and for capacity building of girls (SDG

[8]"Means of Transformation: Harnessing Broadband for the Post-2015 Development Agenda" (2014) World Economic Forum,. Global Information Technology Report. 2015

ICT the Key to Achieve Sustainable Development Goals

5). Moreover, PTA has also highlighted the importance of tracking the ICT indicators for effective monitoring of the SDGs to the important stakeholders in the Government of Pakistan. PTA believes that a coordinated and holistic approach to include and monitor the ICT indicators in the tracking of SDGs should be a mandatory component of the Government's strategy.

Many organizations in the Government and private sector are undertaking initiatives that are directly and indirectly contributing towards achieving the SDGs. For poverty alleviation, ICTs have already proven to be a highly successful tool for funds disbursement to the needy through the Benazir Income Support Programme (BISP). For sustainable and efficient agriculture production, cellular mobile operators and e-Agriculture community have launched applications to provide updated weather forecasts, market prices, farm advisory etc. to the farmers. Among the e-health initiatives, DoctHers and 'Jaroka' are some of the ITU award winning innovative applications that are making difference in the medical services delivery in Pakistan. In the education sector, major initiatives have been taken such as elearn.punjab, virtual university, Pakistan Education & Research Network (PERN), National Digital Library, Pakistan Sign Language etc. For gender equality and women empowerment, the Government of Pakistan has given special attention to the IT capacity building of the girls and PTA has also conducted training for women in mobile application development. For the employment, especially for youth, the Government has set up 4 incubation centers in Islamabad, Karachi, Lahore and Peshawar, startup funding and awareness about entrepreneurship among the young graduates to make them self-sufficient. For the safety and security of the citizens, Safe City project is a massive step by the Government which makes extensive use of ICT solutions to keep a watchful eye on the city. To make the Persons with Disabilities inclusive members of the society, PTA held a competition 'Mobile App Awards 2016' where the outstanding applications to address the needs of PWDs were awarded by the Honorable President of Pakistan. To provide swift justice and crime reporting, online FIR is a revolutionary step by the Government of Pakistan in the KPK province.

Way Forward

The Government, academic and other institutions, businesses and people must prepare themselves for this ICT-enabled transformation. In order to do that, every actor in the ICT ecosystem has to perform its role efficiently. The central role of effectively utilizing ICTs for achieving SDGs rests with the Government of Pakistan. The Government needs to ensure that the entire public sector, including service delivery in health, education, and infrastructure, is fully supported by high quality ICT infrastructure. In order to do so, the Government should connect public facilities with broadband connectivity, equip and train public official and service providers with ICT tools, roll out ICT-based delivery systems for healthcare, education, and Infrastructure, promote Internet of Things for the public infrastructure and environmental management, encourage academia to scale up education and incubation of ICT solutions, encourage the Public-Private Partnerships (PPPs) for ICT-enabled systems and also deploy an ICT-based SDG information system that connects public services, public facilities, the business sector, and the public. Following are some of the key ICT solutions that can help in achieving the SDGs at the national level: -

i.   Mobile Money has made significant inroads into the economy of Pakistan but there is a need to formally adopt mobile money into the governance system, especially to disburse payments (Government and private), small loans, collect and distribute donations and transfer money between citizens. (SDG 1)

ii.   A national level ICT based agriculture information system should be developed that can provide accurate, timely and updated information to the farmers through mobile phones. (SDG 2)

iii. A centralized health record system should be developed that can provide updated and timely medical information to the doctors by tracking the patient history, especially in emergency cases. Moreover, e-health projects such as DoctHers can improve the doctor-to-patient ratio by providing online examination services to the far flung areas of the country. (SDG 3)

iv.   The endless possibilities of online education, virtual classrooms, digital books, distance learning and Massive Open Online Courses (MOOCs) should be utilized to ensure that equal learning opportunities are available for all. Moreover, the geographic limitations on the access to course contents of the leading schools in the world can also be diminished by using ICTs. (SDG 4)

v.   ICTs are powerful tools to empower women and girls by providing them home-based educational and employment opportunities. At the Policy level, promoting the use of ICT based work-from-home solutions help in reduction of the unemployment ratio in the females that currently stands at double to that of males in Pakistan. (SDG 5)

vi.   The local governments should utilize the latest innovations in Internet of Things and intelligence based systems for smart water management, online monitoring and control of the water resources and optimizing the water allocation to ensure availability of clean water to the citizens. (SDG 6)

vii.   Smart grids, renewable energy solutions, remote monitoring of the carbon emissions by the factories etc. should be made part of the national energy and electricity Policies in order to improve the efficiency of energy production in the country. An example of this approach is the smart management of standard household gas water geysers via device under testing by SNGPL (SDG 7)

viii. Inculcating entrepreneurship culture using ICTs can reduce pressure on the economy to absorb the huge pool of educated youngsters looking for jobs. The benefits of online employment opportunities, freelance work, blogging, business through social media and startup support programmes should be highlighted to the youth. (SDG 8)

ICT the Key to Achieve Sustainable Development Goals

ix.   National level ICT infrastructure initiatives are the key to reap true benefits of ICTs. Universal Service Fund, operators' expansion, international connectivity and last-mile solutions should be accelerated to provide the perfect platform for ICT innovation in the country. (SDG 9)

x.   The Government and private sector should empower Persons with Disabilities and balance the gender inequality in the country. On the global level, removing barriers to trade and learning opportunities by providing online access to such resources can reduce the inequality among the countries. (SDG 10)

xi.   All the stakeholders should collaborate to realize the dream of creating a digitally enabled Pakistan by adopting the 'Smart City' concept where the smart meters, smart surveillance and smart traffic systems make the cities more inclusive, safe and resilient. (SDG 11)

xii. A national level e-portal should be developed to track the status of natural resources, reduce e-waste, procurement and information dissemination to the public for adopting sustainable lifestyles. (SDG 12).

xiii. A national level Emergency Telecommunication Framework is already under formulation with the help of ITU. It is imperative to promulgate the same and ensure its compliance by all the stakeholders including a periodic monitoring system. (SDG 13)

xiv. The Governments and private sector can use data analytics and mining techniques to pool the national statistics on the oceans, seas and marine life and make it available online to the researchers, students and organizations for further research and development. (SDG 14)

xv.   Big data should be used to analyze biodiversity, climate changes, fresh water ecosystem etc. for the development and conservation of terrestrial resources. (SDG 15)

xvi. The Law enforcement agencies can take advantage of the ICT solutions to offer citizen-centric services through mobile phones to report violence, abuse, exploitation, crimes and other illegal activities. Similarly, electoral voting process can be made transparent using biometric/smart voting systems. (SDG 16)

xvii. By using ICTs and social media outreach, the Government of Pakistan and its citizens can enhance international cooperation and coordination with the world. Moreover, capacity building opportunities can be made available through remote connection with the leading research institutions, organizations, academic circles etc. (SGD 17)

ICT the Key to Achieve Sustainable Development Goals

Chapter 4

DIGITAL FINANCIAL INCLUSION AND MOBILE BANKING

Pakistan's National Financial Inclusion Strategy (NFIS) has set the target to increase access to formal accounts to 50% of the adult population by 2020 and acknowledges that a rapid and substantial expansion of digital accounts, accessible through mobile phones, is achievable. State Bank of Pakistan (SBP) and PTA are continuously engaged with all the relevant stakeholders NADRA, Financial Institutions, Cellular mobile operators, technology solution providers and development organizations for achieving financial inclusion goals set forth in the NFIS. This chapter provides a review of recent developments in the landscape of Digital Financial Services (DFS) and the initiatives taken towards digital financial inclusion and provision of better DFS ecosystem in Pakistan. [9]

Implementation of National Financial Inclusion Strategy

In line with country's requirements and global trends, NFIS has set up a national vision for universal financial inclusion in Pakistan. The strategy was formally launched on May 22, 2015. The objective of the strategy is to build momentum and push forward reforms to achieve universal financial inclusion in an integrated and sustained manner. To implement the strategy, NFIS coordination structure (NFIS council, steering and technical committees) has been set up with participation from both, the public and private sector stakeholders.

PTA is an active part of the NFIS implementation: Chairman PTA is member of the NFIS Council, Member (Finance), PTA is a co-opted member of NFIS Council as well as a member of the NFIS steering committee, and PTA is also participating at various NFIS technical committees. More than 160 members from the private sector, ministries, government organizations, regulators and associations are participating in different technical committees formed to identify plans and solutions for the implementations of NFIS.

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[9] This chapter has been prepared by including valuable contributions received from State Bank of Pakistan, Karandaaz Pakistan, Telenor Pakistan and Jazz.

The implementation of NFIS is focusing on the following actions:

- Facilitate account opening such as mobile banking (M-wallets) and Asaan accounts to expand access and drive scale.
- Increase access points like bank branches, banking agents, ATMs, Point of Sale Machines etc.
- Build capacity of banks to provide easy and need based loan products to small and micro businesses.
- Raising financial awareness of poor people and women.

Under the chairmanship of the Finance Minister, NFIS council has held five meetings and NFIS has enhanced coordination among the regulators (PTA, SBP and SECP) to achieve NFIS outcomes. NADRA's verification cost has been brought down to Rs. 10 for opening of new branchless banking accounts.

To adjust with the technological advancements and growing market dynamics, the branchless banking regulations of SBP were also revised in June 2016. The recent updates allow remote account opening through USSD channel as well as through biometric verification system devices installed at agent locations. This has further facilitated the financially excluded socio-economic segment to open their branchless banking accounts through the agents present in their near vicinity.

