PTA

# ANNUAL REPORT 2018

Pakistan Telecommunication Authority
PTA Headquarters, F-5/1, Islamabad
www.pta.gov.pk

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## Acknowledgements

This report has been prepared as an obligation under Section 18 of the Pakistan Telecommunication (Re-organization) Act, 1996. This report has been compiled by the team of Economic Affairs Directorate of Pakistan Telecommunication Authority, led by Mr. Muhammad Arif Sargana, Director (Economic Affairs). The chapters have been drafted by Ms. Malahat Rab, Deputy Director (Economic Affairs), Mr. Abdul Rehman, Assistant Director (Economic Affairs) and Dr. Shahbaz Nasir, Deputy Director (Commercial Affairs) based on input from various resources. Secretarial support has been provided by Mr. Muhammad Riaz, Admin Officer (Economic Affairs). Public Relations Directorate of PTA is acknowledged for the provision of photos of different events. Authors would like to recognize the input provided by the Divisions/Directorates of PTA, telecom operators, government bodies and the online sources accessed to prepare this report. The main inspiration behind the content of this report remains to be the valuable guidance and directions of the members of the Authority, led by the honourable Chairman Mr. Muhammad Naveed.

# PTA Annual Report 2018

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# PTA's VISION

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

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## The Authority

### Chairman's Message

Chairman summarizes overall performance of the sector including regulatory, network, financial and other areas. It also includes Chairman's views on the performance and glimpse of the future goals of the Authority.

### Infographics

This section mainly shows all the development and growth that has taken place in the sector during the reporting period in graphical form.

## 01 Innovation for Transformation

According to the need and requirements of the sector and as directed by the GoP in the form of national policies, number of regulatory initiatives have been taken during the year by different divisions of the Authority. This chapter covers regulatory activities of the Authority for the uplift of the sector.

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## 02 Enhancing the Digital Ecosystem

PTA has facilitated infrastructure including provisioning of broadband services across the country and enabling environment for digital initiatives for efficient service delivery. A number of initiatives have been taken by individuals or departments for better service delivery in the important sectors like health, education and agriculture etc. This chapter highlights these initiatives.

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## 03 Entering the Era of Digital Money

PTA is working to promote Digital Financial Services (DFS) in Pakistan in collaboration with State Bank of Pakistan with an objective to achieve targets of National Financial Inclusion Strategy (NFIS) and promotion of E-commerce. This chapter highlights the status of DFS, development in Pakistan and measures taken for its growth.

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## 04 Towards Informed Telecom Consumers

Protection of telecom service consumers is the mandate of the Authority and this chapter elaborates the status of complaints by consumers and pricing trends in telecom sector for information of consumers. It also highlights PTA's efforts for the protection of consumers.

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## 05 Turning Our Challenges into Opportunities

This chapter focuses on the regulatory challenges faced by the sector and regulator which are impediments in further growth.

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- Annual Audited Accounts
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- Wireless Local Loop Subscribers
- Broadband Subscribers

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## PTA Organogram

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# ABBREVIATION

| | |
|---|---|
| 3G | 3rd Generation |
| 4G | 4th Generation |
| 5G | 5th Generation |
| AAR | Approved Accounting Rate |
| AJ&K | Azad Jammu and Kashmir |
| ALF | Annual License Fee |
| AMA | Assan Mobile Accounts |
| APC | Access Promotion Contribution |
| APIs | Application Program Interface |
| APT | Asia Pacific Telecommunity |
| ARPU | Average Revenue Per User |
| ASR | Approved Settlement Rate |
| B2C | Business to Customer |
| B2P | Business to Person |
| BB | Branchless Banking |
| BE&OE | Bureau of Emigration & Overseas Employment |
| BHU | Basic Health Unit |
| BISP | Benazir Income Support Program |
| BPO | Business Process Outsourcing |
| BVS | Biometric Verification System |
| CAPP | Connected Agriculture Platform for Punjab |
| CDR | Call Detail Record |
| CEO | Chief Executive Officer |
| CFO | Chief Financial Officer |
| CGA | Certified General Accountant |
| CGAP | Consultative Group to Assist the Poor |
| CLDP | Commercial Law Development Program |
| CMO | Cellular Mobile Operator |

| | |
|---|---|
| CNIC | Computrized National Identity Card |
| CoCP | Code of Commercial Practice |
| CoE | Centre of Excellence |
| COMSATS | Commission on Science and Technology for Sustainable Development in the South |
| CPEC | China-Pakistan Economic Corridor |
| CPIC | Consumer Price Index |
| CTD | Counter Terrorism Department |
| CTI | Cyber Threat Intelligence |
| CVAS | Class Value Added Services |
| CVCT | Cellular Village Connection Trial |
| DFS | Digital Financial Services |
| DIRBS | Device Identification Registration & Blocking System |
| DNSSEC | Domain Name System Security Extensions |
| DSL | Digital Subscriber Line |
| DTAs | Digital Transactional Accounts |
| EDGE | Enhance Data for GSM Evoluation |
| FAB | Frequency Allocation Board |
| FAO | Food and Agriculture Organization |
| FBR | Federal Board of Revenue |
| FDI | Foreign Direct Investment |
| FED | Federal Excise Duty |
| FIA | Federal Investigation Agency |
| FIIP | Financial Inclusion and Infrastructure Project |
| FINCA | Foundation for International Community Assistance |
| FIR | First Information Report |
| FLL | Fixed Local Loop |
| FMCG | Fast Moving Consumer Goods |
| G2P | Government-to-Person |
| GB | Gilgit Baltistan |
| GDP | Gross Domestic Product |
| GoP | Government of Pakistan |
| GPON | Gigabit Passive Optical Network |
| GPRS | General Packet Radio Service |
| GSM | Global System for Mobile |
| GST | General Sales Tax |
| GVA | Gross Value Added |
| HED | Higher Education Department |
| HRMIS | Human Resource Management Information System |
| IAAS | Infrastructure as a Service |
| ICF | Innovation Challenge Facility |
| ICH | International Clearing House |
| ICT | Information Communication Technology |
| IMEI | International Mobile Equipment Identity |
| IoT | Inernet of Things |
| IP | Internet Protocol |
| IPv6 | Internet Protocol Version 6 |
| IRU | Indefeasible Right of Use |
| ISOC | Internet Society |
| ITeS | Information Technology Enabled Services |
| ITU | International Telecommunication Union |
| KPIs | Key Performance Indicators |
| KPITB | Khyber Pakhtunkhwa Information Techonology Board |
| KPK | Khyber Pakhtunkhawa |
| KYC | Know Your Customer |
| LDI | Long Distance & International |
| LEA | Law Enforcing Agency |
| LL | Local Loop |
| LRIC | Long Run Incremental Cost |
| LRMIS | Land Revenue Management Information Systems |

| | |
|---|---|
| LTE | Long Term Evolution |
| LUMS | Lahore University of Management Sciences |
| LWMC | Lahore Waste Management Company |
| M&RITT | Monitoring and Reconciliation of International Telephone Traffic |
| MNO | Mobile Network Operator |
| MNP | Mobile Number Portability |
| MoIT&T | Ministry of Information Technology and Telecom |
| MoU | Memorandum of Understanding |
| MSMEs | Micro, Small & Medium Enterprises |
| MTR-I | Mobile Termination Rate – International |
| MVNO | Mobile Virtual Network Operator |
| NADRA | National Database & Registration Authority |
| NED | Nadirshaw Eduljee Dinshaw |
| NFIS | National Financial Inclusion Strategy |
| NIC | National Incubation Centre |
| NOC | No Objection Certificate |
| NUST | National University of Sciences & Technology |
| OEM | Original Equipment Manufacturer |
| OTC | Over the Counter |
| P2A | Person to Application |
| P2G | Person-to-Government |
| P2P | Person-to-Person |
| PECA | Prevention of Electronic Crimes Act |
| PIM | Pakistan Institute of Management |
| PITB | Punjab Information Technology Board |
| PSEB | Pakistan Software Export Board |
| PSO | Payment Service Operators |
| PSP | Payment Service Providers |
| PTA | Pakistan Telecommunication Authority |
| PTCL | Pakistan Telecommunication Company Limited |
| PVTC | Punjab Vocational Training Council |
| PWDs | Persons with Disabilities |
| QoS | Quality of Service |
| R&D | Research & Development |
| RFP | Request for Proposal |
| RIR | Regional Internet Registries |
| SAF | Cellular Subscriber Agreement Form |
| SATRC | South Asian Telecommunication Regulator's Council |
| SBP | State Bank of Pakistan |
| SCO | Special Communications Organization |
| SIM | Subscriber Identity Module |
| SMEs | Small Medium Enterprises |
| SMS | Short Messaging Service |
| SoP | Standard Operating Procedure |
| STP | Software Technology Park |
| TB | Tera Byte |
| TPSP | Third Party Service Provider |
| UMTS | Universal Mobile Telecommunication System |
| UN | United Nations |
| URL | Uniform Resource Locator |
| USF | Universal Service Fund |
| USSD | Unstructured Supplementary Service Data |
| VAS | Value Added Services |
| VRG | Virtual Remittance Gateway |
| WCDMA | Wideband Code Division Multiple Access |
| WHT | Withholding Tax |
| WLL | Wireless Local Loop |

# AUTHORITY

## MUHAMMAD NAVEED

**Appointed Chairman PTA & Member (Finance)** in April, 2018.

Mr. Muhammad Naveed has been entrusted by the Prime Minister of Pakistan with the responsibility of leading Pakistan Telecommunication Authority as its chairman. He is a professional Chartered Accountant with more than 20 years of diverse experience of working in telecom giants like Alcatel-Lucent, Nokia and chartered accountant firms like EY Ford Rhodes.

During his time as Chief Financial Officer (CFO) for Nokia Middle East-West region and Alcatel-Lucent Saudi Arabia Cluster & Pakistan, he developed internal financial control systems, strategies for improved operations, increase in prof its & overall optimization of processes & management of audit, taxation and budget & accounts of the company. While at Alcatel-Lucent Pakistan, he was also given additional responsibility of CFO for Iran, Afghanistan and GCC countries.

## YAWAR YASIN

**Appointed Member (Technical)** in August, 2018 and he assumed this responsibility as additional-charge.

Mr. Yawar Yasin has over 40 years of regulatory, policy, management and engineering experience in diversified environments. He has held senior executive positions of managing and enforcing telecom regulatory policies and programmes that have resulted in boosting Pakistan's telecom sector. During his term as Director General (Enforcement), he ensured regulatory compliance of multitude of projects like successful implementation of SIMs Re-verification by Biometric Verification System (BVS) as a part of National Action Plan, streamlining of compliance procedures and automated Quality of Service monitoring. As Director General (Government & External Affairs), he represented PTA at various national and international fora. Previously, he has also served as communication officer for UN mission in Bosnia.

## ALI ASGHAR

**Appointed Member (Compliance & Enforcement)** in August, 2018 and he assumed this responsibility as additional-charge.

Mr. Ali Asghar has a diverse experience of 24 years working in corporate and government sectors. Before assuming the responsibility of Member (C&E), he has been working as Director General (Law & Regulations), PTA. Prior to that, he served in various divisions of the Federal Government including Ministry of Information Technology & Telecom and Prime Minister's Office. He also served at Economic Affairs Division, Public Procurement Regulatory Authority, National Accountability Bureau and Privatization Commission of Pakistan. He began his professional career as an advocate before joining the Civil Service of Pakistan in 1995. He holds a LLB degree from University of Punjab and LLM degree with specialization in Telecommunications Law from University of London.

# CHAIRMAN'S MESSAGE

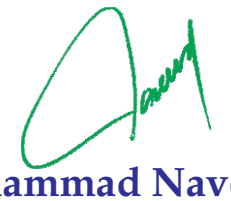
My belief and passion for serving my country made me accept the challenge of leading a government organization which is playing an instrumental role in digitization of Pakistan. I strongly believe that telecoms can connect more people than any other technology, particularly in under served rural areas. It can provide secure access to a variety of digital services such as health and education and can provide a platform for financial inclusion, engaging many people in the economy for the first time. In particular telecoms can spur the entire economy starting from driving the private sector to enrolment in education to improving food provision, enhancing government's productivity and ensuring national security.

Today, Pakistan's telecom sector is working towards accelerated progress for achieving

Pakistan's Vision 2025 goals of generating growth, jobs and investment in the wider economy. However, we as a regulator would keep our focus on creating smarter communities and market growth, augmenting enabling technologies and introducing and updating supportive policy and regulations.

While creating smarter communities, PTA will ensure affordable and broad-based communications access to the consumers irrespective of their location in the country whereby speed will be the name of the game. Common man riding information superhighway will have numerous benefits for this social and economic uplift thereby ensuring market growth. Availability of latest technology, keeping in view the bubbling IoT marvel, will bring together all segments of society and sectors of economy to intricately merge and reap the benefits. Finally and foremostly, we have acknowledged the fact that the sector has evolved where the boundaries between the once distinct sectors of telecoms and internet services have blurred and the current regulatory framework in today's dynamic digital marketplace needs an upgrade and an update. Initiation of implementation of 5G policy directive for taking broadband to the maximum speed, issuance of third party service providers license for increasing financial inclusion, Device Identification Registration Blocking System (DIRBS), online NOC portal for import of handsets and online interactive remote education initiative are creating ease to access for common man. These are just a few to mention about our activities for creating smart Pakistan.

I would like to thank my team at Pakistan Telecommunication Authority, colleagues of the information & communications industry and patrons & mentors from the government of Pakistan. I am truly honored to be part of this thriving yet challenging sector. I along with my team will remain committed to turn Pakistan into a digital model to be followed by the countries across the globe. For turning our dreams into realities and our challenges into opportunities, we at PTA will be requiring your continued support. I wish you all pleasant reading!



**Muhammad Naveed**
Chairman/Member (Finance)

# EXECUTIVE SUMMARY

Pakistan's economic growth continued to stay on accelerated path after plunging in last few years. The thrust for this growth came from improved performance of services and agriculture sector whereas industrial sector displayed some recovery. Telecommunications being a crucial contributor in services sector, remained as a stimulus for rest of the economy. Digitization is the buzzword in literally every segment of the society be it industry, manufacturing, Small & Medium Enterprises (SMEs), agriculture, health, education or media. Therefore the role of PTA in particular and IT & Telecom sector in general has become pivotal for economic growth and employment generation. Following is a comprehensive picture of telecom sector performance in Pakistan during 2017-18.

With ever increasing mobile subscription in Pakistan, today, the mobile subscribers figure stands at 150 Million giving boost to the total teledensity which stands at 74% as of June, 2018. Broadband subscribers as of June 2018, stand at almost 58 Million with broadband penetration crossing 28.3%. It is making further progress in those areas of the country where broadband is still not available at high speed. The telecom sector contributed over Rs. 147.23 Billion to the national exchequer in the form of General Sales Tax (GST), Withholding Tax (WHT) and PTA deposits including license fees, spectrum fees etc. in addition to levies by the local governments and custom duties by Federal Board of Revenue (FBR). Total telecom sector revenue reported during Fiscal Year 2017-18 was Rs. 488.7 Billion showing 3.96% growth in one year. Total investment made in the telecom sector in year 2017-18 was US$ 670 Million of which Foreign Direct Investment (FDI) inflow was US$ 247 Million. Overall, the financial health of the sector remained stable and networks continued to grow and add more and more subscribers.

PTA, being the sector regulator, is focused on supporting future digital services for the benefit of the wider economy. PTA's strategies are evolving to address the new, emerging digital priorities of Pakistan. With 5G on the global horizon, government of Pakistan issued a policy directive for introduction and trials of 5G wireless networks in Pakistan. PTA is in the process of finalizing a framework and will be holding consultation session with all the stakeholders in the near future. PTA also issued number of regulations in the reporting year for convenience of all stakeholders. These regulations include Subscriber Antecedents Verification Regulations (amendment) 2017, Mobile Device Identification Registration & Blocking Regulations 2017 and Type Approval Technical Standards Regulations 2017. PTA, in collaboration with State Bank of Pakistan (SBP), issued first ever TPSP license to Virtual Remittance Gateway (Pvt) Ltd after detailed technical evaluation of the company by PTA and authorization by SBP. This was done to support the government's vision of enhancing financial inclusion and impetus the digital payments in the country. PTA as a part of the National Financial Inclusion Strategy (NFIS) is also collaborating with SBP to achieve its targets. SBP has taken an initiative of Innovative Challenge Facility for digital payments in Pakistan and PTA being its evaluation committee member extended cooperation to SBP. Furthermore, PTA is also facilitating the process of developing unified Unstructured Supplementary Service Data (USSD) platform for account opening and operation of AMA (Assan Mobile Account) scheme being launched by the SBP.

With continuous collaboration and support of financial and telecom regulators of Pakistan, significant growth in Digital Financial Services (DFS) has been witnessed in the country with enabling environment, improving policies, laws and regulations. According to Findex 2017, account ownership in Pakistan has increased to 21% up from 13% in 2014. This increase has been significantly

contributed by the branchless/mobile banking accounts which have increased to 38.5 Million at the end of March 2018 more than double the figure of 15 Million at the end of 2015. Since the biometric verification of mobile connections in 2015, 23.5 Million new branchless banking accounts have been added to the market. However, with over 150 Million biometrically verified mobile connections across the country, we are still well short of the Digital Financial Services (DFS) growth potential. During 2017-18, regulators and key players in the DFS market have taken many initiatives to continue the pace of DFS growth in the country including Development of AMA Scheme, Integration of Third Party Service Provider (TPSP) and Cellular Mobile Operators (CMOs) networks for interoperable solutions, Rationalization of National Database & Registration Authority (NADRA) verification cost, adjustment of WHT on cash withdrawals made by Branchless Banking (BB) agents, Home Remittance Account (HRA), DFS Innovation Challenge Facility (ICF), Pakistan Financial Inclusion and Infrastructure Project (FIIP), Digitization of Government Payments & Receipts, Digital Credit and Micro Financing through mobile phones and Digitization of School/College Fee and Rural Support Funds.

In the reporting year, Ministry of IT and Telecom (MoIT&T) & PTA spurred the digital ecosystem in Pakistan with active involvement of all stakeholders. This was done through numerous sustainable development and accelerated digitization projects, research and innovation, Software Technology Parks, subsidized bandwidth, international marketing, international certifications, internships and trainings. Incentives like 100% equity ownership, 100% repatriation of profit, tax exemption on IT & IT Enabled Services (ITeS) export revenues, tax exemptions to startups and subsidized state of the art software technology parks are some areas that have been focused for accelerating digital revolution in Pakistan. Number of events were also organized during the reported year including Pakistan Digital Forum, seminar on Financial Inclusion and E-commerce issues by PTA & Commercial Law Development Program (CLDP) and South Asian Telecommunication Regulator's Council (SATRC) workshop etc. aimed to educate our human resource with latest developments around the world.

To further protect consumers' interests, PTA has the responsibility to allow only standardized devices to be imported into Pakistan. Without PTA's No Objection Certificate (NOC), customs authority does not clear SIM based ICT devices imported by companies or individuals. To facilitate the importers and consumers who bring such devices, PTA introduced an online web based NOC portal system where consumers can apply online for NOC and get the same within no time. This effort is to stop the illegal import and use of sub standard and non approved or smuggled SIM based ICT devices into the country. In line with Telecom Policy 2015 directive, PTA has also developed a Device Identification Registration & Blocking

System (DIRBS) that would restrict the illegally imported mobile phones and block non-compliant devices on mobile phone networks. This unique system will curb illegal imports, facilitate legitimate device importers, mobile device users and improve overall security situation. This system will be synchronized with customs authority's clearing system.

Moreover, PTA has always prioritized telecom consumers and has established procedures for the handling and resolution of complaints. A total of 40,000 (approx.) complaints were received and were redressed in cooperation with respective operators. PTA also remains vigilant that telecom service (call & data) prices for consumers remain at affordable level and within the reach of consumers. Call prices as well as data prices remained stable or have been decreasing gradually over the last couple of years. Currently, prepaid off-net prices are ranging between Rs.1.4/min and Rs. 2.63/min and prepaid on-net tariffs vary between Rs. 1.00/min to Rs. 2.63/min. On May 3, 2018, Supreme Court of Pakistan took suo motu notice of deduction of high tax/other charges on mobile services and suspended services charges & taxes and directed FBR to forward proposal with rationalized taxes from consumer perspective. Presently, these charges are under review.

The speed with which the communications sector is changing makes it especially important for PTA to consider all current and future challenges. Fake IDs and harassment through websites or other ICT means pose a challenge for PTA and the Law Enforcing Agencies (LEAs). Under Prevention of Electronic Crimes Act, 2016 (PECA, 2016), the Authority has been empowered to block/remove unlawful content on the internet once a complaint is lodged with PTA in addition to handling related complaints of general public about internet applications and World Wide Web. For the purpose of seeking the source of the leakage, FIA is the designated agency for investigation and prosecution under the law. So far PTA has blocked 824,878 URLs out of which 31,963 blasphemy websites have been blocked by PTA. PTA also conducted QoS Surveys to provide efficient service to consumers.

While managing the digital revolution in Pakistan, PTA is faced with a number of major micro and macro level challenges: media management, establishment of legal framework for technical and non-technical issues, establishment of Telecom Tribunal and Right of Way etc. PTA is already working on these challenges and playing a crucial role in supporting better services for people and businesses so that the current conducive environment can be strengthened for further growth in telecom sector.

# SIGNIFICANT DEVELOPMENTS

## Launch of DIRBS and 50 Million Broadband Subscribers Celebration

In line with the Telecom Policy 2015, Pakistan Telecommunication Authority (PTA) launched Device Identification, Registration & Blocking System (DIRBS) in collaboration with 3G Technologies on May 10, 2018.

## SATRC Workshop
## 16-17 August, 2017

## Secretary General APT visits Faisal Mosque and Lok Virsa
## August 18, 2017

## Pakistan Digital Forum July 19, 2017

## Women & Mobile GSMA Capacity Building Workshop November 07, 2017

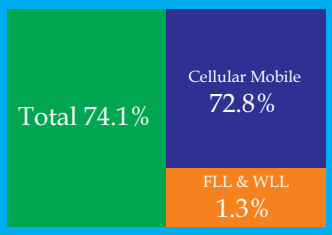
## Seminar on Financial Inclusion and E-commerce Issues May 08, 2018

## Minister for IT & Telecom visits PTA, May 16, 2018

# INFOGRAPHICS

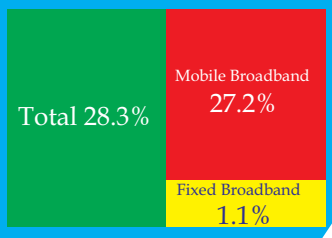
## Teledensity

As of June 2018

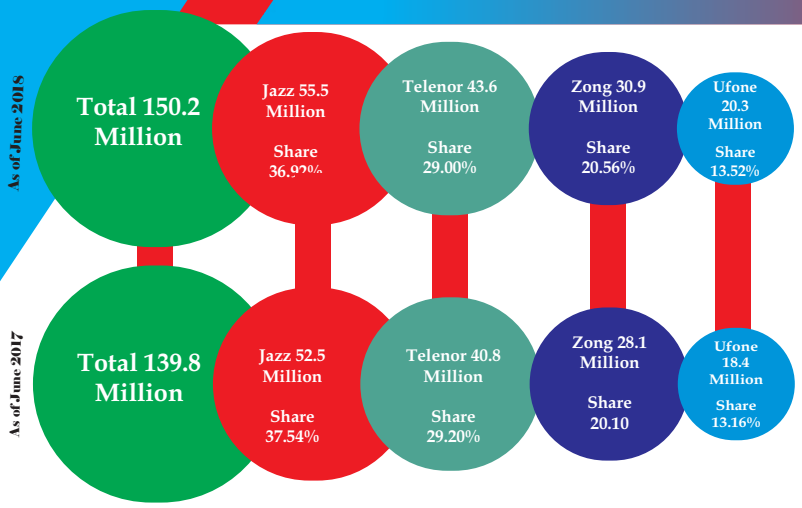



## Broadband Penetration

As of June 2018



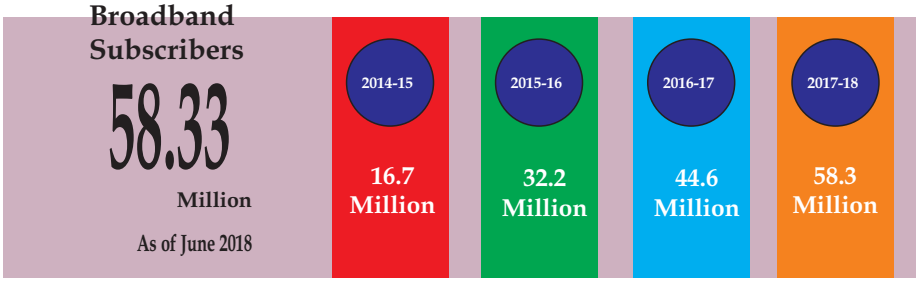

## Cellular Mobile Subscribers and Market Share 2017 & 2018




## Broadband Subscribers

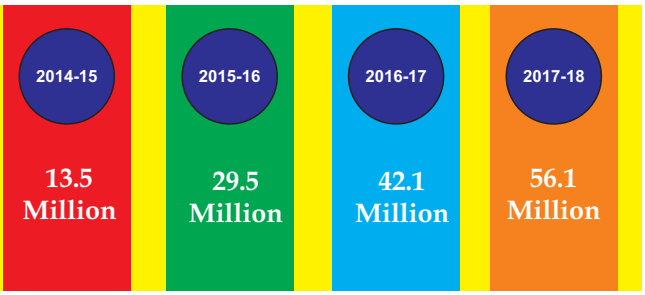
58.33 Million

As of June 2018

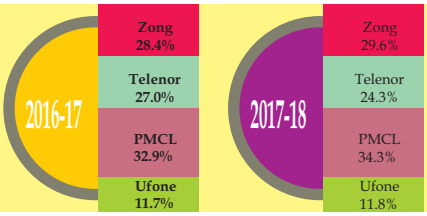


## Mobile Broadband Subscribers

**56.1**
Million
As of June 2018

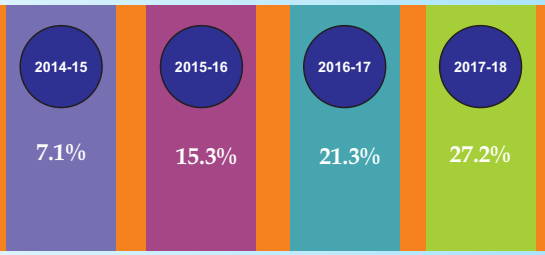



## Mobile Broadband Subscribers Share by Operator



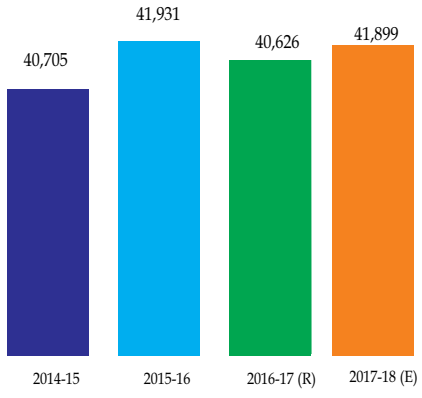

## Mobile Broadband Penetration

**27.2**
Percentage
As of June2018



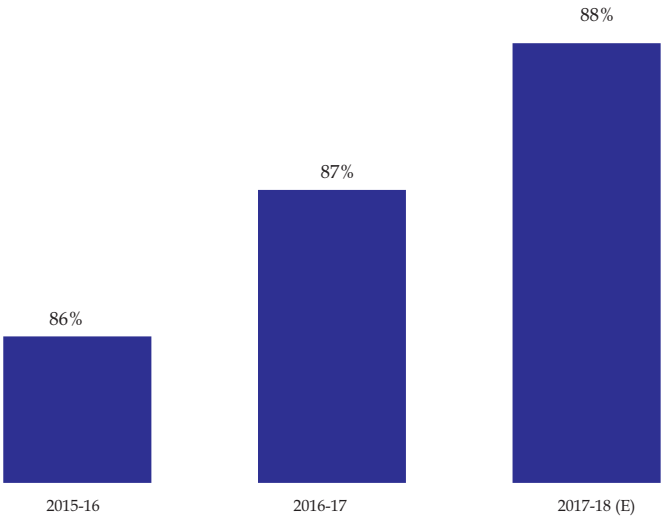

## Cellular Mobile Cell Sites 2G, 3G and 4G/LTE

Total Number of Cell Sites as of June, 2018 **41,899**

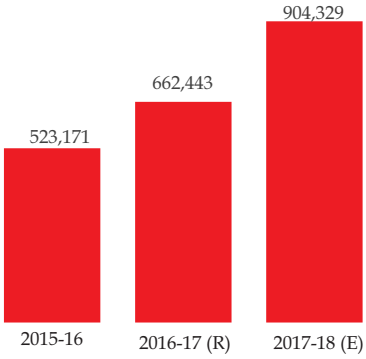



R= Revised
E= Estimated

## Percentage of Population Covered by CMOs

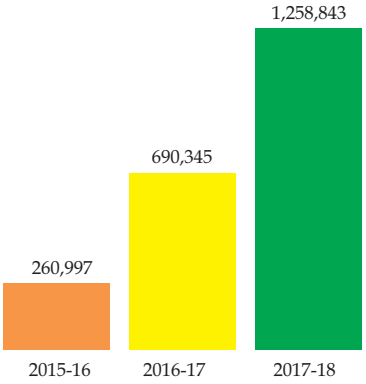


## M2M Mobile Network Subscription



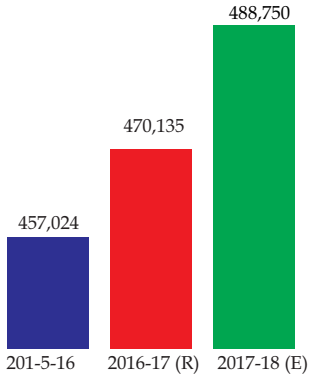

## Mobile Data Usage

(Tbs)