Interoperability Solutions for Mobile Financial Services

The widespread proliferation of cellular mobile services in Pakistan has opened up new avenues of possibility for bringing the unbanked communities into banking net through mobile banking. To harness the full potential of such services, PTA aimed to frame relevant telecom sector regulations to govern mobile banking implementations and settling of "any to any" transactions involving multiple financial institutions at the back end and multiple networks at the other end through a Third Party Service Provider (TPSP). For the purpose, PTA and SBP have jointly developed a TPSP framework for interoperability of mobile financial services through the issuance of PTA's "Regulations for Technical Implementation of Mobile Banking" and SBP's "Regulations for Mobile Banking Interoperability" on 16th May, 2016. These regulations provide an appropriate technological & regulatory framework to maximise the usage and number of bank accounts in Pakistan, which is the main target of National Financial Inclusion Strategy (NFIS), 2015 developed by the Government of Pakistan.

Following the promulgation of Regulations for Technical Implementation of Mobile Banking, 2016, PTA has initiated Licensing to establish, maintain and operate telecom system as TPSP for financial and application services across Pakistan. TPSP license permits the licensee to provide technical services for channelling, routing, and switching transactions for branchless/mobile banking among SBP's Authorised Financial Institutions (AFIs), telecom operator(s) and TPSP(s). In this regard, PTA

published an Information Memorandum (IM) which sets out the process and other background information to help prospective applicants to decide if they wish to apply for TPSP license.

Currently, PTA and SBP are processing the applications received for TPSP and would be issuing licenses soon that will enable these service providers to introduce interoperability solutions in the branchless / mobile banking domain in collaboration with the banks and cellular mobile operators.

Unified USSD Platform for Asaan Mobile Accounts

TPSP framework facilitates the implementation of Asaan Mobile Accounts (AMA) scheme under which the digital financial services providers will join an integrated platform, allowing any person with a basic mobile phone to open a mobile banking account swiftly through a Unified Unstructured Supplementary Service Data (USSD) code or String from anywhere, at any time.

AMA scheme and TPSPs will improve accessibility of new customers for account opening, drive usage of digital financial services through increased number of account-to-account transactions across various networks and provide digital access to a range of quality financial services. This will facilitate the poor and marginalized sections of the society towards adopting digital payments and also transform banks to shift their focus from 'Over-the-Counter' (OTC) services to branchless / mobile banking accounts.

AMA scheme will have mandatory subscription for all existing mobile banking providers and new players, and provides interoperability- payments switch. Facilitation of AMA scheme will include reduced NADRA verification cost and tax incentives.

Digitization of Government Payments

There is substantial evidence that digitizing government payments reduces delivery costs, connects citizens to digital financial systems, cuts leakages, improves transparency and reduces the risk of government payments being made to fake recipients. Following initiatives have been taken to digitize Person to Government (P2G) and Government to Person (G2P) payments.[10]

National Bank of Pakistan (NBP) Payments Digitization Strategy: 70 percent of the 20 million walk-in customers who access NBP's network of 1,400 branches across Pakistan every year are unbanked. The transaction volume of G2G/P2G payments that goes through NBP systems collectively amounts to more than Rs. 4.5 trillion a year. NBP is developing a comprehensive Digital Strategy to digitize its government payment (G2P/P2G) flows through multiple digital channels in order to enhance efficiency and convenience for both the Bank and its customers. In the next phase, NBP will install a payment aggregator and will also develop a mobile financial services platform. It is expected that Rs. 3

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[10] Karaandaz Pakistan has collaborated with several Government Organizations in digitization of their payment services.

Digital Financial Inclusion And Mobile Banking

trillion worth of P2G transactions and Rs. 1.5 trillion worth of G2P transactions per year can be digitized.

Pakistan Post Digitization: Pakistan Post has one of the oldest and largest distribution networks with unparalleled penetration into rural areas. Pakistan Post in collaboration with other stakeholders is building a road map for digitization of its money order service. It is expected that 4 million savings accounts customers of Pakistan Post will be digitized.

Benazir Income Support Programme (BISP): BISP makes social cash transfers of around Rs. 120 billion (US$ 1.15 billion) per year to approximately five million beneficiaries. BISP is developing a better payment model that will enable cash transfers via digital accounts and up-gradation of the existing system to enhance its transparency, efficiency and redressal of complaints through real time reporting.

Digitization of Central Directorate of National Savings (CDNS): CDNS is a premier financial institution serving around 7.7 million customers and offering a diversified product mix including retail Government Securities and savings products (known as National Savings Schemes) primarily designed for small savers including those from low-income and excluded segments of the society.

CDNS has initiated banking platform digitization including digitization of data, products and channels, enabling Mobile app and web channels for customers and integration with branchless banking players for a seamless and convenient service delivery to its customers. In first phase, comprehensive digitization strategy including identification of IT infrastructure requirements and creating system linkages to alternative delivery channels, such as mobile wallets, branchless/ mobile banking and smartphone application is in process.

Mobile Financial Services for Agriculture

The agriculture sector in Pakistan plays a vital role to the economy. 43% of the labor force is employed in agriculture and the sector accounts for 21% of the country's GDP. Mobile agricultural services, as a result, play an important role with respect to the development of the sector's efficiency and cost-effectiveness.

To capitalize on the immense potential offered by Digital Mobile technology, smartphone penetration and branchless mobile banking services to uplift the Agriculture Economy, the Agriculture Department of the Government of Punjab and Punjab Information Technology Board (PITB) have partnered with Telenor Pakistan and Telenor Microfinance Bank for the "Connected Agriculture Platform Punjab (CAPP)" program. Karandaaz is providing technical assistance for the program.

As part of the CAPP program, Interest-Free Loans will be disbursed to small farmers through EasyPaisa Mobile Wallets while Telenor will also develop a digital platform comprising multiple

mobile and web apps to help millions of farmers in Punjab to improve their yield through easily accessible advisory of modern agriculture practices and improved access to experts and input providers.

The CAPP aims to revolutionize agriculture practices across the province by connecting all stakeholders in the Agriculture Value Chain including but not limited to agriculture input providers, farmers research institutions, commodity buyers, supply chain services providers, and agriculture extension workers. As part of CAPP Program, 500,000 plus eligible farmers will also get 3G/4G-enabled smartphones along with free SIM cards and data bundles. To enable farmers to utilize the full potential of this platform, hundreds of facilitation centers and booths will be established across the province and training of thousands of farmers will be conducted and Digital App Gurus will be appointed at each Moza/Village level.

Regulatory Compliance by Mobile Banking Agents

Mobile banking agents have played a critical role in the expansion of mobile banking services among the unbanked population. Currently, approx. 100,000 unique mobile banking agents are providing services across Pakistan. However, due to weak regulatory compliance at agents' locations, mischievous/fraudulent activities have been reported to PTA and SBP. In this regard, two measures have been taken: First, a mandatory requirement of biometric verification for m-banking transactions at agents location has been from 1st July, 2017. Second, to enforce regulatory compliance, SBP has developed and launched a program titled 'Capacity Building of Branchless Banking Agents', which is envisaged to train agents on a standardized training curriculum.

Promotion of Financial Technology Solutions

Pakistan's FinTech ecosystem is currently at a nascent stage. In order to foster FinTechs and develop the digital financial services ecosystem in the country, Karandaaz Pakistan is arranging a series of "Fintech Disrupt Challenge - FDC", which is one of the key initiatives aiming to promote the use of financial technology solutions. Two FDCs have been held in 2016 and May 2017. In the FDC 2016, 3 start-ups were selected for grants of up to US$ 100,000: (1) Ricult Pakistan: Mobile platform that allows small farmers to buy agricultural inputs on convenient and affordable credit terms; (2) Paysys Labs: Touchless biometric authentication on existing mobile devices without any hardware sensor. (3) Publishex Solutions: Using direct SIM balance to make online purchases.

Initiatives for DFS in Budget 2017-18

- In order to facilitate transactions through mobile banking, e-gateway systems, mobile banking, the Government is establishing a state-of-the-art e-gateway system at the State Bank of Pakistan at a cost of Rs.200 million. Technical training and handholding of the service delivery organizations shall also be undertaken through this project;

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- Exemption from withholding tax on Cash Withdrawals by Branchless Banking Agents: exemptions on withholding tax will be given on withdrawal of cash from branchless banking;

- A Rs.8 billion fund will be created at the State Bank of Pakistan to provide loans to low-income segments through microfinance banks;

- Pakistan Micro Finance Investment Company: The Government of Pakistan launched Pakistan Microfinance Investment Company (PMIC) in 2016 jointly with DFID and KFW (German government-owned development bank) to augment the availability of capital for Micro Finance institutions. It is estimated that this will lead to doubling of small loans.

Updates on the DFS indicators

In the mobile banking market, mobile wallet accounts and agents are playing instrumental role. The biometrically verified SIMs have facilitated the growth of m-wallet accounts during the last two years, and a significant growth has been seen i.e. total mobile banking accounts (m-wallets) in Pakistan were 20 million at the end of Sep, 2016, compared to only 4.2 million in June 2014.

Mobile banking agents have played a key role in the expansion of mobile financial services to the un-banked and far flung areas where traditional bank branches are not available. As of Dec 2016, the combined mobile banking agent network of all providers increased to 360,000 which is 30 times the commercial bank branches (12,000) in Pakistan. (Note: There are approx. 100,000 unique agents).

An increased activity through mobile banking system and expansion of m-wallet accounts enabled the m-banking service providers to process above 437 million annual m-banking transactions during 2016 with a volume of over Rs. 2,096 billion (approx. US$ 20 billion).

Growth in the selected indicators of mobile banking sector is provided in the following graphs:

Mobile Wallets and Number of Agents

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Number of M-banking Transactions
(during Jan to Dec)

Source: State Bank of Pakistan

Amount Transacted through M- banking Accounts
(during Jan to Dec)

Source: State Bank of Pakistan
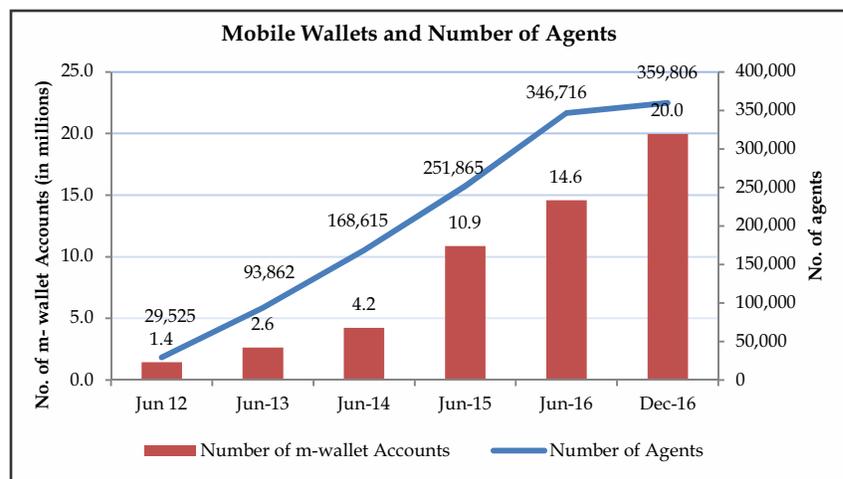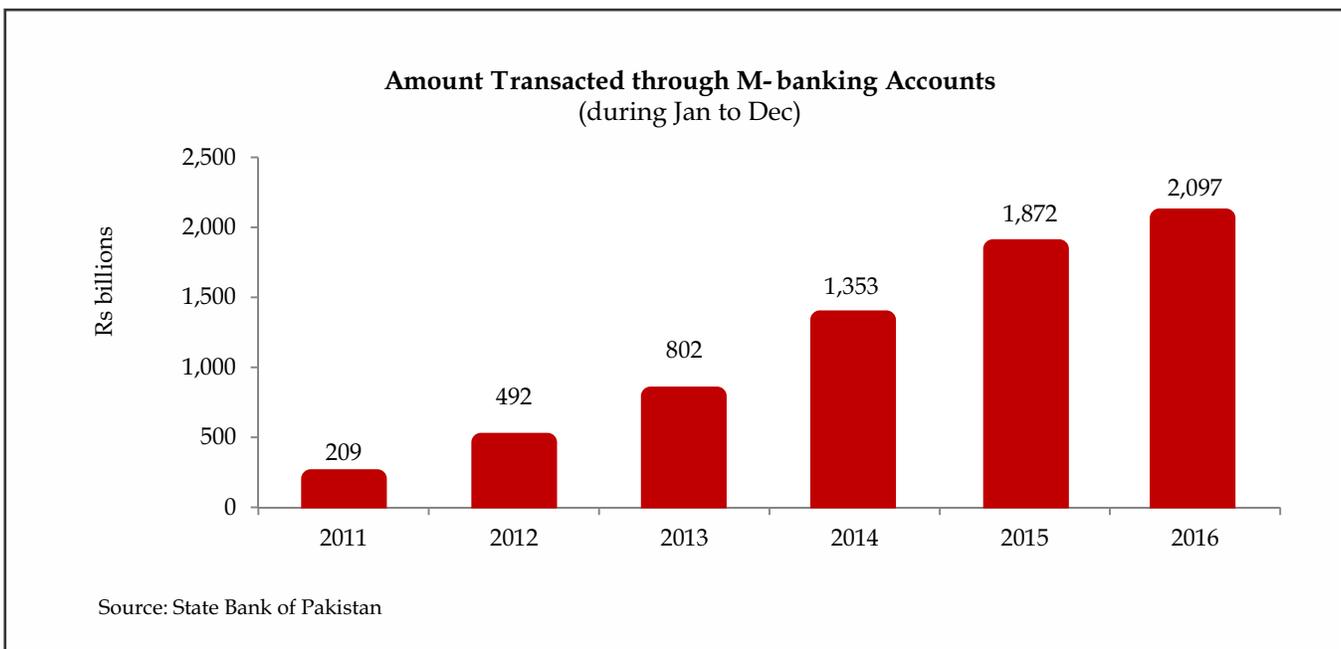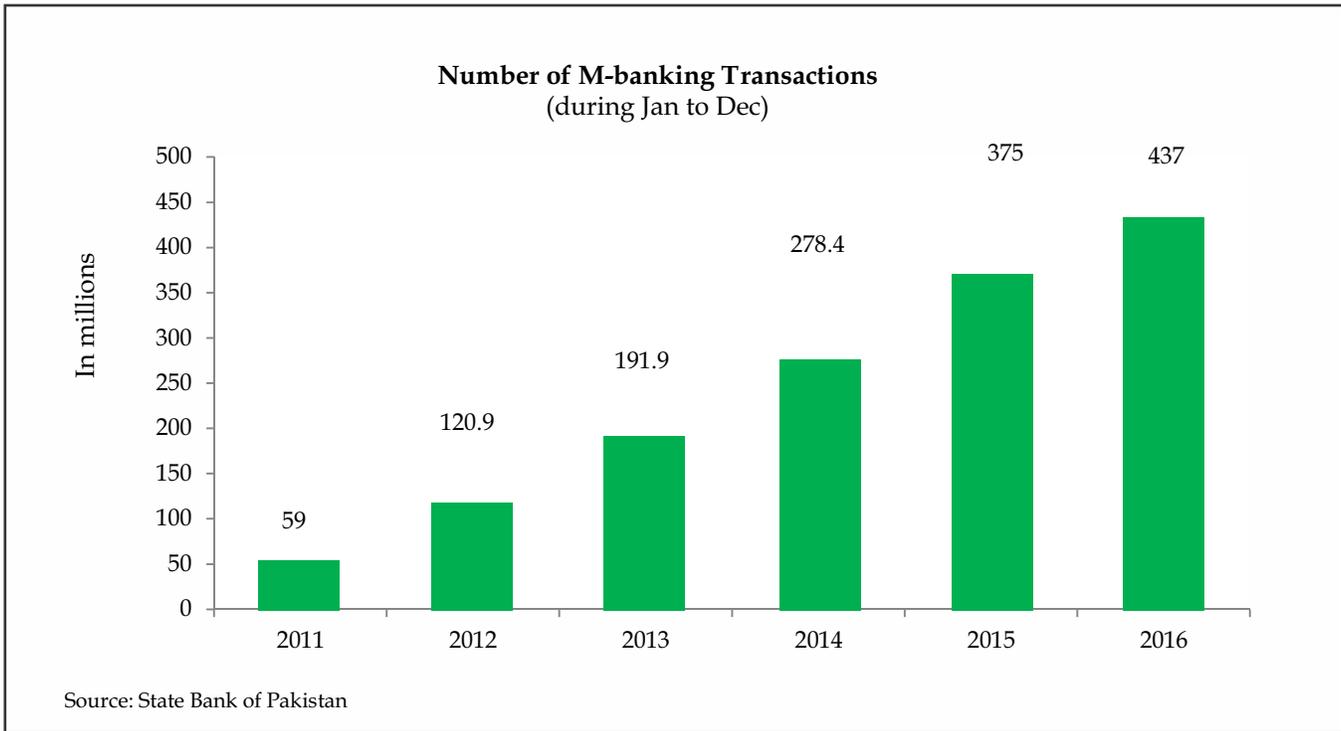
Digital Financial Inclusion And Mobile Banking

Deposits in M - banking Accounts
(As of month end)
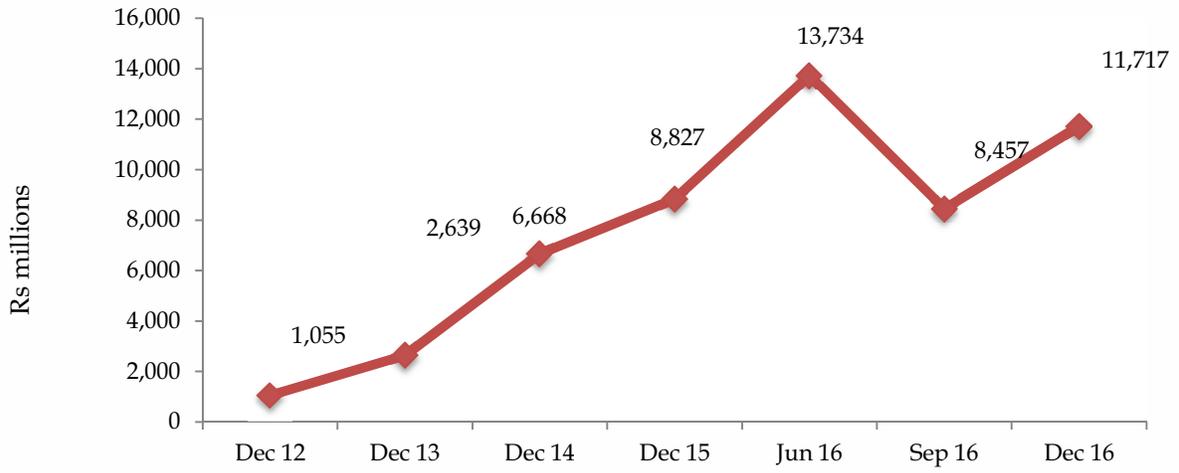
Source: State Bank of Pakistan

Chapter 5

INTERNATIONAL COLLABORATIONS

Telecommunication sector of Pakistan is considered as an exemplary model of regulatory success on the international level. PTA believes that learning from global experiences and introducing latest telecommunication trends in Pakistan is beneficial for carving judicious regulatory framework in the country. Therefore, PTA maintains amicable relations with the intergovernmental bodies and other regulators through participation in the key global telecom events. Moreover, by virtue of studying various regulatory, technical, structural and legal reforms, PTA has been able to enhance the regulatory skills of its manpower in the changing telecom environment. PTA not only participated in the international events such as Mobile World Congress, but also organized regional and global meetings/seminars /forums and symposium to highlight the achievements of Pakistan and discuss the emerging issues of the telecom industry with the leading ICT experts of the world.