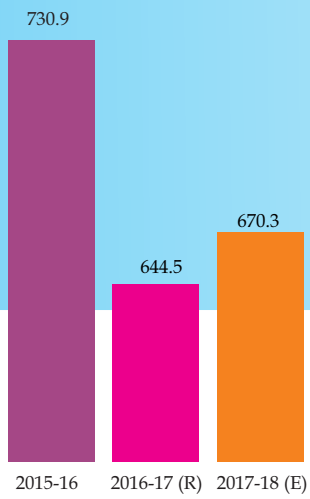

## Telecom Revenues

(Rs. Million)



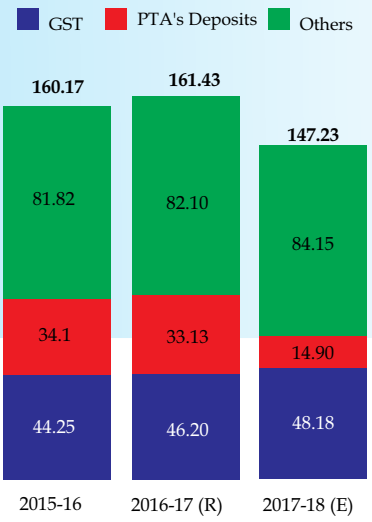

## Telecom Investment

(US$ Million)




## Telecom Contribution

(Rs. Billion)




## Foreign Direct Investment during FY 2017-18 (P)

US$ Million

| FDI Inflow | | Net FDI |
|---|---|---|
| 246.9 | FDI in Telecom Sector | 72.4 |
| 3,439.2 | Total FDI in Pakistan | 2,767.6 |
| 7.2 | Share of Telecom in Total FDI (%) | 2.6 |

R= Revised
E= Estimated
P= Provisional

# 01 INNOVATION FOR TRANSFORMATION

PTA, as a 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 principles of minimal regulation and most conducive environment are those on which PTA's vision rests.

During the reported year, Authority carried out its responsibilities to protect consumer interests, ensure Quality of Service, ICT development and enabling regulatory framework in the country. In this regard, number of specific initiatives and projects that were carried out have been detailed in the ensuing pages.

## Policy Directive for Test and Development of Future Technologies like 5G

Government of Pakistan issued a policy directive for introduction and trials of 5G wireless networks in Pakistan. In this regard, a working group is being formulated and nominations are sought from all stakeholders. PTA is in process of holding consultation sessions with all the stakeholders and finalizing a framework for the trials of 5G technology in Pakistan.

# Launch of Device Identification, Registration & Blocking System (DIRBS)

PTA launched DIRBS in collaboration with 3G Technologies on May 10, 2018 at PTA headquarters Islamabad. Mr. Muhammad Naveed, Chairman PTA was the chief guest while Mr. Abdul Samad, Member (Compliance and Enforcement) PTA; Executive Director 3G Technologies, IT and telecom industry experts, CEOs of telecom companies, representatives from FBR and media community attended the event. Member (Compliance & Enforcement) gave a detailed presentation on various aspects of DIRBS where in discussion on regulations for Device Identification, Registration & Blocking System 2017 was also carried out.

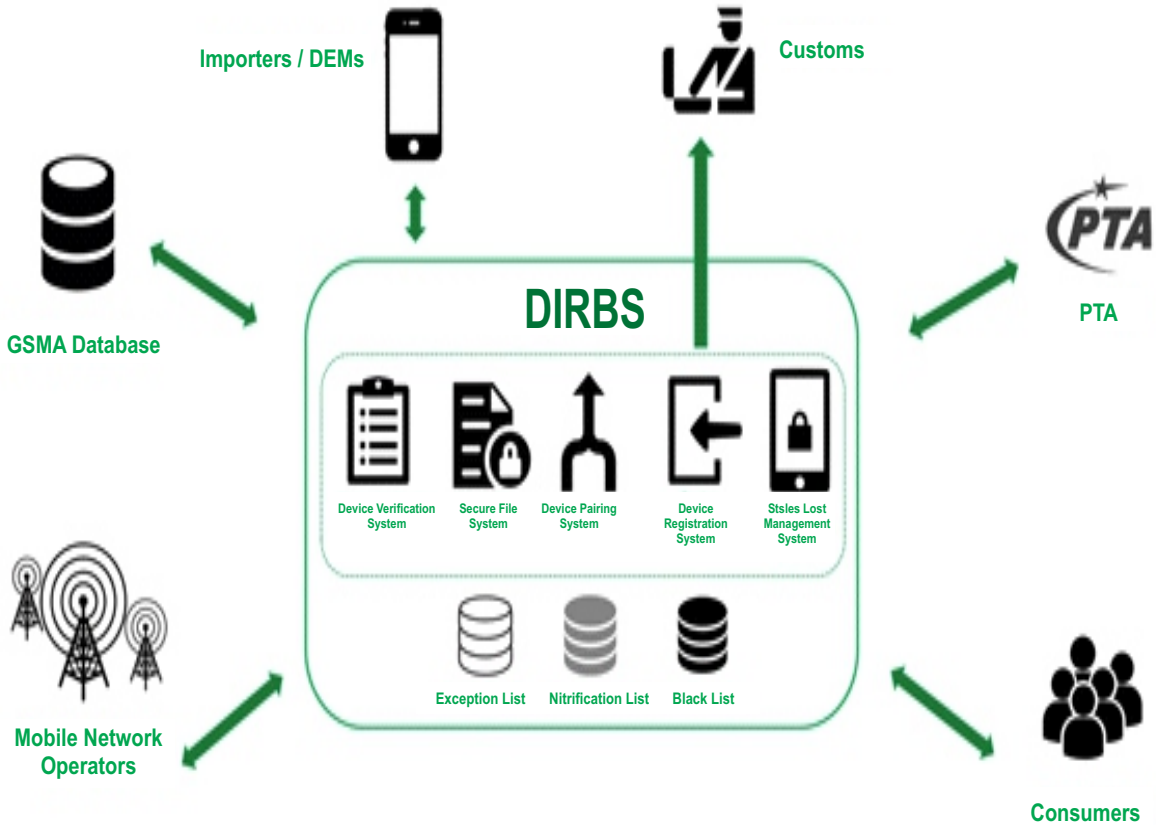
# DIRBS

With introduction of next generation mobile services there was an increased influx of smartphones that resulted in infiltration of illegal and counterfeit handsets in the country. Consequently number of issues arise including loss of revenue to government due to tax evasion, unfair competition, lost sales, pricing pressure, impact on brand equity, performance issues etc.

Realising the runaway impact of unregistered/counterfeit/smuggled mobile devices on all the stakeholders, the Telecom Policy 2015 stressed on blocking of the devices which do not have PTA type approval or have invalid/duplicated IMEIs or are reported stolen. Therefore, regulatory framework was developed DIRBS Regulations 2017 and DIRBS SOP are available on PTA web site) and PTA launched a comprehensive new system, called Device Identification, Registration and Blocking System (DIRBS) in May 2018. The system is designed to detect sub-standard, fake, stolen and illegally imported mobile phones operating in the country. Once detected through this system, such devices will be blocked by the CMOs from connecting on their networks.

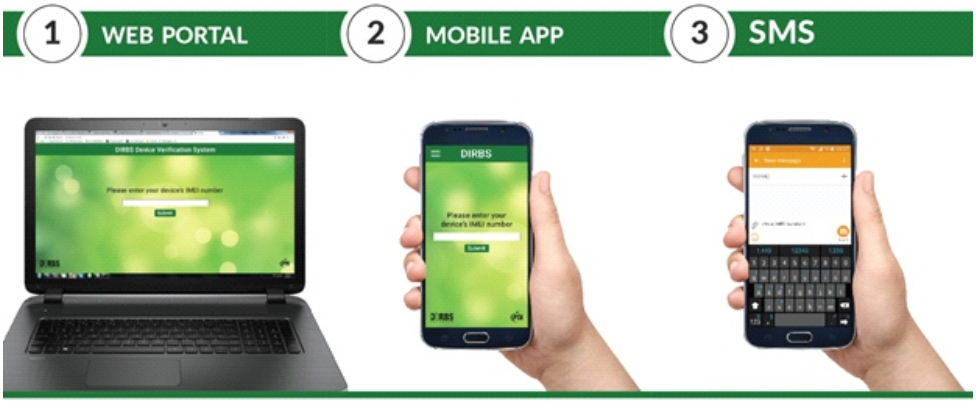
DIRBS comprises of a comprehensive core analysis system that is combined with subsystems including Device Verification System (DVS), Secure File System, Device Registration System, Device Pairing System and Stolen-Lost Management System. The analysis done through DIRBS allows for the identification and tracking of illegal/invalid devices and generate three lists that mobile operators implement on their Equipment

Identity Registers (EIRs) and take appropriate actions accordingly. These are Black List (Illegal device to be blocked), Exception List (specific IMEI-subscription pairings that let the IMEI receive service but appears on blacklist) and Notification List (containing reasons for placing an IMEI in exception list). Any device whose IMEI is not included in the black or notification lists will be considered a valid/legal device and will be permitted to operate unhindered. DIRBS provides live information of all registered devices to FBR/ Customs so that only approved devices are cleared by customs at the ports of entry. This is expected to effectively eliminate smuggled/Illegally imported/stolen mobile devices in the country.



## Consumer Awareness Program

PTA is running awareness campaign for the general public through print, electronic and social media about DIRBS. To further facilitate, the consumers can register their devices with PTA and view their device's status in real time. The portal can be accessed by visiting www.dirbs.com.pk. Similarly, DVS can be accessed through the web or android app or SMS (to 8484).




## Regulations for Assembly of PTA Type Approved Mobile Handsets

In order to encourage development of local manufacturing of mobile handsets , PTA took an initiative by introducing a regime enabling PTA type approval holder companies to setup plants in Pakistan for manufacturing/assembly of mobile handsets. This initiative was first strategic step towards encouraging local manufacturing of mobile handsets in Pakistan.

After introduction of this regime, over 16 companies have obtained permissions for local assembly of mobile handsets and have installed assembling plants that are fully operational. On average, a total of 100,000 handsets are being assembled each month in Pakistan. This step of PTA has created over 3,200 jobs in the market and enabled young professionals to have skill development in this specialized field.

PTA envisions to further enhance this regime to promote local manufacturing of high end mobile handsets in future. Furthermore, PTA also plans to engage with other government departments to offer incentives that will encourage foreign companies to invest in Pakistan to assemble and manufacture mobile handset in Pakistan.

## South Asia Telecom Regulator's Council (SATRC) Workshop

PTA in collaboration with Asia Pacific Telecommunity (APT) organized the SATRC round table and workshop on Spectrum from 16 - 18 August, 2017. Ms. Areewan Haorangsi, Secretary General APT; Chairman PTA, Member Telecom, MoIT&T and other senior officers from MoIT&T, PTA, FAB and Telecom Operators were present in the inaugural ceremony. Representatives from all member countries of Asia Pacific Region including Afghanistan, Bangladesh, Bhutan, Iran, Nepal, Maldives, Indonesia and Sri Lanka participated in this international event. Some of the key topics in the workshop were the spectrum roadmap for mobile broadband, spectrum management for the deployment of Internet of Things (IoT), wireless backhaul spectrum technology and policy considerations and proliferation of Wi-Fi networks.

Secretary General APT said that SATRC workshop will assist the regulatory bodies of member countries in acquiring knowledge and skills in regulatory matters relating to spectrum and other emerging technology matters. She appreciated the arrangements made by the host PTA. Secretary General APT also visited PTA Headquarters. During visit, Chairman PTA briefed Secretary General about the functions of PTA, regulatory initiatives taken by it and overall performance of the telecom sector. Secretary General APT expressed her satisfaction on telecom developments in Pakistan.

## Technology Upgrades

Government of Pakistan issued Telecom De-Regulation Policy 2003 and subsequently Cellular Mobile Policy 2004 through which technology neutrality was adopted for the telecom sector in Pakistan. This technology neutral policy was a major shift from technology specific regime that was in field till the time of approval of the Telecom De-Regulation Policy 2003. The aim of introducing technology neutral regime was to promote optimal use of frequency spectrum and real benefits of spectrum to end users. This policy led to unprecedented growth in the telecom services as well as foreign direct investment; introduction of latest technologies and provision of high quality affordable services to the consumers that has been recognized at international forums.

Technology Neutrality implies that any technology can be deployed, to ensure spectral efficiency and thus meet the subscribers demand, including GSM, GPRS, EDGE, UMTS, LTE, etc. in the assigned band and services can be provided within the scope of respective license. The concept is similar to technology upgrades from Dial-up to DSL to GPON in the case of wireline communications. The current statutory provisions duly encourage deployment of modern systems.

PTA's vision is to create a fair regulatory regime, promote investment, encourage competition, protect consumer interest & ensure high quality ICT services. PTA has continuously strived to abide and act by its vision and its effort has been recognized at highest level.

The International Telecommunication Union (ITU) is the premier agency of the United Nations (UN) whose purpose is to coordinate telecommunication operations and services throughout the world.

ITU has defined (4) Generations of Regulators, which are as follows:

- G1: Regulated public monopolies– command and control approach
- G2: Basic reform – partial liberalization and privatization across the layers
- G3: Enabling investment, innovation and access – dual focus on stimulating competition in service and content delivery, and consumer protection
- G4: Integrated regulation – led by economic and social policy goals

ITU maintains an ICT regulatory tracker which is an evidence based tool to help decision-makers and regulators make sense of the rapid evolution of ICT regulation.

ITU has released 2017 edition of the ICT Regulatory Tracker which covers up to 190 ITU Member States over the period 2007 – 2017.

According to ITU's ICT Regulatory Tracker, Pakistan is ranked 35/190 countries. It is recognized as the only 4th Generation Regulator in South Asia by virtue of securing a score of 89/100. The benchmark for the scoring is what is considered the best possible scenario based on internationally recognized regulatory best practices such as Technology Neutrality, that are adopted by global community of telecom Regulators. It is the recognition of PTA's performance for implementation of policies in telecom sector which have eventually resulted in achieving the greater economic and social policy goals of the GoP.

## Third Party Service Provider (TPSP) Licensing

In order to facilitate the proliferation of mobile banking services and to introduce interoperability in the market, PTA had earlier issued 'Regulations for Technical Implementation of Mobile Banking, 2016. Under these regulations, PTA invited applications from the interested companies to issue TPSP licenses. PTA started receiving applications for the grant of TPSP licenses to provide technical services for channeling, routing and switching transactions for branchless/mobile banking among banks, CMOs and TPSPs.

After a rigorous process of evaluation and scrutiny, license has been issued to Virtual Remittance Gateway (VRG). SBP has also authorized VRG for the implementation of AMA scheme through unified USSD platform. PTA is actively facilitating CMOs and VRG in finalizing their commercial and technical arrangements for the implementation of AMA scheme and several meetings have been held with the stakeholders. Two more applications for TPSP license are under process.

## Subscribers Antecedents Verification Regulations

The Authority issued regulations on Subscribers Antecedents Verification in 2015. In 2017, amendments in the said regulations were made and the procedure was prescribed for cellular licensees for the registration and maintenance of accurate data of their subscribers through proper documentation and verification through NADRA database.

## Type Approval Technical Standards Regulations

The Authority under these regulations is empowered to determine and type approve telecommunication equipments. It gives approval for those telecommunication equipments which are directly or indirectly connected to any network termination point and used for sending, processing, receiving and intelligence etc. Licensees having a valid license to establish & maintain telecommunication systems and who are authorized under their license can import telecommunication equipment without obtaining any new type approval certificate.

## Review of Mobile Termination Rate (MTR)

Pakistan's cellular mobile sector has undergone substantial changes since the last review of MTR in 2010. 3G and 4G/LTE services have been introduced, Mobilink and Warid merged, tariffs changed drastically and telecom revenues increased by manifolds.

In view of the changing market structure of the cellular mobile segment and considering that the last change in MTR was made in 2010, a review of the existing MTR @ Rs. 0.90/min was required in Pakistan. PTA had also received requests from telecom operators to review the existing mobile termination rates. Clause 5.1.12 of the Telecommunication Policy 2015 states that the cost based interconnection charges will be reviewed not less than once every two years. In case of Pakistan, data on cost based interconnection charges, is not readily available. Accordingly, PTA circulated a paper for industry consultation to provide benchmarking analysis for the determination of MTR in Pakistan in line with clause 18.6 of the Interconnection Guidelines which empowers PTA to establish interconnection charges on the basis of benchmarking when adequate cost information is not readily available.

International Benchmarking is another commonly used method to determine MTR by telecom regulators. Benchmarking provides a convenient and cost effective way to determine MTRs in a mobile market. According to ITU, benchmarking is the second most adopted approach after LRIC model to determine MTR. PTA has proposed to determine an interim MTR, based on international benchmarking and in the meanwhile, a cost based interconnection study would be carried out. The same is under discussion with the stakeholders. Subsequently, MTR may be reviewed/ determined in the light of results of cost based study.

## Online NOC

Citizens of Pakistan often bring new SIM based devices i.e. mobile phones, tablet/PCs, tracking devices, access points and dongles etc. from abroad which require NOC from PTA before clearance by the Pakistan customs in order to ensure that only standardized and type approved mobile handsets are being used in Pakistan. PTA issues NOCs to such individuals after completing 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 (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. This system has been synchronized with custom system and consumers can get the devices cleared without any hassle. The automation of the NOC issuance system has also optimized the working procedures and reduced the time for NOC issuance. PTA issues about 5,000 online NOCs per month.

## Billing Verification of CMOs

PTA carried out billing verification exercise of Cellular Mobile Operators (CMOs) at different cities of Pakistan. The purpose was to assess whether the consumers are charged by CMOs according to their advertised tariffs or otherwise. The talk time (call duration) was calculated using data collection tool (NEMO) and was compared with the call duration as per operators' Call Detail Record (CDR) to find the time duration variance. The charging as per operators' advertised tariffs (including taxes) was calculated on call duration as per CDRs and then compared with actual deduction in credit balance to assess undercharging/overcharging by respective mobile operator. Upon completion of the survey, it was found out that CMOs are charging their subscribers as per their advertised tariffs.

## 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 brigade and ambulance assistance etc. becomes very important. All cellular mobile operators have setup 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 back end numbers which has been taken care of.

## LDI Licensing in AJK&GB

The De-Regulation Policy for the telecommunication sector of AJK&GB was adopted in 2008. Accordingly, LDI and LL licenses were issued. However, the Cabinet Committee on Regulatory Body (CCRB) in a decision dated March 22, 2006 put the process of granting new LL, LDI and Cellular licenses on a watch hold in Pakistan for the next seven (7) years which expired in March, 2013. As there exists no bar on licensing in AJK&GB, PTA after evaluation of the application of Paragon Telecom (Pvt.) Ltd., issued an LDI license for AJK&GB on November 6, 2017.

## International Bandwidth by LDI Operators

Transworld Associates (Pvt.) Ltd. (TWA) filed a complaint in 2015 with regards to selling of international bandwidth to Long Distance & International (LDI) licensees in Pakistan by a non-licensee HKT Global. PTA issued a clarification on October 27, 2015 regarding purchase of international bandwidth by LDI operators. Aggrieved by the said clarification, TWA filed an appeal before Islamabad High Court.

The honourable court vide its order dated February 26, 2018 set aside the said clarification and remanded the case back to PTA to decide the matter after providing opportunity of hearing to parties. The court in its order asked PTA to decide particularly on the question regarding grant of agreement/contract to an unlicensed entity after affording opportunity of hearing to the parties concerned. In this regard, a hearing was held on April 11, 2018 wherein parties were requested to provide their written submissions. After receiving written submissions and analysis, PTA issued order in the instant matter, according to which, only license holders are allowed to bring international telephony service to and from Pakistan through the cable landing station/facilities established by licensed operators in Pakistan. Therefore, any arrangement or agreement contrary to regulatory framework is not allowed. The order concluded that LDI operator(s) may enter into agreement(s) for Indefeasible Rights of Use (IRUs) either with licensed operator(s) or with submarine cable consortia and satellite service providers. Capacity of the submarine cable landing station licensee(s) shall be sold on right to use or lease basis only to licensed operators in Pakistan.

## Code of Commercial Practice and Standard Contract of Service for Class Value Added Services

As per terms and conditions of license, all licensees are required to prepare and submit Code of Commercial Practice (CoCP) and Standard Contract of Service for approval of the Authority. The purpose of submitting these documents to PTA is to ensure that rights of subscribers are safeguarded while entering into contracts with them. Terms and conditions of standard contract of service include security deposit, privacy of communications, confidentiality of customer information, refunds or other rebates for service problems or over billing, minimum contract period etc. Similarly, the licensee is also required to publish code of commercial practice. Once approved by PTA, the code of commercial practice is binding on the licensee.

As a first step, PTA has prepared and issued Code of Commercial Practice (CoCP) and Standard Contract of Service (SCoS)/Terms & Conditions for Vehicle Tracking Service (VTS) and Internet Service Providers (ISPs) to facilitate and simplify the procedure for CVAS licensees. Resultantly, all the operators will use the standard document and incorporate introduction, core values and vision statement and submit the same to PTA for approval. This step will not only save time of operators and PTA but operators will be able to concentrate more on providing affordable services to their consumers.

## PTA's Visit by Federal Minister for IT & Telecom

Federal Minister for IT & Telecom, Ms. Anusha Rahman Ahmad Khan visited Pakistan Telecommunication Authority headquarters. Member Telecom (MoIT&T) Mr. Mudasar Hussain, Member HRD (MoIT&T) Mr. Muhammad Tahir Mushtaq, Member IC (MoIT&T) Mr. Yasir Qadir, Chairman PTA Mr. Muhammad Naveed, Member (Compliance & Enforcement) PTA Mr. Abdul Samad and senior officers of MoIT&T and PTA were present on this occasion.

The Minister said that broadband sector growth has been extraordinary and this sector has become a model for other countries across the world. She appreciated the role of PTA in the uplift of telecom sector and emphasized the need for effective strategies, a comprehensive framework for implementation and adaptation of 5G in Pakistan. She also mentioned that several initiatives for the development of ICTs such as ICT4 Girls program targeting thousands of school girls in Pakistan and DigiSkills program, are important platforms for creating online employment opportunities.

Mr. Muhammad Naveed Chairman PTA, expressed his gratitude for the support provided by MoIT&T and appreciated the Minister's valuable contribution in the promotion of advanced ICT services in Pakistan and the achievement of critical milestones such as spectrum auction, rapid growth of E-commerce industry in Pakistan

and increased broadband coverage across the country. Member (Compliance & Enforcement) PTA, Mr. Abdul Samad also thanked the Minister for her support for the growth of ICT industry and introduction of various programs for proliferation of ICT in Pakistan. Chairman PTA also presented a souvenir to the Minister and later the outgoing Minister also planted a commemorative tree at PTA headquarters.

## Pakistan Digital Forum

PTA in collaboration with Ministry of Information Technology, Internet Society Asia-Pacific Bureau, Higher Education Commission of Pakistan and Special Talent Exchange Program organized the "Pakistan Digital Forum" at Islamabad. The aim of the forum was to bring together the policy makers, regulators, telecom operators, relevant stakeholders, regional experts and researchers on a common platform to deliberate on the policy and implementation strategies on Pakistan's current and future digital landscape. This forum featured several ICT experts with national and international speakers to discuss digital transformation of Pakistani society, digital payments for a digital economy, digital

technologies and sustainable development goals to build a digital Pakistan. A diverse mix of ICT experts from government, technical community, civil society, telecom operators, academia and vendors attended the forum.

The forum was divided into five sessions, where during the discussion speakers highlighted current and future IoT marketplace in Pakistan, enabling opportunities by IoT in health, education and agriculture fields. Digital payments ecosystem, E-commerce environment and sustainable development goals for Pakistan were also focused in the forum.

## Seminar on Financial Inclusion and E-commerce Issues by PTA & CLDP

PTA in collaboration with the Commercial Law Development Program (CLDP) U.S.A organized a seminar on "Financial Inclusion and E-commerce Issues" at PTA headquarters,

Islamabad. The seminar was a platform to discuss the opportunities and challenges to flourish digital economy in Pakistan. The event was attended by the representatives from the MoIT&T, State Bank of Pakistan (SBP), telecom industry, the World Bank and senior officials of PTA. Speakers from reputable institutes and organizations delivered keynote presentations on international and domestic initiatives to encourage financial inclusion, development of E-commerce and current issues. Panel discussions on expanding financial inclusion in Pakistan and proper regulatory regime to optimize fixed/mobile convergence were also held. The speakers addressed the potential and challenges of digital financial services in Pakistan, the need of robust initiatives for financial inclusion, informed decision, policy making and gender neutral policy, products with a special focus on rural and associated value chain.

Member (Compliance and Enforcement) PTA said that PTA being regulator of the telecom sector has been proactive in facilitating the industry for innovative solutions. To build momentum and push reforms to achieve universal financial inclusion in an integrated and sustained manner, PTA being a member of the NFIS council and steering committee has actively participated in the implementation of action plan envisaged in the NFIS. Furthermore, PTA and SBP are working closely to develop an appropriate regulatory framework to strengthen digital financial services in Pakistan. In this regard, PTA in collaboration with SBP has started issuing TPSP licenses. PTA is also facilitating commercial and technical arrangements between cellular mobile operators and existing TPSP licensees.

## Online Interactive Remote Education

PTA joined hands with Internet Society (ISOC) Asia-Pacific Bureau and COMSATS Internet Services to provide online interactive remote education to 6th grade students of a Government Girls High School in rural Multan.

This pilot project provided free extra academic help to students for better understanding of their study material. This supplement education was delivered by imparting a unique

learning experience that is essentially different from their general text books. TeleTaleem, a renowned and experienced tele-education provider was hired to deliver realtime online lectures of English, Mathematics and Science through an interactive class room environment from Islamabad. The content delivered by teachers had been designed to make more use of activities, conceptual approach, alternative pedagogy and online resources. At the inauguration, Chairman PTA said that government has always been supportive of the ideas that make the best use of innovative technologies. Internet is the nucleus of socioeconomic development in the future and this project will introduce young girls to efficiently use internet.