## GSMA Mobile World Congress

A high-level delegation of Pakistan, led by Ms. Anusha Rehman Khan, Minister of State, Ministry of Information Technology and Telecom and accompanied by the Chairman PTA participated in the GSMA Mobile World Congress 2017 held from 26 February, 2017 to March 03, 2017 in Barcelona, Spain. Mobile World Congress is the largest annual gathering of the Government and telecom industry where CEOs, regulators, ministries and Policy makers from around the world discuss the challenges and opportunities in the mobile industry. This year, the Mobile World Congress also featured a Ministerial Programme highlighting the positive socio-economic impact of mobile in developing and developed countries.

World Summit on Information Society (WSIS)

Dr. Syed Ismail Shah, Chairman PTA on special invitation of Secretary General of ITU Mr. Houlin Zhao participated in the high level World Summit on Information Society (WSIS Forum 2017) held from 12-16 June, 2017 at ITU HQs in Geneva, Switzerland. The theme of this year's event was Information and knowledge societies for Sustainable Development Goals (SDGs). The WSIS Forum was co-hosted by

ITU, UNESCO, UNDP and UNCTAD and other UN Agencies including FAO, ILO, ITC,UNCHR, WIPO, WHO, WFP, UN Women and UN Regional Commission.

The participants of the Forum discussed and deliberated the implementation of WSIS outcomes through UNGA resolution 70/125 which recognized the necessity of holding WSIS Forum on an annual basis and have called close alignment between WSIS and Sustainable Development Goals (SDG) process. The participants also discussed the ICTs as a means of implementation of the Sustainable Development Goals and targets to implement 2030 Agenda for Sustainable Development. The Forum took stock of progress made in the implementation of the outcome of the WSIS to address the potential Information and Communication Technology Gap and addressing the Challenges including bridging the digital divide.

17th South Asian Telecommunication Regulator's Council

Chairman PTA on the invitation of Asia-Pacific Telecommunity (APT) participated in the annual 17thMeeting of South Asian Telecommunication Regulators' Council (SATRC-17) held from 4-6 October, 2016 in Dhaka, Bangladesh. During the meeting a wide range of issues were discussed which include the key policy and regulatory issues in the area of telecommunications and ICT within the SATRC member countries as well as outcome of SATRC Action Plan Phase V and proposal and recommendations for adoption of SATRC Action Plan phase VI. The aim of the meeting was to address the regulatory issues and challenges of common concern to the SATRC members that arise due to market dynamics, technological developments, and innovations in the field of information and communications. It was discussed in the meeting that SATRC members will utilize their expertise and financial resources for the benefit of the people of member countries.

Regional Development Forum (RDF) for Asia Pacific Region

Chairman, PTA participated in the Regional Development Forum (RDF) for Asia Pacific Region "ICTs for Sustainable Development in Asia Pacific" (RDF-ASP 2017) held from 20-23 March, 2017 in Bali, Indonesia. Dr. Syed Ismail Shah, Chairman PTA was invited by ITU as a guest speaker to share the views and experience on Harnessing ICTs for an inclusive and sustainable connected society opportunities and challenges. During the RDF, the issues discussed were Development of Broadband access and adoption of broadband, Emergency Telecommunication, Mobile Health Programme initiatives and Harnessing ICTs for an inclusive and sustainable connected society, Opportunities and Challenges.

US Commercial Law Development Programme (CLDP) Consultation and Training

CLDP offered capacity building opportunity to PTA officers in USA, where about 15 senior officers of PTA went to USA to visit different technology giants such as Google, Microsoft, etc. and interacted with esteemed organizations like FCC, World Bank, and major telecom operators. The delegation was

headed by Chairman PTA also visited USA where they conducted meetings with counterpart Regulators at US Federal Communication Commission, other US Government Organizations and Scholars. The delegation also participated in the United Nations Internet Governance Program at Guadalajara in Mexico. The purpose of the Consultation and Training was to provide an overview of how the US Government regulates telecommunications within the United States and also familiarizing them with the deregulation of Mexican telecommunication sector as well as expansion of US companies in the country. The objective of this initiative was to prepare the Pakistan delegation to attend the United Nations Internet Governance Forum (IGF) from 5 - 9 December, 2016 at Guadalajara, Mexico.

6th Meeting of the ITU Focus Group

PTA represented the Sixth meeting of the Focus Group on Digital Financial Services held from 19-22 September 2016 in Dar Es Salam, Tanzania. Mr. Tariq Sultan, Member (Finance) PTA participated in the meeting. The FG DFS meeting was open to ITU Member States, Sector Members, Associates, and Academia. The ITU Telecommunication Standardization Bureau organized the meeting of the ITU Focus Group on Digital Financial Services. The aim and objective of the meeting was to discuss the provision of access to the people and all aspects of digital economy such as payments, education, health etc. The purpose of the gathering was to find out the way forward for the provision of knowledge for access to billions of adults mostly in developing countries regard to financial services such as formal bank account at financial institutions as most of them are considered "financially excluded" operating entirely in cash.

Seventh Meeting of the ITU Focus Group

Member (Finance) represented PTA in the Seventh meeting of the ITU-T Focus Group on Digital Financial Services (FG DFS) and workshop on Digital Financial Services and Financial Inclusion that was held from 6-9 December, 2016 at Geneva, Switzerland. The participants included Regulators, ICT

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companies, Central Banks, Mobile Network Operators, Mobile Money Operators, Payments Services providers and Academia. The aforesaid Seventh Meeting of the FG DFS was the final meeting of ITU-T Focus Group on Digital Financial Services. The recommendations and deliverables of the Focus Group were presented at this meeting. During the seventh meeting of the Focus Group, future course of action of the Group was discussed. The meeting remained very helpful to achieve the goal of Government of Pakistan as per the National Financial Inclusion strategy.

14th ITU Indicators Symposium

PTA delegation comprising of Mr. Tariq Sultan, Member (Finance) and Mr. Muhammad Arif Sargana, Director (Economic Affairs), participated in the 14th ITU World Telecommunication ICT Indicators Symposium held from 21-23 November, 2016 at Gaborone, Botswana. The event was organized by the Telecommunication Development Bureau of the ITU and was hosted by the Government of Botswana. The WTIS-2016 was a key event which brought together ICT and telecom heads of Regulatory Authorities and National Statistical Offices, heads of International Organizations Chief Executive Offices of Private sector Companies and statistical experts to discuss international ICT policy and statistical elements which lead to global ICT rankings of the countries. During the event, among other things, issues related to cyber-security, e-commerce and big data as well as developments in monitoring the price and affordability of ICT services were discussed.

24th Meeting of ITU Advisory Group (RAG)

Mr. Abdul Samad, Member (Compliance & Enforcement), PTA participated in the International Telecommunication Union (ITU) Twenty Fourth Meeting of the Radiocommunication Advisory Group (RAG) held from 26-28 April, 2016 in Geneva, Switzerland. ITU organized the RAG meeting as per Article 11A of the ITU Convention and the meeting was open for administrations of member states and representatives of Sector Members as well as Chairmen of the Study Groups and others.

During the meeting the participants of the RAG reviewed priorities, programmes, operations, financial matters and strategies related to Radiocommunication Assemblies, study groups,

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preparations of Radiocommunication conferences and other specific matters. The RAG recommends the measures to foster cooperation and coordination with other standards bodies and ITU Telecommunication Standardization sector, telecommunication development sector and General Secretariat. The agenda of the meeting was also included to review the WRC-15 implementation, WRC-19 Preparations, Study Groups activities and draft rolling operational plan for 2017-2020.

Meeting of the SATRC Working Group

PTA participated in the meeting of the SATRC Working Group on Policy Regulation and Services held from 18-19 April, 2017 in Dhaka, Bangladesh. The meeting was part of the activities of SATRC Action Plan Phase VI which was adopted during 17th SATRC Meeting held in October last in Dhaka. The meeting was organized by the APT and was hosted by Bangladesh Telecommunication Regulatory Commission (BTRC). The BTRC objective of the meeting was to conduct the Working Group activities on the work items assigned to them by the Council. This was the first meeting of the Working Group under SATRC Action Plan-VI. The objective of the participation was to deliver presentation and to discuss a number of issues in the areas of telecommunication policy, regulation and consideration of the proposals of work items for SATRC Action Plan phase VI. PTA representative shared the experience of activities on the work items assigned by the Council.

International Workshops, Trainings and Seminars

Through active participation at various International Seminars, Trainings and Workshops, PTA is playing a significant role in the intellectual discussions on the growing issues regarding telecom as well as the upcoming regulatory challenges. PTA is helping to contribute in understanding, developing and implementing best practices in telecom regulations, coping with the latest technological advancement, enhanced cooperation among telecom regulators and highlighting Pakistan's achievements to the telecom world. A brief account of such participations/events, during the period is given below.