02

# ENHANCING THE DIGITAL ECOSYSTEM

The Fourth Industrial Revolution is under way and digital innovations are benefitting societies by creating opportunities, improving lives and reducing risks. Resultantly, placing the world at a crossroads of embracing new technologies while moving away from conventional setups. Digital innovation leading to transformation are opening up opportunities to increase economic growth, reduce inequality and promote inclusion. But this transformation will not happen by itself, since it takes the whole system to collaborate and cooperate to bend the curve of digital transformation towards a more prosperous tomorrow. Cheaper and better technology is intensely connecting the world and today 8 Billion devices are connected to the internet worldwide and by 2030 this number is forecasted to reach 125 Billion*.

Ministry of IT&T and PTA under the patronage of government of Pakistan became a focal point for new opportunities arising from the latest developments in the digitization of business and society. Realizing the impact of global digital advancements on Pakistan due to the digital revolution, MoIT&T & PTA have spurred the digital ecosystem in Pakistan with active involvement of all the stakeholders.

This has been done through numerous sustainable development and accelerated

*Source: IHS Market (the Internet of Things: A movement not market)

digitization projects, research & innovation, software technology parks, subsidized bandwidth, international marketing, international certifications, internships and trainings. Incentives like 100% equity ownership, 100% repatriation of profit, tax exemption on IT & ITeS export revenues, tax exemptions to startups and subsidized state of the art software technology parks are some areas that have been focused for accelerating digital revolution in Pakistan. The government chalked out strategy for positioning Pakistan on the global map through participation in international forums, organizing domestic conferences, scaling software technology parks and facilitating certification (ISO 27001 and CMMI) programs.

The results cannot be assessed or reached at this moment, however, it has been ensured that the value generated by digitization must be captured for business and wider society. A balanced approach for adaption of digital innovation to transform our society that has been followed is discussed in the ensuing paragraphs.

## Digital Pakistan Policy 2017

While facilitating the IT Industry, first ever digital policy has been announced by the Government of Pakistan. The digital policy envisions Pakistan to become a strategic enabler for an accelerated digitization ecosystem to expand the knowleadge based economy and spur socioeconomic growth. With this vision the digital policy has set the goals including holistic digital strategy with ICT as a broad enabler of socioeconomic development, promote the use of technology in education, health, agriculture and other key socioeconomic sectors. The goals also include promoting E/M-commerce to enhance the current market size by providing enabling environment, where Payment Service Providers (PSP) and Payment Service Operators (PSO) can operate and establish an effective E-commerce platform. In addition the policy sets goals for youth, women and girls empowerment using IT by initiating specific ICT programs for Girls. Similarly this policy promotes innovation, entrepreneurship and incubators/startups in IT sector to generate sustainable innovation, entrepreneurship and employment opportunities for the country's rapidly growing technology savvy and entrepreneurial youth. The policy aims to increase software exports, IT remittances & domestic market, while working towards improving Pakistan's ICT ranking based on international indices and benchmarks. Digital inclusion is also focused in the policy in order to bridge the digital divide including the urban and rural divide,

gender disparity, unserved and under served areas. The government also plans for development of IT zones, software technology parks at major cities, promote Research & Development (R&D), entrepreneurship and innovation. The policy aims to promote E-governance and make Pakistan the frontrunner in good governance through IT enablement. The policy also focuses on persons with disabilities and aims to reduce barriers to online access for "Persons with Disabilities" (PWDs). The policy aims to coordinate and support standardization efforts, maximize reusability, create synergies and deliver cost effectiveness. All in all, the Pakistan Digital Policy is a focused document with achievable targets and goals that can bring digital transformation in Pakistan.

## ICT's for Girls Initiative

In line with ITU objective of empowering women through technology, Pakistan also believes that ICTs could play a transformational role in promoting inclusiveness and empowerment of girls/young women to enable them to contribute and benefit from the value chain of ICTs. With this realization, "ICT4Girls" a uniquely designed program was envisioned and implemented by the Ministry of IT and Telecom particularly for girls and women from disadvantaged segments of society. Under the umbrella of "ICT4 Girls", an initiative was taken in collaboration with Pakistan Bait-ul-Mal, Universal Service Fund and Microsoft in late 2015. In the first phase, Microsoft upgraded 50 IT labs of Pakistan Bait-ul-Mal with state of the art facilities focusing on 4 Cs: Computing, Coding, Communication and Coaching. The 50 upgraded labs of Pakistan Bait-ul-Mal trained 5,000 girls.

The second round of ICT4 Girls program in Pakistan was launched in 2017. In this initiative, thousands of girls are being trained at state of the art computer labs under coaching and training program of Microsoft that include computing skills, coding skills and communication skills coupled with coaching from industry experts. The ultimate objective of this mega project is to increase employability potential of women. Total cost allocated for this program is Rs. 600 Million and it is expected to train over 110,000 girls per year at 245 girls schools of Islamabad. As a part of this program, 150 digital labs are being established throughout Pakistan at women empowerment centers at a cost of Rs. 300 Million.

### HERSELF

One of the major projects undertaken by government include "Herself" by PITB in 2016. It was designed to empower women by acquainting them with opportunities in the entrepreneurship sector and preparing them to be independent and contributing in the economy. Herself is also the first initiative to form a collaboration with facebook's women empowerment initiative "SheMeansBusiness" to highlight Pakistani women on a global platform and provide them training on running businesses using facebook. In one year the program has received 1,000 applications for its three cycles. In this regard 120 females were inducted into training programs of which 30 to 35 trainees have their own startups. Other women related projects include "rise mom", an application which helps working women stay connected to their children.

## Digital Initiatives by Telecom Operators

Telecos in Pakistan have played a major role in introducing digitally enabled services in Pakistan. These companies are at the forefront in providing strength, access and visibility to number of projects that have changed day to day lives of people of Pakistan. These companies have collaborated and cooperated not only with government organizations but also helped startups, IT companies and services sector of Pakistan to transform them digitally. Following are few major initiatives by these companies:

### Smart Cloud Services

Businesses today create enormous amounts of data. Storing, processing and pulling value from this data is not an easy task. These unstructured big data solutions demand scalable, powerful infrastructure. PTCL understood the need and introduced smart cloud services which offers state of the art flexible enterprise grade infrastructure as a service (IAAS) solutions for medium and large

enterprises. In just over a year of its launch, PTCL cloud services have been able to successfully on-board customers from all market segments including financial institutions, FMCGs, transportation and education sector. PTCL is now the only cloud service provider in the country with tier-3 certified data centers with cloud infrastructure built upon Vmware & Microsoft hypervisors to guarantee enterprise grade services to their corporate clients. Current service portfolio includes Vanilla Virtual Machines, Virtual Data Center, Disaster Recovery & Backup.

## Cyber Threat Intelligence Services

Cyber Threat Intelligence (CTI) services are now being provided by PTCL in cooperation with Etisalat-Telefonica CTI capabilities. CTI is a service aimed at providing customers an integral solution against cyber threats, covering the end to end life cycle through continuous threat management model. The initial target audience for this service were financial institutions but it is also being offered to other large and medium enterprises including FMCGs anad transport companies. This service now allows customers to achieve business critical security objectives while keeping operating costs predictable and helping busy IT teams stay ahead of security issues.

## Digitization of Public Colleges Fee

Jazz partnered with the Higher Education Department (HED) of Khyber Pakhtunkhawa province to digitize the admission fee of public colleges across the province. Before this, students were required to visit dedicated bank branches along with a challan form to deposit this fee. Now all students have to do is to visit HED's official website, register themselves and pay at any of their nearest JazzCash retailers nationwide. This new solution has reduced the process from days to less than an hour. In just the first wave of admissions, over 160,000 students paid their fee using JazzCash seamlessly.

## Stipend Disbursement

JazzCash has implemented Sindh Education Reform Projects (SERP's) that has the vision of helping the cause of education for girls in their recent projects where stipends are disbursed to female students (from class VI to X) to overcome the loss of economic activity and to increase transition rate from primary to secondary schools. Total number of beneficiaries for this project are 600,000. A total of Rs. 1.8 Billion (US$ 17.2 Million) are to be disbursed through JazzCash within a year.

## Punjab Vocational Training Council

Punjab Vocational Training Council (PVTC) in cooperation with JazzCash has eased out the disbursement process of PVTC on mobile wallets of the trainees. For efficient wallet opening process, JazzCash team visits each school personally to register wallets for students/guardians. Funds are disbursed on these wallets which can be later withdrawn from 65,000 agents all across Pakistan. Significant usage increase has been noticed for wallets registered for PVTC. So far, total of Rs. 1,100 Million (US$ 10.5 Million) are to be disbursed out of which Rs. 570 Million (US$ 5.4 Million) have already been disbursed to PVTC through JazzCash.

## Digital Agriculture

***Ba Khabar Kissan -*** is a free of cost service with SMS, IVR, and mobile app features for farmers, providing them with latest market rates, weather forecast, agricultural advisory, best practice tips, animal husbandry section to buy products and news related to agriculture and government schemes. There is also a free helpline for access to agri-experts for any crop or livestock related issues, mainly in rural Punjab and Khyber Pakhtunkhwa. Currently "Ba Khabar Kissan" has about 1.5 Million subscribers with 19 Million SMSs/month being sent out, over 420,000 IVRs/month being carried out and 15,000 calls/month being made to the subscribers.

## Digital Health

BIMA Service (Enabling the un-insured) – is an initiative that give access to life and disability insurance to the 99.5% un-insured population of Pakistan with easy sign up and rapid claim service. Currently this service has 1.3 Million subscribers.

## OPTIFY

Multinet Pakistan launched first ever mass scale free public WiFi services across Pakistan. General public can use free internet on their mobile phones while using this service. It is available mainly in commercial areas including shopping malls, restaurants and other areas. Optify also helps people to inform their locations and safety status in emergency situations to the emergency authorities and their families. Students can also benefit from this application while traveling and make use of online resources like e-books and e-learning.

## Digital Partner Application

Wi-tribe has launched Digital Partner App (WDP) "App Chalao Paisa Banao". This user friendly mobile application gives a platform to every Pakistani to make earnings by sitting at home. It is Pakistan's first referral based application which can be downloaded by anyone (free) and gives opportunity to every individual to earn up to Rs.40,000 per month just by referring any person for internet. This platform is not only beneficial for students or unemployed workers but is also empowering women especially housewives to earn just by sitting at home. This simple application gives equal opportunity to every person to earn good money, whether it is a Wi-tribe employee, retailer, distributor, customer or even someone who has never used a Wi-tribe connection before. It has received over 10,000 downloads in just 1.5 months with over 1,773 referrals generated by different users.

# Ignite, National Technology Fund

Telecom Service Providers in Pakistan are mandated to contribute certain amount to the government ICT R&D Fund (now Ignite) a percentage of their gross revenue for development and research of ICTs locally aimed to accelerate digitization in Pakistan, create knowledge based economy and spur the economic growth. In order to effectively use the industry contributions, government of Pakistan, decided to synergize the efforts through Ignite, the renamed R&D Fund. Ignite's objectives include industry academia partnership for research initiatives, enhancing national ICT related human resource development, promote research and development, use ICT as a tool for wealth creation and upward mobility for economically challenged groups of citizens and spread ICT activities on a true national level.

Source: Ignite

## National Incubation Centers

Government of Pakistan launched a program to build the network of National Incubation Centers (NICs) under Ignite which are factories for incubators. Five incubation centers in four provinces and one incubation center for Islamabad have been established so far with the help of telecom operators, LUMS, NED and other entities. Islamabad National Incubation Center, under the public private partnership of Ministry of IT&T through Ignite fund and Jazz, was launched in January 2017. The NIC provides startups with free of cost workspace, incubation, acceleration– Jazz xlr8 program seed funds and access to 50 Million plus mobile customers. Currently, there are 40 startups in 2 cohorts, being incubated at NIC Islamabad. NIC Lahore and Peshawar were launched on December 23, 2017 and January 13, 2018 respectively. Both NICs have inducted their first cohorts. 23 and 16 startups have already been inducted in Lahore and Peshawar NICs respectively. NICs Karachi and Quetta that are planned to start operations in 2018 are also established in collaboration with LMKT/PTCL/NED.

Today, three NICs (Islamabad, Lahore, Karachi) house 79 promising startups, which have provided mentorship and networking by leading entrepreneurs, corporate chieftains, top professionals, investors and global entrepreneurial organizations through more than 110 events and meet-ups. Also provided rent free office space, high speed broadband internet,

makers lab, usability labs, fintech lab, design thinking lab, R&D centers and a host of shared facilities. From June 2018 onwards, NICs will have the capacity to accommodate 170 incubatees/annum (40 incubatees each in Lahore, Karachi and Islamabad per annum and 25 incubatees each in Peshawar and Quetta per annum). Total allocated area for 5 NICs is approximately 94,000/sq. feet. Total project duration for each NIC is 5 years 3 months inclusive of establishment period. These NICs have generated over Rs. 2.8 billion investments, generated revenues of over Rs. 319 Million and created over 890 direct employment opportunities in the country. Few of the startups are highlighted here.

- *Aero Engine Craft is developing contrail-free aero-engines for reduced global warming and induced artificial rain during aircraft flight through on-board water recovery from fuel emissions. The startup aims to mark the beginning of the first contrail-free aircraft flight; creating a new vision for the aviation industry whereby it can not only reduce aviation induced global warming by eliminating contrails but also adopt an approach to treat the water containing emissions as a resource. This is a first attempt to create and store water on board from aero-engine exhaust plume during commercial flights and release it as rainfall prior to landing.*

- *PakVitae provides lifetime affordable filters that can purify water to 99.9% without any power requirement. The startup is currently providing tap connected filters, water wheelies filters for households (rural), water wheelie filters for rural micro-entrepreneur, hand pump fitted filters, filter assembly for sweet water wells. On January 23, 2018 PakVitae closed a deal during first round of investment and raised an investment of US$ 100,000 in seed financing at US$ 1 Million valuation, by a blooming investment fund in the country, Sarmayacar.*

- *Mauqa Online is a digital platform that connects illiterate domestic helpers with nearby work opportunities. It is a unique platform as it uses simple telecom tools and visual web interfaces to communicate nearby work opportunities with people who cannot read or write. To date, the platform has served over 3000 hours. More than 70% of the domestic helpers on the platform are women. Mauqa Online has helped women become equal economic partners in their households, working mothers send their children to school and even helped wives send their husbands to drug rehab.*

## Digital Skills Training Program For Freelancing

On March 01, 2018 Ignite launched a large scale national digital skills (DigiSkills) training program to train one (1) Million people across the country over a period of 2 years i.e. 2018-2020. The DigiSkills program is aimed at equipping our youth, freelancers, students and professionals etc. with knowledge, skills, tools & techniques necessary to seize the opportunities available internationally in online jobs market and also locally to earn a decent living.

Ignite funded 19 technology driven innovative projects worth approximately Rs. 357.76 Million in 2017-18. These include Electrocure Governance tool for Electricity Data Management (energy), Object Detection & Categorization for Blind using Deep Neural Learning (disabled empowerment), Innovative Learning Solution for Science Education (education), Smart Coronary Stent Endoprosthesis for Real Time Coronary Heart Disease Management (health), Portable Optical Sensor for rapid, noninvasive, and on-site diagnosis of tuberculosis (health), formulating Sustainable Irrigation Management Information System using real time irrigation water demand & supply for rural areas development (agriculture).

# Initiatives by IT Boards

## Punjab Information Techonology Board (PITB)

Phenomenal changes through ICT initiatives were witnessed in the last six years. The improvements in the service delivery outcomes across key social sectors like education, healthcare, municipality services and law & order remained the focus areas of PITB. The board ensured transparency, efficiency and efficacy in service delivery. It has laid foundation for a modern public sector infrastructure in the province that is efficient, responsive and accountable.

The board initiated number of projects under process automation for convenience of people of Punjab with a transparent approach. It includes e-filing and office automation of government departments including law, finance, services, Lahore Waste Management System (LWMC) etc. Similarly e-payment gateway has been established that will streamline levies collection from citizens. Punjab flood disaster management is another initiative, wherein applications have been developed with geotagging and pictorial evidences to ensure disaster management.

In education, IT enabled solution to long standing problems concerning monitoring and evaluation of staff, enrollment and retention of children at education institutions remained IT board's focus. In this regard, real time monitoring of 47,856 public schools in Punjab was done with help of SIM based tablets for monitoring officers to submit visit forms online. School information system for public school is designed to track enrollment and retention of students. So far 10.6 Million students have registered through this system in Punjab. Similarly, projects including measuring student learning outcome cost effectively, automation of large scale exam system, college admission "Online, not In-line" and e-learn Punjab localized ed-tech solutions are major success in making education sector IT enabled.

College Admission "Online, not In-line" project was launched with Higher Education Department, whereby standardized admission application mechanism that is simple, convenient and cost effective was implemented across all public colleges of Punjab. The system reduces number of physical visits of students and parents for admission, keeps the admission process simple, convenient and transparent and reduce application compilation and merit list preparation time. Over one million applications have been processed via this system. This system is implemented in over 716 colleges that are offering 2,767 courses. Plans are to integrate it with mobile payment platforms to further streamline the application fee payment process.

In health sector projects including tracking vaccinators (e-vaccs), Disease Surveillance System, Dengue Tracking System, Biometric Attendance System for Health Facilities, Monitoring System for Polio Campaign, Drug Inspection and Monitoring Evaluation System, Drug Testing Laboratory Automation Program, Medicine Procurement, Electronic Medical Record and Hospital Information Management System, BHU Clustering, ensuring health services standards through MEA health, health watch and maintenance and cleanliness system are being implemented in the province.

**EASE OF DOING BUSINESS**
**Registration Portal**

E-registration Portal has been developed in collaboration with World Bank, Industries, Commerce, Investment Department and other related departments. It has reduced the registration processing time from 7 to 2 days and business can register online.

The PITB along with expanded program on immunization under its mission to eradicate Polio addressed the vulnerabilities of the program. These vulnerabilities were related to less geographic coverage and performance of field vaccinators. The PITB provided vaccinators smartphones with applications to digitize their field work and monitor attendance and performance. The smartphones were used to enter real time immunization records that were sent to centralized data base. With this application, attendance of field staff rose from 36% (2014) to 94% (2016) and geographic coverage improved to 88%. The project was replicated in KPK and Balochistan.

The law and order projects undertaken by PITB include Electronic FIR, Punjab Police HR Management Information System (HRMIS), Computerization of Police Stations, Complaint Management System, Criminal Record Management System, Criminal Identifier, IG Khuli Kachehri, Automation of Lahore High Court, Tenant Registration System , Crime Mapping, Anti Vehicle Lifting System, Legal Dispute Tracking System, Reforms in Motor Vehicle Registration, CTD geotagging, Call Data Record based crime analysis, Punjab Police Toolkit and Prison Management System.
There are number of agriculture focused projects that have been undertaken by PITB along with Punjab agriculture department which includes agriculture e-credit scheme,

potassium and DAP subsidy, wheat procurement, kissan card, restaurant invoice monitoring system, market information application, fertilizer and pesticide monitoring system, district management price control and many other such projects.

| *PITB Entrepreneurship Initiatives* | | |
|---|---|---|
| Initiatives | Employment Created | Investment US$ |
| PLAN 9 | 1,000 + | 3.0 Million |
| PLAN X | 800 + | 3.8 Million |
| TechHub Connect | 2,600 + | 2.6 Million (foreign remittances) |

## Khyber Pakhtunkhwa Information Technology Board (KPITB)

KPITB has been established to use information technology as the main enabler to address the key challenge of employment generation in KP province, making IT-lead and other innovative businesses the major source of our economy. In this regard, the board has taken number of initiatives including trainings, youth employment, IT parks, IT centers, telemedicine centers, KP cyber security, response center and automation of police FIR registers etc.

There are number of initiatives undertaken by the board that are underway and will be operational in near future, whereas, expected benefits are huge. In collaboration with the KP health department, KPITB signed an agreement with COMSATS internet services for establishing and operating a telemedicine center in Behali, district Mansehra. The facility will be extended across Khyber Pakhtunkhwa. Similarly KP-CERC is the first of its kind project, pioneering new cyber security technologies and programs, ensuring a safe cyber space for the citizens. KP-CERC will comprise of two wings: (a) Counter & Response wing (b) Research & Development wing. The purposes of both wings collectively will be to provide proactive and reactive response towards any kind of cyber attacks. Similarly number of initiatives have been taken by IT board for training of human resource in the field of ICT thereby creating pool of resources for employment opportunities that are expected to rise as the sector grows. Table depicts number of people trained in different initiatives undertaken by KPITB.

*Durshal (doorstep)* - Innovation centers have been inaugurated in several cities of the province including Swat, Mardan, Swabi and now in Peshawar. Basic objective is to link growing opportunities with technological developments. In addition, Durshal aims to advance entrepreneurship with a view to promote inclusion of women and disadvantaged groups to provide the appropriate opportunities to entrepreneurs and youth to find technological answers to today's problems. This includes designing systems and services for the government so that its processes can be improved for the better.

**Human Resource Trained by KPITB**

| Program | Number of persons trained | Hosts/Collaboration |
|---|---|---|
| Internships | 1,700 | IT Parks |
| SKILL for YOUTH (CISCO Trainings) | 3,250 | 40 CISCO training academies |
| International Internships | 23 | IT Companies in China under China accelerators. |
| Early Age Program | 2,700 (Students) | Harvard.org and MIT Scratch Curriculum in 60 Gov. schools of KPK |

*IT Parks* - Looking at the growing demand for complete IT setups, KPITB envisioned IT parks to house the technology setups in best technical environment. In this regard two parks have been set up and running in Peshawar and Abbottabad. There are currently 90 IT companies working in these IT parks that have created employment pool of 748 professionals. These IT parks are offering 80% subsidies on rent, power and broadband to companies working in these parks. Abbottabad IT park is planned to be converted into mini technology estate, keeping in view its strategic position alongside CPEC route, which will ensure fiber optic connectivity and hydel power availability, reduced long term operational expense benefits are expected.

## Pakistan Software Export Board (PSEB)

PSEB is a pivotal organization of Government of Pakistan with a mandate to ensure sustainable development of IT industry, boost cooperation with international IT entities and create attractive environment for investment in Pakistan IT sector. There are 950 IT companies and around 650 call centers registered with PSEB. PSEB has successfully been achieving its goals with consistent growth in IT& ITeS-BPO remittances over a decade with cumulative growth rate of 20%. There has been 150% growth in IT& ITeS-BPO in last five years. The IT exports by Pakistan has crossed US$ 3 Billion per year and annual domestic revenue is more than US$ 1 Billion. Today total revenue of IT industry in Pakistan is estimated to be around US$ 4.5 Billion a year.

Software Technology Parks (STPs) are a major factor in facilitating IT industry. Currently PSEB has made available over 800,000 sq. ft. IT enabled office space in 12 designated Software Technology Parks where around 80 public and private IT/ITeS companies are engaged in software development and export services. Two more IT parks, one in Islamabad and one in Karachi are underway by PSEB.

State of the art ICT communication infrastructure has been provided in STPs to ensure high quality and reliable bandwidth services. PSEB data node operation is serving over 144 satisfied IT companies working inside and outside the STPs in Islamabad, Lahore, Karachi, Peshawar and Abbottabad. Companies are benefitting from colocation services to reduce Opex with 24x7 uninterrupted power supply. With this facility, the PSEB has converted Islamabad STP into WiFi enabled building.

In last five years PSEB has created 3,800 paid internships in different IT companies in Pakistan with objective to create jobs for at least 70% of these interns. In 2018-19, PSEB plans to engage 3,000 more interns in IT industry.

# 03

# ENTERING THE ERA OF DIGITAL MONEY

## DFS Ecosystem and Market Status

The rapid and widespread adoption of mobile phones and mobile broadband technology with over 56 Million mobile broadband subscribers in Pakistan has not only created a solid base for digital transactions but is also resulting in new and innovative business models that deliver financial services at lower prices and with broader customer reach. Under the bank-led model, authorised financial institutions, cellular mobile operators and technology firms have improved their financial services and necessary infrastructure by developing user friendly and real time solutions. These players are capitalising on the technological advancements to bring disruption across distribution channels and product lines. The financial and telecom regulators have also extended continuous support to the DFS growth in the country by providing enabling environment through improved policies, laws and regulations according to changing market dynamics. The scope of alternate delivery channels and technologies has been expanded to include 3G and 4G spectrum for providing branchless banking services. The relevant regulations have allowed opening of basic level remote m-wallet accounts to promote usage of financial services among all segments of society. The SBP has issued 11 branchless banking

and three Payment Service Providers licenses to various players. PTA and SBP have already issued first joint license for the interoperability solutions named TPSP and more are in the process.

The above mentioned DFS ecosystem has provided a reasonable base for the up take of digital financial services in the country. According to Finance Survey 2015, 23% adult population has access to formal financial institutions compared to only 12% in 2008. This has further improved during the last two years, as according to Findex 2017, account ownership in Pakistan has increased to 21% from 13% in 2014. This increase has been significantly contributed by the branchless/mobile banking accounts which have been increased to 38.5 Million at the end of March 2018 which is more than double the figure of 15 Million at the end of 2015. It is important to highlight that since the biometric verification of mobile connections in 2015, 23.5 Million new branchless banking accounts were added in the market.

**Number of Financial Access Points**

| | 2011 | 2015 | NFIS Launched | March 2018 |
|---|---|---|---|---|
| No. of Branches | 9,362 | 11,937 | | 14,850 |
| No. of POS | 37,232 | 41,183 | | 53,509 |
| No. of ATMs | 5,200 | 9,597 | | 13,835 |

Source: State Bank of Pakistan

Despite above mentioned improvements over the years, we are well short of the DFS growth potential available through over 150 Million biometrically verified mobile connections across the country. In order to tap this potential, our DFS ecosystem needs to evolve to a state where consumers and businesses feel comfortable to leave their funds in digital form rather than cash. First step towards this direction is the delivery of bulk payments including Government to Person (G2P) and Business to Person (B2P) through mobile wallet accounts. Payments through these wallet accounts should be acceptable and as easy as paying cash at the merchants' outlets. However, consumers do not keep their funds in the digital wallets and mostly use cash as they do not find utility in keeping their funds digital, due to lack of convenient options to use those funds for day to day transactions. Due to this reason, out of 38.5 Million mobile wallet accounts, 53% are inactive. Government of Pakistan has initiated delivery of BISP (Benazir Income Support Program) payments through wallet accounts which is the biggest program of poverty alleviation in Pakistan. Many other G2P payments can be channelized through mobile wallets. Secondly, payments across different channels should be ubiquitous and interoperable for the consumers, wherein, anyone can transfer money to anyone through any channel. In this direction, PTA and SBP have initiated joint licensing of TPSPs for interoperability of digital financial services under any-to-any model, however lot more efforts are required to accomplish large scale interoperability. Thirdly, delivery of

**Impact of Digitization**

| | 2010 | 2015 | NFIS Launched | March 2018 |
|---|---|---|---|---|
| Internet Banking Users | 0.8 Million | 1.8 Million | | 2.9 Million |
| No. of Internet Banking Transactions | 0.9 Million | 16 Million | | 22.3 Million |
| Value of Internet Banking Transactions | Rs. 44.7 Billion | Rs. 798 Billion | | Rs. 886 Billion |
| BB Accounts | 0.3 Million | 15 Million | | 38.5 Million |
| No. of BB Transactions | 36 Million | 375 Million | | 532 Million |
| Volume of BB Transactions | Rs. 138 Billion | Rs. 1,872 Billion | | Rs. 2,269 Billion |
| No. of transactions through mobile applications | - | 6.6 Million | | 15 Million |
| Volume of Transactions | - | Rs. 113 Billion | | Rs. 278 Billion |

Source: State Bank of Pakistan

additional services including savings, insurances, investments and loans through digital wallets can be an enabler to achieve long term financial inclusion targets and sustainability of the digital financial services in the country. For the overall success, development of consumers' trust in digital technologies is crucial.