ITU Global ICT Capacity Building Symposium

The Chairman PTA participated as Guest Speaker in the Global ICT Capacity Building Symposium (CBS-2016), held in Nairobi, Kenya from 6 to 8 September 2016. The Symposium was organized by the Telecommunication Development Bureau (BDT) of the ITU and hosted by the Communications Authority of Kenya, under the theme "Embracing Capacity Building Opportunities in the Digital Era". ITU invited Chairman, PTA as Guest Speaker to speak on establishing coherence in capacity building and role of regulators as beneficiaries of capacity building. The ITU Global ICT CBS is the main global event for capacity development in the field of Information and Communication Technology. The participants discussed trends and developments in the sector and their implications for human and institutional capacity building. The scope of Capacity Building Symposium is to embrace human and institutional capacity building, drawing on a global network of expertise from different regions and stakeholders.

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Asia Pacific Digital Societies Policy Forum

Dr. Syed Ismail Shah, Chairman, PTA participated as speaker in the 3rdAsia Pacific Digital Societies Policy Forum 2017 held from 8-9, May 2017 in Bangkok, Thailand. Policy Makers, Regulators, Industry leaders and other stakeholder from the ICT Sector attended the event and deliberated the challenges and potential opportunities   cross sectoral collaboration offered by digital societies in Asia Pacific Region. Speakers discussed and highlighted the Policy and Regulatory measures ensuring hyper –connected society, digital economy and society, digital innovation promotion as well as emerging issues in the digital society. Dr. Shah spoke about promotion of ICT to create smarter societies and leading role played for initiatives the for persons with Disabilities, women empowerment, Big data analysis, Internet of Things, Shared Economy and Digital Entrepreneurship.

Workshop on Digital Financial Services and Financial inclusion

Mr. Tariq Sultan, Member (Finance), PTA participated in the Workshop on Digital Financial Services (DFS) and Financial Inclusion held from 19-20 April, 2017 at World Bank, USA The workshop was organized by ITU in partnership with World Bank and the Bill & Melinda Gates Foundation.   The objective of the workshop was to disseminate the output of the ITU Focus Group and Digital Financial Services and provide an overview of future events for next phase. The workshop was attended by ICT Regulators, Central Banks, mobile network operators, mobile money operators, payment service providers and academia. ITU established the Focus Group on Digital Financial Services in 2014 and it completed the assigned work and produced 28 technical reports and 85 recommendations that will usher fast track policy reform for supporting the developing countries in implementing the Financial Inclusion Strategy and promoting digital financial services at large scale.   Mr. Tariq Sultan Member (Finance) PTA shared the progress of implementation of the National Financial Inclusion Strategy and implementation of the Mobile Banking Services in Pakistan.

Workshop on Spectrum and 3rd Spectrum Management Conference

Mr. Abdul Samad, Member (Compliance & Enforcement), PTA participated in the "Workshop on Spectrum in the age of Wireless Communication", and 3rdAnnual Asia Pacific Spectrum Management Conference scheduled from 2-4 May, 2017 in Bangkok, Thailand. The workshop was organized by the ITU and supported by the Ministry of Science, ICT and Future Planning (MSIP), Republic of Korea from 3-4 May, 2017. The workshop was proceeded by the 3rd Annual Asia Pacific Spectrum Management Conference from 2-3 May, 2017. The workshop was designed by the ITU for senior level participation from Policy makers, Regulators, Corporate Executives, and Managers undertaking Spectrum Management responsibilities in their respective organizations. The workshop focused on Digital Broadcasting, Cross Border Interference Management and trends Spectrum Management. The Conference provided a meeting point for spectrum stakeholders to come together and discuss topical issues relating to the management and coordination of spectrum policy across the region.

International Collaborations

ITU World Radiocommunication Seminar

Member (Compliance & Enforcement) PTA represented in the World Radiocommunication Seminar, 2016 (WRS-16) held from 12-16 December, 2016 at Geneva, Switzerland. ITU organizes the World Radiocommunication Seminar on biannual basis for discussion on radio frequency spectrum and satellite orbit issues in particular with reference to application of the provision of ITU Radio Regulation. The delegation from the member countries discussed and debated on the use of the radio-frequency spectrum and the geostationary-satellite and non-geostationary-satellite orbits in accordance with ITU Radio Regulations. In the plenary sessions participants discussed the application of Radio Regulation Provisions, ICT Tools, Space, and terrestrial issues. PTA representative also participated in the 110thanniversary of Radio Regulation on 12thDecember, 2016 in which panel discussion was held on the importance of Radio Regulations.

USTTI Training

PTA has been making extensive efforts to equip its workforce with global experience in telecom techniques and trends for carving judicious regulatory framework in the country in order to achieve sustainable growth of the telecom sector. In this connection PTA officers participated in the training course on "Spectrum Monitoring Techniques and Procedures" held from 26th September, 2016 to 6th October, 2016 in Washington DC USA. The US Department of Commerce under its Commercial Law Development Programme (CLDP) arranged training Course for PTA and FAB officers. The training was provided by USTTI/FCC. The sole aim of this training was to enhance capacity building of PTA/FAB manpower on spectrum related issues as well as sharing ICT knowledge to make the modern communications a reality throughout the developing world.

ITU Asia Pacific Centre of Excellence Training Programme

PTA Officer participated in the ITU Asia Pacific Centre of Excellence Training on "Conformity and Interoperability" held from 17-21 October, 2016 in Chongqing Beijing, People's Republic of China. This face to face training was jointly organized by ITU and the China Academy of Information and Communication Technology as a part of Conformity Interoperability Programme under the ITU Centre of Excellence for Asia Pacific Region. ITU designed the training programme to enhance the strategic understanding of ITU's Conformity and Interoperability Programme, implementation

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mechanism, Conformity Assessment Principles and to develop understanding of typical global certification system with country case study. The participants of the training gained the knowledge to undertake analysis of test specifications and understanding to reduce digital divide and standardization gap. The aim of the training programme was to provide theoretical background, practical experience and key strategic issues involved in this area.

APT Training Course on Internet Plus & 5G

PTA Officer participated in the APT training course on "Internet Plus and 5G"held from 7-14 September, 2016 in Beijing, P.R. of China. The training course was hosted by the Beijing University of Posts and Telecommunication P.R. of China. The objective of the training was to provide knowledge to the participants about terminal platform of cloud computing, core network and core technologies for 5G Spectrum Management etc. The training course provided the participants new technology concept of 5G, Internet Plus, Data Science and Cloud Computing for Internet. Internet Plus has been a hot conception since 2014. It has deeply integrated the Internet with traditional industries and creates new development ecology by use of information and communication and Internet Platform. 5G is known as the fifth generation mobile communication technology which is an extension of 4G. 5G will start its commercialization in 2020 from its operation on commercial basis. The expected data transmission rate will reach 20Gbps.

Spectrum Future Seminar

PTA represented in the Seminar on "Spectrum Future 2016" held from 19-21 October, 2016 in Singapore. The Pacific Telecommunications Council (PTC), a leading professional organization in telecom sector, organized and sponsored the Seminar. The PTC is working for promoting the advancement and commercial use of information and communication technologies, services, policies, and knowledge for the benefit of the member organizations and the people of world. It organizes the conferences, exhibitions and other forums to promote the open exchange of information, ideas and views in the context of commercial, social, economic and other development needs in the region to bring together influential leaders of diversified background for discussion on the issues affecting the development of telecom sector and ICT. The Spectrum Future Seminar brought together the regulators, mobile service providers, ISPs and telcos to exchange ideas about the key innovations and policies that will help bring internet access to billions of underserved people in South and Southeast Asia.

ITU Asia Pacific Regional Workshop

PTA represented in the ITU Asia Pacific Regional Workshop on Spectrum Management: Economic Aspects held from 21-23 November, 2016 at Tehran, Islamic Republic of Iran. The workshop was jointly organized by ITU and Ministry of ICT (I.R. of Iran) supported by Republic of Korea and Australia. The Workshop was designed to address mid to senior level management from Regulators, Policy Makers, Corporate Executives and Managers involved in Spectrum Management responsibilities in their

International Collaborations

respective organizations and specifically its economic side. During the workshop focus was given on priority areas which include National Spectrum and its international dimensions, economics of spectrum as a resource and Spectrum liberalization method of incorporating economic force and market mechanism.

UN ESCAP Workshop

PTA Officer participated in the United Nations Economic and Social Commission for Asia and Pacific event, a Regional Workshop on Internet Traffic Management and E-resilience for the Asia Pacific Information Superhighway (APIS) which was held from 7-8 December, 2016 in Thimphu, Bhutan. The objective of the workshop was to discuss the recently endorsed AP-IS Master Plan, initiatives and review the state of ICT in Asia and Pacific focusing on digital divide and policy options. The participants of the workshop discussed and shared experiences and lesson learnt on Internet traffic, management, affordability of Internet and Internet connectivity as well as E-resilience in this sub region. The participants of the workshop spoke on the digital divide and policy options.

Young ICT Leaders Forum

A PTA Officer participated in the "Young ICT Leaders Forum" held in Busan Republic of Korea from 7-9 September, 2016. The Forum was organized by ITU in collaboration with the National Information Society Agency (NISA) of the Republic of Korea and was hosted by the Bussan Metropolitan City. The purpose of the event was to identify the ideas on capacity building, Development and empowering the Youth in ICT sector to make them competitive in their professional work field. The ideas could be focused on to improve the management of urban flows and transactional relationship with its citizens, climate change, disaster prevention, economic restructuring.

Telecom Events Arranged by PTA

PTA continues to play its role in educating people about the technological advancement and its involvement in regulating the telecom sector. At the national level, several steps have been taken towards awareness of modern technology by arrangement of workshops and training programs in which the experts from all over the world are invited to share their knowledge and experiences regarding the importance of technological advancement. A brief account of such events, during the

period is given below.

South Asian Network Operators Group (SANOG)

SANOG 29 was a collaborative effort as a step towards mutual cooperation between IT & Telecom sector and universities of Pakistan to bridge the gap, between industry and academia.

SANOG is organized twice a year in different South Asian countries in which distinguished community from industry and academia gathers under the umbrella of SANOG to share network technology trends, challenges and updates. This year, Pakistan had the honor of hosting this prestigious event at Higher Education Commission, Islamabad, Pakistan. The SANOG Event was a great success and much appreciated by international community including ISOC, ICANN, Google, TEIN*CC and Network Startup Resource Center (NSRC). SANOG helped to gather IT & Telecom industry and academia under one roof to find solutions for the challenges faced and get updates for the latest technological developments in the field of networking.

First three days were dedicated for Conference and Tutorial, where international and local speakers spoke on different technologies in the field of network. The next five days were dedicated for three parallel hands on workshops on Campus Network Design & Security organized by NSRC, IPv6 Routing organized by ISOC and DNSSEC organized by ICANN. This event was attended by Universities from all of the provinces including Azad Kashmir & Gilgit Baltistan, mobile operators and ISPs, where more than 150 network administrators and professionals attended the event.

All participants were enthusiastic to spread the knowledge between their own communities. SANOG 29 was inaugurated by Chairman HEC and Chairman PTA, whereas, Mr. Baleegh-ur-Rehman Minister of Education chaired the closing ceremony.

Pakistan School on Internet Governance (PKSIG) 2016

PKSIG is an annual ICT capacity building event that helps individuals to better understand the global and regional issues with the help of comprehensive and structured knowledge regarding the actors, issues and settings surrounding the development of internet. First edition of PKSIG was held in 2015 at HEC, Islamabad. This year, PTA, HEC, ICANN, APNIC and ISOC Islamabad Chapter joined hands to conduct the PKSIG on 26-29 November 2016, at Virtual University, Lahore. PKSIG was attended by

International Collaborations

participants from the Government, telecom industry, academia and civil society.

Seminar on Telecommunications and Cyber Issues

Seminar on Telecommunications and Cyber Issues was arranged by Commercial Law Development Program (CLDP), U.S Department of Commerce in collaboration with PTA held from 8-9 February 2017 at Islamabad. 52 officers from Ministry of Information Technology, PTA, FAB, Cellular Mobile Operators, Wateen Telecom, PTCL and US Embassy participated in the seminar. International speakers presented various vital issues during the seminar like" Cyber-security Trends and Practices", "Technology Evolution and Market Trends in The United States", "ICT Market Trends in Pakistan", "Overview of U.S. National ICT Organizations and The Role of the National Telecommunications and Information Administration", "Introduction to Internet Governance", "Issues Related to Internet of Things (IOT)", "Internet of Things – Department of Commerce White Paper", "Free Flow of Information", "Digital Economy Issues", and "Current Trends in Regulations and Technology" etc.

International Collaborations

Chapter 6

CONSUMER PROTECTION

The phenomenal success of the telecom sector has brought huge benefits to the people of Pakistan with network expansion, increased scope of services, reduction in tariffs and availability of a multitude of telecom operators. However, this success also puts additional responsibility to the PTA to ensure that consumer interest and quality of service is not compromised. PTA believes that the availability of telecom services should be complemented with Quality of Service and consumer satisfaction. For the purpose, PTA has a dedicated Consumer Protection Directorate (CPD) that focuses on redressal of consumer complaints received via toll free number, telephone, fax, e-mail & web mail. PTA also studies the complaints trends and takes up the matter with the cellular mobile and other operators at the highest level to isolate key problem areas and their rectification. Following is an overview of the major activities/initiatives of the Authority during the last fiscal year in the area of consumer protection: -

Campaign against the Unwanted Communications

It has been observed that the people are being deceived or deprived of their money by fraudsters through fake calls/SMS enticing them with lucrative offers and fake prize schemes. Moreover, unsolicited marketing, spamming and unwanted calls/SMS, also irk the customers and snatch their right of privacy. Therefore, PTA launched an extensive media campaign detailing the modes of reporting to the Authority, operators and other Government agencies for awareness of the general public. It has been apprised to the citizens that they can launch complaints to PTA through the dedicated helpline (0800-55055), email address (complaint@pta.gov.pk), fax(051-2878127) or web (www.pta.gov.pk) or through personal visit to PTA's zonal offices in 7 cities.

Reporting of the Blasphemous and Objectionable Content on Internet

The nuisance of blasphemous content and objectionable material on the internet, especially Facebook, has been an issue for the Law Enforcement Agencies (LEAs) and PTA has often assisted the Authorities

in this regard. In a recent effort, PTA informed the general public that any such objectionable content may be reported to the Authority immediately at info@pta.gov.pk. In response, PTA received, processed and blocked thousands of web links, Facebook pages etc. and the cases were also referred to the LEAs for further investigation.

Consumer Awareness Bulletin & Tariff Guide

PTA website provides updated prepaid and postpaid data services tariff for ease of subscribers to check all CMOs tariffs in one place. The tariffs of all CMOs and broadband operators are updated on quarterly basis in a comparative format so that the consumers can choose the most suitable tariff according to their needs. The tariff guide can be downloaded and analyzed by the consumers in various ways such as the type of package, billing cycle, number of friends and family, speed and volume etc.

Cellular Mobile Billing Verification Survey

Accurate and justified billing is one of the characteristics of a good service provider. At the same time, it is the responsibility of the Authority to keep a check on the billing mechanisms and accuracy of operator billing systems. As per previous practice, PTA also carried out a survey to verify the billing accuracy of the cellular mobile operators as opposed to their advertised tariffs. The survey results showed issues related to the billing pulse of few operators. The matter was taken up with those operators and a re-survey was done to check the state of affairs. It was found that the issues of billing pulse have been resolved.

IMEI Blocking

International Mobile Equipment Identity (IMEI) number is a unique 15 digit number used to identify each mobile handset including information about its model, make, manufacturer etc. PTA uses the IMEI number to block a snatched, stolen, lost handset when requested by its legitimate owner. In case the handset is recovered by the owner, the same IMEI number is also unblocked by PTA after necessary verification of the ownership. During FY 2016-17, 99,748 mobile handsets have been blocked in Pakistan while 3,134 handsets have been unblocked by PTA after due verification of the actual owner.

Complaints Analysis

PTA has established an easily accessible, efficient and state-of-the-art complaint management system so that consumers can lodge complaints via phone, fax, email, website and personal visits. Clear SOPs have been put in place whereby a received complaint is immediately taken up with the concerned operator and the

Redressal Status of Consumer Complaints Received at PTA FY 2016-17			
Service Type	Total Received Complaints	Total Redressed Complaints	Redressal %
CMOs	22,372	22,163	99.07%
PTCL	12,019	11,976	99.64%
ISPs	213	207	97.18%
WLL	119	119	100%
Total	**34,723**	**34,465**	**99.26%**

complainant is kept in loop throughout the effective resolution of the problem. The dedicated Consumer Protection Directorate at PTA receives thousands of complaints against cellular, fixed line, wireless, broadband, LDI and other licensed operators.

During the reported period, the Authority received 34,723 consumer complaints against mobile operators, PTCL, ISPs and WLL operators. Table given below shows the percentage of total complaints received and resolved during the last fiscal year against each service. Most of the telecom subscriber base comprises of cellular mobile subscribers. Accordingly, most of the received complaints pertain to the CMOs (22,372) while PTCL has the second largest number of complaints registered against its services (12,019). PTA has managed to effectively redress 99% of the received complaints which is a remarkable effort for consumer protection.

Contact Information for lodging Complaints with PTA

The Telecom consumers may lodge a complaint about the services of telecom companies through any of the following means, if their compalints/issue has not been resolved by the telecom companies:

Toll Free Number: 0800-55055 (free from PTCL/ NTC landline)
Phone: 051-9225325
Fax: 051-2878127
E-mail: complaint@pta.gov.pk

Chapter 7

Industry Issues and Way Forward

PTA has been dynamically engaged in changing the telecommunication landscape of Pakistan by brining latest technologies into the country. PTA sustains on research in regulation, technical astuteness, harmonizing competition and discharging its social responsibility with the patronage of the Government of Pakistan. Under the patronage of the current democratic Government of Pakistan, PTA has been actively pursuing its broader objectives and targets for the development of telecom services and protection of consumer rights. PTA believes that the performance of the telecom sector is the true reflection of its successful regulatory initiatives and reforms. Today, ICT solutions being offered on mobile broadband are making a big difference in every walk of life. However, there are several industry challenges that are needed to be addressed in the near future by PTA and the Government of Pakistan.

It is indeed a challenge to keep up with the rapid modernization in telecom systems and to bring latest ICT innovations in Pakistan. PTA has tackled every new challenge with professional determination, keeping the interest of Pakistan at the heart of its regulatory decisions. Rationalization of Taxes in the telecom sector was a major challenge being faced by the industry for the past few years. After coordinated efforts of PTA and telecom industry, Withholding Tax has been brought down to 12.5% from 14% in the Federal budget for FY 2017-18. However, the Withholding Tax @12.5% on every mobile recharge is still high because majority of the subscribers fall below the threshold of being a tax payer and hence, cannot get the paid amount adjusted in their annual tax returns. Similarly, Federal Excise Duty (FED) has also been decreased to 17% from 18.5% in the same budget. However, the tax rates by Provincial Revenue Authorities are still quite high and should be reduced following the example of the Federal Capital. Harmonization of Federal and Provincial Tax Laws is important to resolve the sales tax collection issues and avoid undue litigation between operators and the Federation. Telecom sector should be granted the industrial undertaking status so that the mobile operators are able to adjust the income tax paid at the time of import

Industry Issues and Way Forward

of telecom equipment, which is treated as a final tax liability. High custom duty and other taxes on the import of mobile handsets and telecom equipment also impede the mobile penetration. Moreover, the intense price wars among the operators topped with the fierce competition with the Over-the-top (OTT) services and grey traffic is shrinking the Average Revenue per User (APRU) of the industry. Telecom access and expansion is hampered by the lingering Right of Way (RoW) issues, utility infrastructure and procedural delays in the approvals process at the provincial government's level. PTA has exerted tremendous efforts to improve the national and international connectivity of the country by providing regulatory facilitation to the interested operators. The national fiber optic deployment has increased manifolds whereas the results of NGMS spectrum availability are prominent in every walk of life. PTA is ready to face the emerging challenges of the upcoming resource demands by refarming the available spectrum. Moreover, the operators are also investing in the Fiber-to-the-Home (FTTH) projects to provide fast, good quality and reliable communication to the consumers.