## Regulatory and Industry Initiatives

Realizing the critical role of information technology in the banking industry, the financial and telecom regulators have been pushing the financial and telecom industries to upgrade and transform their systems for the digital age. Various initiatives for the implementation of electronic payment channels in the country have been taken that include development of strong legal and regulatory framework such as SBP's branchless banking regulations 2008 (upgraded in 2011 & 2016) PTA/SBP Joint regulations for technical implementation of mobile banking and interoperability 2016, robust payment systems infrastructure, Real Time Gross Settlement (RTGS) system, fully interoperable ATM switches, availability of fast broadband through PTA's spectrum auctions in 2014, 2016 and 2017, mobile and branchless banking services in collaboration with banks and mobile operators. These are opening up new areas of possibilities in the Business to Business (B2B), Business to Customer (B2C), Government to Person (G2P) and Person to Government (P2G) payments. This has resulted in financial deepening of the economy.

Besides enabling the payment infrastructure, Government of Pakistan is striving to promote access to and usage of formal financial services for achieving inclusiveness which is a prerequisite for wider distribution of the economic growth across all regions and segments of the population. In this connection, Government of Pakistan has

developed/adopted a broader NFIS which aims to enhance formal financial access to 50 percent of the adult population by 2020 from the level of 23% measured in 2015 under Access to Finance Survey 2015. However, the overall goal is to achieve the objectives of universal financial access.

During 2017-18, regulators and key players in the DFS market have taken number of initiatives to enhance the pace of DFS growth in the country. Major regulatory initiatives, joint efforts of the public private partnerships and market developments are discussed in the following paragraphs.

## Implementation of National Financial Inclusion Strategy

***Development of Assaan (Easy) Mobile Account (AMA) Scheme:*** The scheme aims to facilitate 2 minute account opening process and allows transactions with a basic/feature mobile phone from anywhere at any time. The scheme will improve the 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 will provide digital access to a range of quality financial services. Further, it will facilitate customers to remotely open Branchless Banking (BB) accounts of their choice and use all financial products & services available at AMA platform. AMA scheme aims to spur faster adoption and greater levels of usage of Digital Transactional Accounts (DTAs) and DFS by both individual consumers and small merchants who can accept payments through DTAs. The scheme intends to simplify the industry's offerings and standardize the products & services being offered wherever possible, in order to present a more cohesive, attractive and universally understandable set of products for all users including merchants and agents nationwide.

SBP and PTA are jointly working for the success of AMA scheme and technical platform for this scheme is being provided by the joint TPSP license. In this regard, PTA has issued license to Virtual Remittance Gateway Private Limited (VRG) in January 2018. AMA scheme is currently in the pilot phase to test the solution in a live environment to validate the system connectivity, integrations and user acceptance. After the pilot test, the scheme will be launched on commercial scale and its scope will be extended to all BB providers.

***Integration of TPSP and CMOs networks for interoperable solutions:*** PTA has facilitated CMOs and VRG in finalizing their commercial and technical arrangements for the provision of interoperable solutions and implementation of AMA scheme. In this regard, meetings were held with the stakeholders at PTA Headquarters, Islamabad. SBP representatives also attended the meetings. CMOs nominated their technical and commercial officers for coordination with VRG and technical requirements were shared

between VRG and CMOs. The stakeholders had rounds of deliberations on the modalities of USSD sessions, account opening processes, KYC requirements and APIs. VRG and CMOs have required to update their solutions as per the deliberated technical integrations for an early pilot launch.

***Rationalization of NADRA's Verification Cost:*** In order to facilitate mass enrollment of DTAs, NADRA has reduced the verification cost from Rs. 35 to Rs. 10 and started to provide data to all BB providers on seven standardized identification fields to meet low cost KYC requirements for opening of BB accounts through BVS. NADRA has also extended the same services for micro insurers.

***Adjustment of Withholding Tax (WHT) on cash withdrawals made by Branchless Banking agents:*** BB agents conduct banking transactions on behalf of their customers and such transactions are being settled on daily basis which attract withholding tax when withdrawals exceed Rs. 50,000 limit. It was, therefore, recommended to the NFIS Council that Federal Board of Revenue (FBR) may consider adjustment of withholding tax on cash withdrawals by the BB agents to the extent of disbursements made to their clients. The proposal was approved under Finance Bill 2017-18 and the relaxation has been provided to the agents.

***Home Remittance Account (HRA):*** Under NFIS, State Bank of Pakistan (SBP) designed a scheme for promotion of home remittances through Mobile Wallet (m-wallet) which was launched by the Prime Minister of Pakistan on December 22, 2017. The scheme incorporates a new category of branchless banking accounts titled Home Remittance Account (HRA) to promote swift and cost effective way of receiving remittances from abroad. These will either be new accounts, or existing BB accounts to be tagged as HRA on the request of the customer.

***DFS – Innovation Challenge Facility (ICF):*** has been setup to support financial service providers, financial technology providers and institutions to develop new or expand on existing digital financial products, services and delivery platforms that will increase financial access for people living at the bottom of the pyramid. The facility was widely advertised in leading newspapers and invited first cycle of proposals around the theme of Assaan Mobile Account (AMA). In this regard, few proposals have been received which

will be reviewed by the evaluation committee. That has representation from SBP, PTA, DFID and private sector.

***Pakistan Financial Inclusion and Infrastructure Project (FIIP):*** To support the implementation of Pakistan's NFIS, the World Bank has approved a FIIP worth US$ 137 Million. The Project will focus on improving market infrastructure and institutional capacity, supporting the uptake & usage of Digital Payments, Financial Services and improving access to financial services for micro-enterprises and Small & Medium Enterprises (SMEs) and Medium, Small & Medium Enterprises (MSMEs). The project will also support to substantially increase access and usage of financial services by women and will also support women owned MSMEs.

## Digital Finance for Agriculture

Government of Punjab initiated a program of Connected Agriculture Platform for Punjab (CAPP) aimed to provide financial resources (agriculture subsidy) and information like weather, crop calendar, expert opinion and supply chain tracking etc. to farmers through android apps all across the province. The Agriculture Department, Government of Punjab has launched five year Kissan (Farmer) Package Program aimed at digital and financial inclusion of 500,000 small land holder farmers who will be provided interest free loans. Farmers have been provided digital apps on their smart phones. It has simplified on-boarding process of farmers and streamlining the disbursement of loans. 93% of the farmers were new to banking system. As of June 2018, over 69,000 mobile wallets were opened and Rs. 11.95 Million were disbursed via mobile wallets into the farmers' accounts.

# Digitization of Government Payments & Receipts

Government departments are collaborating with the regulators to initiate digitization of their existing manual systems. Recent initiatives include online collection of sales tax in Sindh, online collection of FBR taxes, online collection of custom duties, online marking of cheque/instruments for government payments etc. In order to facilitate pension payments through alternate delivery channels, Controller General of Accounts (CGA) in collaboration with NADRA is working to develop a solution for proof of life in pension payments through biometric verification system. Punjab and Sindh Land Revenue Authorities are also collaborating with the regulators to adopt Land Revenue Management Information Systems (LRMIS) in Punjab & Sindh through provision of online verification and charge creation facility to agriculture lending banks.

Bureau of Emigration & Overseas Employment (BE&OE) has digitized its recruitment payments. Payments for registration, insurance, promotion and welfare can now be made through one transaction through JazzCash. Around one million people apply for overseas employment every year. Long and tedious payment process used to hinder employment opportunity when applicants have to visit multiple offices and banks to make payments. With digital payments solution, general public can pay for overseas employment applications using 80,000 retailers all over Pakistan and 24-hour payment offered with mobile wallets.

Tax payment is considered a tiresome task where tax payers are required to stand in ques at multiple locations to make tax payments. This process discourages potential taxpayers and prevents them from paying tax in the future. In order to smoothen the process, tax collection process has been digitized wherein motor vehicle, property, professional and trade taxes can be collected through digital payments as well. Digitized tax collection has increased transparency and reduced dependency on cash payments. Similarly, m-tag recharges are also available through m-wallet accounts and agents outlets. This has reduced travel times for customers as they recharge prior to their trips and enter the m-tag lanes directly on the motorways.

Likewise, BISP has signed MoU with FINCA Microfinance Bank for women empowerment and financial inclusion. The initiative is aimed at increasing women financial inclusion footprint and graduation of BISP beneficiaries to women entrepreneurs. BISP will leverage FINCA's digital financial services including SIMSIM, a digital mobile wallet which offers easy and quick on boarding, zero transaction fee and access to range of services including bill payments, money transfer, lending and online market place among other product offerings.

## Digital Credit and Micro-Financing through Mobile Phones

To leverage on 150 Million biometrically verified customers' access to mobile phones, Pakistan has entered into the digital credit era. Telenor Group's subsidiary, Telenor Microfinance Bank has evaluated the feasibility for digital credit in the country. The Bank has partnered with JUMO, a company focused on combining data and technology to provide low cost loans. In 2017, Telenor had a pilot of digital lending. Easy Loan is a small short term loan, ranging between Rs. 1,000 – 10,000, offered for either 7 or 14 days. It incurs a one time variable processing fee, followed by a fixed late fee of 2.5% in case of late repayment. This is a first of its kind product in Pakistan and has the potential to promote real financial inclusion, reaching out to a large customer base of mobile phone connections in the country. It is expected that digital credit can effectively include peripheral markets such as Gilgit Baltistan, Southern and Central Sindh and Southern Punjab in addition to deepening its reach in existing markets.

Increased penetration of broadband services in Pakistan has opened up not only new avenues of business but has also created opportunities to gain access to financial services resources. 'Careem' and 'Uber' have expanded their services to many cities in Pakistan, providing convenient and cost effective transport means for general public while creating thousands of additional jobs. In order to facilitate their businesses, these firms are also collaborating with microfinance banks of mobile companies for financing on easy instalments, empowering the people of Pakistan through new and easy income avenues while promoting economic and financial inclusion in the country. Besides providing asset ownership to the drivers, the partnership also offers them a steady source of income through these platforms.

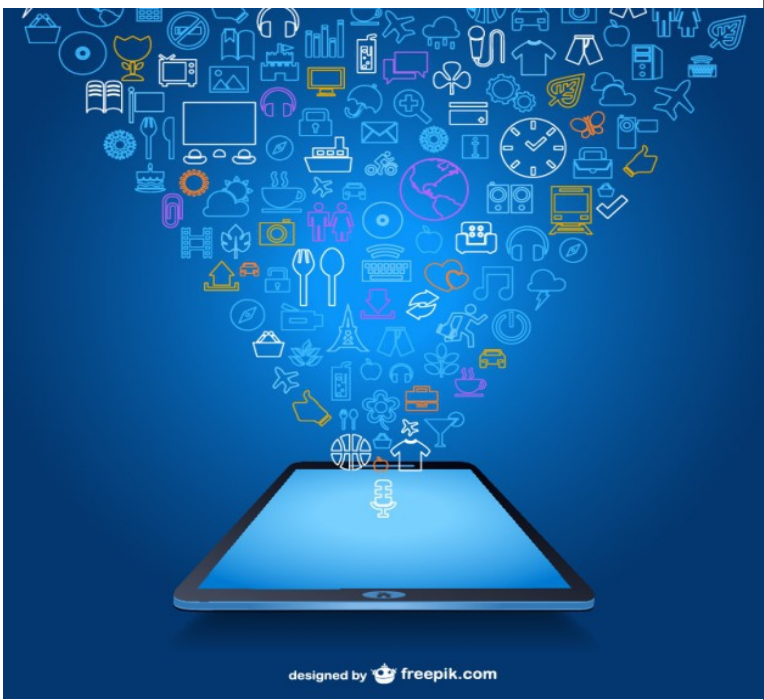
Microfinance banks and mobile operators are creating value for their partners and customers by offering lean and convenient means of accessing financial services. Loan disbursements and repayments could now be conducted swiftly and securely Over-the-Counter (OTC) outlets in marginalized districts. Value chain financing products have also been launched to provide financing for business enhancement. This loan is disbursed and

collected through m-wallet accounts, saving customers time and monetary resources required for branch visits. Repayments are enabled through weekly payments. Insurance coverage is also being offered to motorists using state of the art car tracking system which provides real time insights on factors such as speed and location etc. The system uses an internet enabled SIM to communicate updates from the car to smartphones or web portals for management purposes.

Government of Punjab has also launched e-Kissan project in December 2017, which aims to reach out to farmers to service their financing needs, the vast majority of whom had never taken a loan from a formal financial institution before.

## Digitization Education

CMOs and banks have partnered with various school systems including Roots, Headstarts etc. to pay their school/college fee through m-wallet accounts and agents outlets or online. Amongst others, recently Jazz partnered with the HED of Khyber Pakhtunkhawa Province to digitize the admission fee of public colleges across the province. Before this, students were required to visit dedicated bank branches along with a challan form to deposit fee. Now, all students have to do is visit HED's official website, register themselves and pay at any of their nearest JazzCash retailers nationwide. For many in the rural areas of Pakistan, education is often a way of breaking out of the poverty cycle. Yet most of them do not have bank accounts, which makes it difficult for rural support organizations to transfer money that would help them pay for school. Rural outreach of OTC outlets are collaborating with these organizations to disburse stipends to students. JazzCash has provided such support to Sindh Education Reform Program to support 600,000 female students of class vi to x. For efficient wallet opening process, mobile banking agents visit each school personally to register wallets for students/guardians. Funds are disbursed on these wallets which can be later withdrawn from agents all across Pakistan. Similar arrangements have been made with Punjab Vocational Training Council to ease the disbursement process on Mobile Wallets of the trainees.



## International Recognitions

Mobile operators with far reaching mobile broadband services are bringing in new digital experiences with convenient business and financial solutions. Mobile operators' DFS units have entered into several partnerships with the government and private entities to enhance digital financial inclusion in the country. A wide range of branchless banking services are being provided including money transfer, bill payments, bank transfers, insurance, savings and payment gateway impacting lives of millions of people across Pakistan. In recognition of their innovative solutions, Pakistan's leading mobile operators have received two prestigious international awards in 2017-18. These awards truly showcase those companies that are driving innovation in the rapidly evolving mobile industry.

JazzCash has received one of the most prestigious GSMA Glomo Award for being the "Best Mobile Product, Application or Service for Women in Emerging Markets" in 2017. JazzCash received this award in recognition to its commitment to increase financial literacy for women across Pakistan.

Telenor's Easypaisa has also received the esteemed GSMA Mobile Money Certification in April, 2018. The certification is a global initiative to bring safer, more transparent and more resilient financial services to millions of mobile money users around the world. The acquisition of the GSMA Mobile Money Certification proves Easypaisa's efforts in the provision of mobile money services and commitment to delivering quality, safe and fair services to customers.