PTA recognizes the industry issues and plans to resolve the pending challenges aggressively in the next two years that will bring significant innovations in the ICT and telecom sector of Pakistan. The advent of 3G and 4G LTE services has already created a phenomenal buzz in the electronic and mobile application and service delivery. The operators are recognizing the fact that data is the next big thing and accordingly, data-centric services are being rolled out for the people of Pakistan. Apart from PTA's current initiatives explained earlier in this report, PTA has also been entrusted with important tasks under the Telecommunication Policy 2015. Efficient spectrum management is important to ensure quality of service and generate substantial revenue for the economy. Hence, PTA is working on "Spectrum Refarming" framework that will enable PTA and FAB to introduce new technologies in the country. Moreover, spectrum harmonization with the ITU standards, regulations and recommendations will also be carried out along with publication of rolling spectrum strategy at the end of each year. In parallel to that, PTA has also undertaken the initiative to review the existing licensing regime and is in the process of hiring an international consultant to assist PTA in devising the best possible licensing framework that facilitates market entry and adoption of new technologies. The revised licensing framework will also consider the regulation of OTT and VoIP services that are increasingly replacing the traditional voice communication. To ensure smooth flow of information and continued communications during a disaster situation, PTA is also developing a comprehensive Regulatory Framework for Disaster Management in consultation with ITU that shall be followed by the telecom operators and other disaster management stakeholders during an emergency. The smuggling and use of the unauthorized, non-approved terminal equipment in the country shall be handled by the promulgation of Regulations and deployment of a state-of-the-art software solution. The proliferation of the technology should not compromise on the health and safety of the citizens. Therefore, PTA is developing an environmental regulatory framework for the sector consistent with the relevant laws, policies and regulations at the Federal and Provincial

level. Moreover, Framework on "Regulatory Remedies and Solutions for Provision of Services by WLL Operators" will be finalized and implemented for the betterment of ailing WLL sector. PTA is also committed to ensure roll-out of NGMS services under the NGMS Licenses issued to the cellular mobile operators. Security of Data and Critical Information Infrastructure (CII) is also an important issue for Pakistan due to its geo-political importance. In this regard, guidelines will be prepared for implementation by the telecom licensees. In the wake of all the initiatives and regulatory actions, it is of utmost importance that the ICT developments in Pakistan are depicted on the national and international level. Therefore, PTA has engaged the Pakistan Bureau of Statistics (PBS) to carry out a national survey for measuring true level of ICT development in Pakistan. Subject to the issuance of Policy by the GoP, PTA has plans to auction more spectrum in 1800 MHz band for NGMS services. Moreover, PTA has also carried out detailed analysis regarding release of NGMS spectrum in AJK & GB. Once Policy Directives are issued by AJK &GB Councils, PTA will conduct NGMS licenses auction in AJK & GB. Local loop sector has a lot of potential for investment as competition is still not matured in the fixed line and wireless local loop segments. On the other hand, successful adoption of mobile broadband services has created a big room for investment in the development of localized services and local content, especially the application development and digitization of services which can be a lucrative opportunity for the national and international content developers.

Industry Issues and Way Forward

Pakistan Telecommunication Authority
Balance Sheet
As at June 30, 2017

	Note	2017 Rupees	2016 Rupees
Due to Federal Consolidated Fund	5	9,721,953,172	6,961,366,059
Due from Public Account		(6,693,197,265)	(6,495,068,171)
Due to Government of Pakistan		3,028,755,907	466,297,888
Non-current liabilities			
Long term payable to AJK and GB Council	6	46,195,437	189,548,882
Deferred grant		-	49,275
Deferred liabilities	7	911,385,970	882,268,929
		957,581,407	1,071,867,086
Current liabilities			
Unearned Revenue	8	3,647,853,650	3,466,151,250
Payable to AJK and GB Council – net	9	291,968,688	400,240,665
Income tax payable	10	1,622,065,691	1,129,713,087
Accrued and other liabilities	11	305,731,970	144,726,327
		5,837,619,999	5,160,831,329
		9,823,957,223	6,698,996,333
Contingencies and commitments	12		

	Note	2017 Rupees	2016 Rupees
Non-current assets			
Property and equipment	13	370,056,920	364,445,936
Initial License Fees receivable from operators on behalf of AJK and GB Council	14	-	52,350,000
Deferred tax asset	15	187,734,001	209,657,488
Loans and advances	16	238,689,384	215,326,922
		796,464,305	841,779,344
Current assets			
Fee receivable	17	101,336,741	137,548,916
Advances, deposits, prepayments and other receivables	18	1,232,863,740	334,461,877
Bank balances	19	7,693,272,437	5,385,206,196
		9,027,472,918	5,857,216,989
		9,823,957,223	6,698,996,333

Member (Finance)

Chairman

ANNEXURE-1 AUDITED FINANCIAL STATEMENTS OF PTA

Pakistan Telecommunication Authority
Income and Expenditure Account
For the year ended June 30, 2017

	Note	2017 Rupees	2016 Rupees
Revenue	20	47,788,482,006	42,230,523,988
Expenditure			
General and administrative expenses	21	936,332,592	1,155,632,100
Provision for doubtful fee receivable	17.3	2,308,295	682,894,699
Audit fee		700,000	700,000
Financial charges		11,878	12,164
		(939,352,765)	(1,839,238,963)
		46,849,129,241	40,391,285,025
Amortization of deferred grant		49,275	11,965,086
Other income	22	1,486,992,229	831,162,134
		1,487,041,504	843,127,220
Surplus for the year before taxation		48,336,170,745	41,234,412,245
Less: Provision for taxation	23	(12,060,959,297)	(4,760,867,619)
Net surplus for the year transferred to due to Federal Consolidated Fund		36,275,211,448	36,473,544,626

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Member (Finance)

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Chairman

Pakistan Telecommunication Authority
Cash Flow Statement
For the year ended June 30, 2017

	Note	2017 Rupees	2016 Rupees
CASH FLOWS FROM OPERATING ACTIVITIES			
Surplus for the year before taxation		48,336,170,745	41,234,412,245
Adjustments for:			
Depreciation		21,281,824	28,105,575
Provision/(reversal of provision) for			
- accumulating compensated absences		33,828,015	95,514,912
- employee's gratuity scheme obligation		9,133,196	91,949,455
- pension obligation		1,004,550	1,012,603
- post retirement medical benefit		35,990,644	180,093,842
- doubtful fee receivable		2,308,295	682,894,899
Profit on bank deposits		(385,676,806)	(407,778,038)
Markup on NGMS license		(1,086,177,581)	
Amortization of deferred grant		(49,275)	(11,965,086)
Gain on sale of property and equipment		(11,251)	(1,289,940)
		46,967,802,356	41,892,950,268
Changes in assets and liabilities			
Decrease/(increase) in assets			
Loans and advances		(35,330,967)	11,583,736
Advances, deposits, prepayments and other receivable		(4,120,613)	(6,255,703)
Fees receivable including initial license fee - net		86,253,880	203,672,869
(Decrease)/increase in liabilities			
Unearned revenue		161,702,400	-
Accrued and other liabilities		212,175,252	(68,823,078)
Contributory provident fund payable		37,989,362	31,264,163
Payable to AJK & GB Council		(239,237,341)	40,051,516
		219,431,973	211,493,503
Cash generated from operations		47,187,234,329	42,104,443,771
Income taxes paid		(11,615,970,705)	(4,362,591,138)
Accumulating compensated absences encashed		(32,835,643)	(58,868,362)
Gratuity, pension and post retirement medical benefits paid		(20,403,668)	(11,386,547)
Net cash generated from operating activities		35,518,024,313	37,671,597,724
CASH FLOWS FROM INVESTING ACTIVITIES			
Purchases of property and equipment		(26,928,199)	(18,663,999)
Profit on bank deposits received		390,582,459	357,334,624
Markup on ISF of NGMS License received		198,958,182	-
Proceeds from sale of property and equipment		46,642	1,318,889
Net cash generated from investing activities		562,659,084	339,989,514
CASH FLOWS FROM FINANCING ACTIVITIES			
Contribution to Federal Consolidated Fund (FCF):			
- Payment made to Frequency Allocation Board		(447,431,978)	(450,019,850)
- Transfers made to FCF		(33,127,056,084)	(34,112,837,014)
- Federal excise duty paid / adjusted during the year		-	(6,094,801,183)
Movement in Public Account		(198,129,094)	(664,421,774)
Net cash used in financing activities		(33,772,617,156)	(41,322,079,821)
Net (decrease)/increase in cash and cash equivalents		2,308,066,241	(3,310,492,583)
Cash and cash equivalents at beginning of the year		5,385,206,196	8,695,698,779
Cash and cash equivalents at end of the year	19	7,693,272,437	5,385,206,196

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Member (Finance)

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Chairman

ANNEXURE-2   TELECOM REVENUES

				(Rs. Million)
	2013-14 (R)	**2014-15 (R)**	**2015-16 (R)**	**2016-17 (E)**
Cellular	322,683	317,016	345,537	369,118
Local Loop	88,952	81,914	76,344	72,937
Long Distance International	43,901	40,890	32,554	23,083
Class Value Added Services (E)	4,123	2,468	2,499	2,503
Total	**459,632**	**442,287**	**457,024**	**467,642**

R = Revised
E = Estimated

ANNEXURE-3   TELECOM INVESTMENT

				(US$ Million)
	2013-14	**2014-15**	**2015-16(R)**	**2016-17 (E)**
Cellular	1,789.7	977.6	659.4	486.1
LDI	1.8	12.2	8.9	11.3
Fixed	24.1	11.2	54.0	137.5
Total	**1,815.6**	**1,001.0**	**722.3**	**634.9**

R = Revised
E = Estimated

ANNEXURE-4   FOREIGN DIRECT INVESTMENT

		(US$ Million)
Financial Year	Discription	Telecommunications
2012-13	Inflow	160.8
	Outflow	564.9
	Net FDI	(404.1)
2013-14	Inflow	904.6
	Outflow	474.7
	Net FDI	429.9
2014-15	Inflow	948.0
	Outflow	882.2
	Net FDI	65.7
2015-16	Inflow	377.9
	Outflow	131.1
	Net FDI	246.8
2016-17	Inflow	116.4
	Outflow	207.4
	Net FDI	-91.0

Source: State Bank of Pakistan Website.

Annexure

ANNEXURE-5   TELECOM CONTRIBUTION TO NATIONAL EXCHEQUER

(Rs. Billion)

Period	GST	PTA's Deposits	Others	Total
2013-14 (R)	60.12	96.5	79.16	235.76
2014-15	45.77	7.0	73.49	126.26
2015-16 (R)	44.25	34.1	81.82	160.18
2016-17 (E)	46.20	33.13	82.10	161.43

R = Revised
E = Estimated
Source: Pakistan Telecommunication Authority

Others includes: Withholding Tax, Income Tax, Custom Duty and other Taxes

ANNEXURE-6   CELLULAR MOBILE SUBSCRIBERS

	PMCL (Jazz)	PTML (Ufone)	CMPak (Zong)	Telenor	Warid	Total
2013-14	38,768,346	24,352,717	27,197,048	36,571,820	13,084,823	139,974,754
2014-15	33,424,268	17,809,315	22,102,968	31,491,263	9,830,620	114,658,434
2015-16	39,118,521	19,833,670	25,251,329	38,020,771	11,017,174	133,241,465
2016-17	52,470,638	18,397,981	28,084,677	40,804,820	-	139,758,116

ANNEXURE-7   3G AND 4G LTE SUBSCRIBERS

Operator	CMPak (Zong)		PMCL (Jazz)		Telenor		PTML(Ufone)	Warid	Total
Technology	3G	4G	3G	LTE	3G	4G	3G	LTE	
2013-14	417,814	-	425,992	-	895	-	539,376		1,384,077
2014-15	2,898,094	105,128	3,656,345	-	4,162,616	-	2,570,283	106,211	13,498,677
2015-16	5,988,197	680,620	8,919,218	-	8,371,991	-	5,223,096	347,132	29,530,254
2016-17	8,640,333	4,041,766	12,443,340	937,209	10,453,885	607,013	4,960,486	-	42,084,032

ANNEXURE-8   BROADBAND SUBSCRIBERS BY TECHNOLOGY

Technology	Mobile BB	DSL	EvDO	WiMax	HFC	FTTH	Total
2013-14	1,384,077	1,352,057	1,861,118	530,889	37,011	14,848	5,180,000
2014-15	13,498,677	1,352,886	1,349,843	488,990	43,220	19,180	16,752,796
2015-16	29,530,254	1,353,723	1,084,367	183,181	43,167	25,665	32,220,357
2016-17	42,084,032	1,532,852	706,763	162,953	51,077	25,665	44,586,733

ANNEXURE-9   FIXED LOCAL LOOP SUBSCRIBERS

	PTCL	NTC	Nayatel	WorldCall	Brain Tel	Union	Wise Com	Total
2013-14	3,034,361	106,738	3,699	8,831	14,410	4,175	-	3,172,214
2014-15	3,007,807	110,957	3,699	1,977	14,410	2,150	-	3,141,000
2015-16	2,658,538	114,772	47,112	1,977	14,410	-	795	2,837,604
as of Mar 2017	2,494,416	114,947	52,201	1,977	14,410	-	765	2,678,716

Annexure

ANNEXURE-10   WIRELESS LOCAL LOOP SUBSCRIBERS

	2013-14	2014-15	2015-16 (R)	Mar-17
PTCL	1,152,635	249,000	237,039	128477
NTC	11,998	10,717	9,380	6,492
WorldCall	33,500	45	45	45
Telecard	258,001	8,321	8,321	795
Wateen	308,122	265,313	21,354	21,354
Mytel	32	33	-	-
Link Direct	60	60	60	60
Sharp/Qubee	80,597	80,597	59,616	59,530
Witribe	199,886	160,880	119,466	109,226
Nayatel	14,630	14,630	14,630	14,630
Total	**2,059,461**	**789,596**	**469,911**	**340,609**
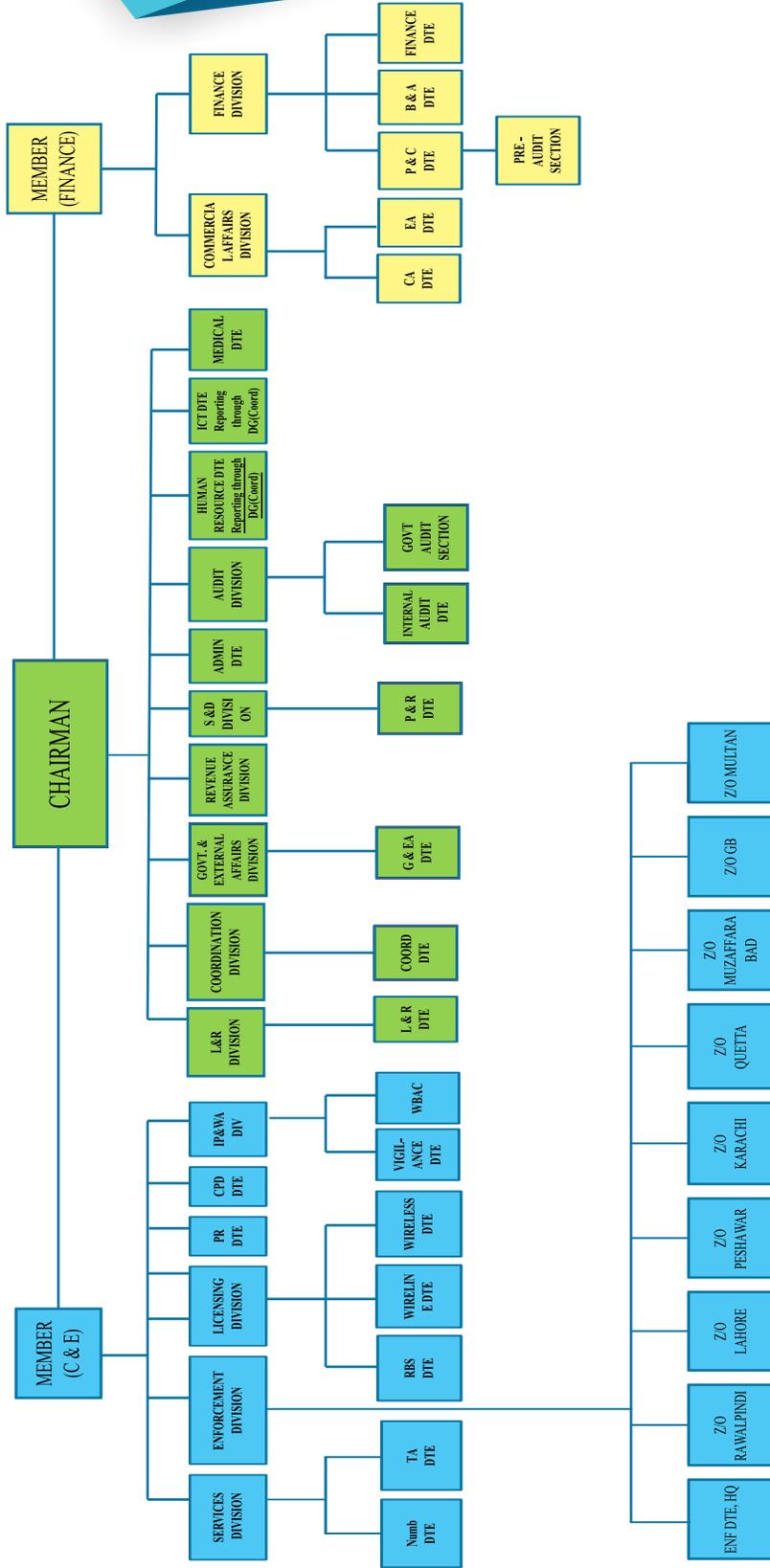
Legend
S&D : Strategy & Development
L&R : Law & Regulations
DTE : Directorate
RBS : Radio Based Services
P&R : Policy & Research
G&EA : Government & External Affairs
CPD : Consumer Protection Department
PR : Public Relations
HR : Human Resource
ICT : Information Communication Technology
CA : Commercial Affairs
EA : Economic Affairs
P&C : Payroll & Cash
B&A : Budget & Accounts
IL&T : International Liaison
Z/O : Zonal Office
GB : Gilgit Baltistan

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