## Challenges

Under the NFIS, Government of Pakistan has set financial inclusion targets for 2020. The progress made so far is as under:

| Indicators | NFIS Target 2020 | Baseline | Progress made |
|---|---|---|---|
| Percent of adults with a transaction account | 50% | 10.3% in 2014 | 21% |
| Percent of Women with a transaction account | 25% | 2.9% in 2014 | Approx. 7% |
| Percent of adults who save at a formal Financial Institution | 10% | 1.4% in 2011 | 6% |

Despite significant growth of broadband services in the country and uptake of mobile/branchless subscription, a widespread adoption of financial services in the country is still lacking due to low digital literacy, lack of local content and lack of awareness and adaptation to DFS in Pakistan. 53% of mobile/branchless banking accounts are inactive

due to less utility to keep funds in digital accounts and limited options to do daily transactions by the users. Hence, low activities on new accounts, low deposits and high Over-the-Counter transactions are still a challenge.

There is a need of an interoperable DFS infrastructure where users have liberty to do widespread transactions at ease with confidence & trust. Long term sustainability of this infrastructure requires provision of low cost, innovative and demand side solutions to unfold those opportunities which were traditionally out of the reach of Pakistani population and small businesses.

# 04 TOWARDS INFORMED TELECOM CONSUMERS

Communication technologies dwell on access, affordability and quality so that telecom consumers live their digital lives comfortably. In todays' interconnected world with range of digital facilities, time and money are two most important factors that drive the telecom consumers. The telecom regulators are faced with a challenge to protect the consumers that are using digital services evolved with latest technology revolution. A holistic strategy with specific set of rules, mechanism, awareness drive, transparency and accountability are the elements on which consumers remain satisfied with telecom services.

Pakistan Telecom Authority has always prioritized telecom consumers and have been inventing most effective mechanisms to keep the consumer satisfied with availability, service quality, affordability and response mechanism for complaints regarding telecom, social media services and fraudulent activities. PTA remains vigilant of its role and keeps on upgrading and updating to stay abreast with the ever increasing and ever changing concerns of telecom subscribers. PTA's call center and other communication modes have matured over the years. Increased influx of complaints is indicative of the fact that

PTA's efforts are successful in creating awareness about knowing your rights and trust on fair redressel.

## Resolution of Consumer Complaints

PTA received over 40,000 complaints during the year and 99.64% were redressed in cooperation with respective operators. Almost 50% complaints against CMOs were of "Misuse of service", which includes complaints related to fraudulent, unsolicited, spamming and obnoxious communication. Details of complaints received against each service type is placed in Table below:

**STATUS OF CONSUMER COMPLAINTS AGAINST TELECOM OPERATORS JULY 2017 to JUNE 2018**

| Service Type | Total Received Complaints | Total Redressed Complaints | Redressal % |
|---|---|---|---|
| **CMOs** | 26,829 | 26,752 | 99.71% |
| **PTCL** | 12,873 | 12,803 | 99.46% |
| **ISPs** | 766 | 766 | 100% |
| **WLL** | 34 | 34 | 100% |
| **Total** | **40,502** | **40,355** | **99.64%** |

Since most of the population is using mobile services therefore over 65%of the total complaints received at PTA were against them. PTA further categorizes these complaints and resolve them according to the available legal tools in cooperation with respective operators. Individual complaints are although of the same nature, however, some remains to be different and require different strategy altogether to resolve. One such issue relates to charges on international roaming on data services.

An alarming issue is of fake text messages and phone calls from unknown numbers enticing subscribers with attractive prizes, lotteries and plots or wining any draw in which telecom consumers are being deceived and deprived of their hard earned money. Also calls and marketing messages from unwanted numbers has become a nuisance for telecom users depriving them of their right to privacy. To address these issues, PTA felt strong need of raising awareness on these issues in print and electronic media, against "Deceptive, fraudulent calls & SMS's, unsolicited/ marketing/ spamming calls & SMS's, obnoxious, unwanted calls & SMS's". The awareness

campaign was broadcasted through radio, text messages and newspapers to raise maximum awareness among customers. Customers using mobile phones were informed and alerted through this advertisement that they should not transfer any cash (Mobicash, Upaisa, TimePay, Easypaisa etc.) or phone credits in response to such calls and SMS's from unknown numbers. Different modes of communication were used to highlight the issue and how to report such incidences to FIA and PTA.

## Efforts for Competitive Telecom Prices & Effective Tax Rates

Pakistan Telecom Authority under the available legal framework always tries to create a competitive environment where telecom tariffs/pricing are only dependent on market forces of demand and supply. Regulatory intervention is the last option for any anti-competitive pricing behavior of the operators and usually the market automatically corrects itself to any such practices. Our overall strategy for creating balance in affordability, service provision, quality of service and introduction of latest technology remained successful over the years and today we have one of the lowest telecom tariffs in the region. Call prices as well as data prices in Pakistan are competitive and have remained to be stable or decreasing gradually over last couple of years.

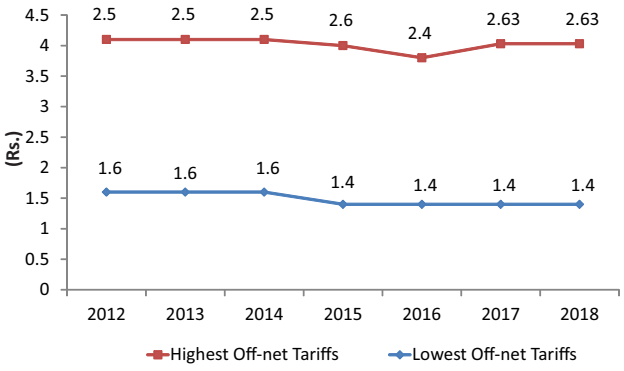
As much as, over 96% of mobile subscribers base in Pakistan use prepaid services. An analysis of tariff trend of prepaid (maximum and minimum) price packages for both off-net and on-net is given in the graphs. The trend shows that prepaid, off-net per minute prices are hovering between Rs. 1.4/min & Rs.2.63/min. Such wide band of off-net tariff is indicative of large choice of tariff plans offered by the CMOs for convenience and customized requirements of the subscribers. Similarly prepaid on-net per minute tariffs show that although the same wide variation is there i.e. between Rs. 1.00/min to Rs. 2.63/min, however, the lowest on-net rates are almost 40% lower than minimum off-net.

This insignificant variation between off-net and on-net rates is due to the competition among operators which in turn is benefitting the subscribers.

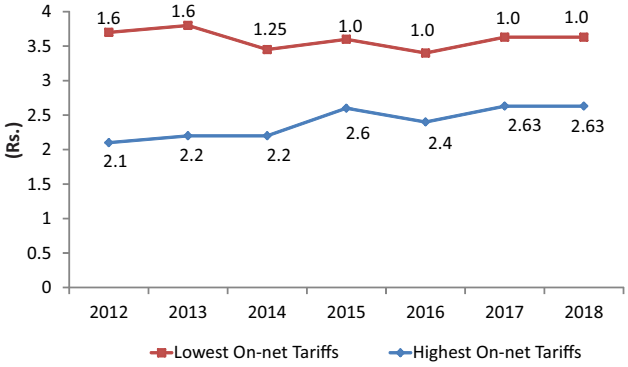
One of the major concerns of telecom industry and telecom consumer remains to be high taxes on the telecom services. Taxes that are deducted on using mobile services includes WHT @12.5%, GST/FED @19.5% in Punjab, KPK, Baluchistan, Sindh and 17% in rest of the country. In addition to these taxes, the mobile operators are also charging services and

operational charges @ 10% and call setup fee @ Rs. 0.15 per call. Therefore infact the telecom subscriber is subjected to number of taxes/levies and charges other than tariff of a services. Pakistan telecom sector is currently one of the highest taxed sector among regional countries where telecom GST in Iran is 8% and in India it is 14% compare to Pakistan of 19.5%. Pakistan Telecom Authority being responsible for bringing relief to telecom consumers continue to convince the Government of Pakistan through sending proposals for consideration in Annual Budget every year for reduction in taxes. Supreme Court of Pakistan on May 3, 2018, took suo moto notice of deduction of charges including taxes and levies on the mobile services and suspended them. The case however, has not been decided as yet therefore the taxes remain suspended till Federal Board of Revenue (FBR) submits rationalized tax proposal.

**Off-net Tariff Trend (Rs./Min)**




**On-net Tariff Trend (Rs./Min)**




## Quality of Service Surveys by PTA

PTA carries out quality of service surveys from time to time, in order to assess the quality of various telecom services being provided to the subscribers through drive test tools. On the basis of these surveys, telecom operators are directed to improve provision/quality of service wherever and whenever required. However, this year PTA also undertook a special survey in which the call centers, service centers & franchises were assessed to see if the CMOs are providing appropriate help/information to the customers through their customer care facilities. Apart from this, call centers' performance of all service providers including CMOs, LL, FLL, WLL and CVAS operators was also assessed with respect to Help Line Performance.

## Customer Perception Survey

PTA for the first time carried out a customer perception survey in order to assess whether telecom users of both mobile and fixed line sources are satisfied or not. On the basis of answers, the performance of call centers was to be rated either fair, good, very good or excellent. The overall satisfaction level of the telecom consumer was satisfactory. However, subscribers generally complained more about difficulty in approaching call center agent. It was noticed that overall performance of the operators from consumers' perspective varied between excellent and good. The results have been shared with relevant operators for taking required action for improvements accordingly.

## Emergency Service Access`

Access to Emergency services from both mobile and fixed line numbers were assessed in the survey to check if people get through to the services like helpline (emergency 15), fire brigade (16) and ambulance (1122) easily. It was observed that getting through to emergency services from mobile numbers was difficult, however, the fixed line service provider's network responded well when emergency services were dialed.

Operators have been informed about the issues observed during the surveys and have been directed to work on improving the quality till the next survey. This kind of survey has never been carried out before, therefore it is considered to be an attempt in making operators more responsible towards their subscribers both in providing information, resolving complaint, access to emergency services, call center performance etc. PTA plans to carry out such surveys in future to ensure consumers satisfaction.

## Safeguarding Our Consumers in World Wide Web

Historically and predominantly, PTA has been acting under the functions and powers given by the Pakistan Telecom (Re-organization) Act, 1996. However, with the development and growth of World Wide Web (www), PTA has been entrusted upon the responsibilities for blocking/removing of any content which is declared unlawful under the relevant provisions of the law. This responsibility was handed over to PTA under

Prevention of Electronic Crimes Act (PECA), 2016. Since the promulgation of PECA, PTA stands committed to its responsibilities to facilitate the aggrieved internet users and stakeholders, including but not limited to government organizations, public offices, business entities and other agencies. In this course, PECA also identifies the areas under which blocking/removal of unlawful content would be addressed which are "against the glory of Islam, against the integrity, security and defense of Pakistan, public order, contempt of court, against decency & morality and incitement of any offices under section 37 of the PECA, 2016". Complaints received with PTA against the unlawful online content including Anti State, Anti Judiciary, Blasphemy, Pornography and Proxy etc. In this regard, PTA has blocked 824,878 URLs so far which came in its jurisdiction under PECA.

In order to handle this gigantic role, PTA has established Cyber Vigilance Division (CVD). A standard operating procedure (SoP) for lodging complaints and their disposal has been developed accordingly. All such contents which are hosted on unsecured websites is being currently handled through telecom operators of Pakistan and same will be done by PTA itself through an automated system in future. On the contrary, any content which is unlawful and hosted on secured web site is handled differently. The popular social media websites like facebook, youtube and twitter etc. are a few examples of secured websites which are hosted out side of physical boundaries of Pakistan. In this regard, PTA has developed close liaison with all such platforms in order to honor the requests made for removal of such content.

It is pertinent to mention that users of social media must act responsibly while using and accessing such platforms and should honor the norms of the society and the laws of the land. In case of objectionable content is observed by any user, these platforms are open to receive complaints from valuable users directly. Relatively high value is given to the complainant/users who report to the platforms any objectionable material directly. Those complaints which are not addressed by these platforms in the first instance can be reported to PTA at info@pta.gov.pk for escalating the matter.

# Complaints Under Defamation/ Impersonation

World Wide Web (www) has successfully penetrated to each faction of the society in Pakistan for making it a global village. Every hand, holding a smart machine plays a unique part in this whole activity. Though, the pros are enormous on the web yet the cons can't be ignored, no matter how small they could be. The most disturbing use of internet in the eyes of responsible users is defamation and impersonation of dignified members of the society in direct or indirect forms. In this regard, PTA has, so far, received 809 complaints from individuals from across the country and processed them to the largest extent.

# 05

# TURNING OUR CHALLENGES INTO OPPORTUNITIES

With the modern telecommunication networks deployed in most parts of the country, connectivity through wireless & optic fiber high speeds broadband internet, Pakistan telecom sector is progressing steadily to support country's digital development. Today we are focusing on conducting test and trial of 5G telecom networks in the country so as to make it available soon after its standards are finalized and take the country into a new phase of digital excellence. At this point in time when so much is happening in the local market and even more in the rest of the world, it has become a challenge for the regulator to strike a balance between managing of what we have, what we want our customers to have and what is expected to come regardless of time and space.

While managing the digital revolution that has entered Pakistan, PTA faced number of challenges, some temporary while others need deep understanding and management for turning these challenges into opportunities. Following are the major micro and macro level challenges in the face of ever more complex dynamics that need to be managed well to take the telecom sector to new heights.

# Social Media Management in Pakistan

In a very short span of time, social media which generally includes Facebook, twitter, WhatsApp and youtube has become significant part of everyday communication. Social media is playing a pivotal role to strengthen social ties among families, opinion making, fast conveying concerns of public to policy makers and government initiatives to general masses. The social media has eliminated cultural, social, religious and global boundaries for all ages, genders and nationalities. At the same time social media is also a threat to social, cultural and religious fabric of our society. It is a great challenge for us to make use of it in a positive way and particularly educate the young generation to use it for educational purpose, positively debate national issues and strengthen democratic system. The use of social media platforms for negative purposes can not be ignored. Towards this end, the government has made efforts and enacted the Prevention of Electronic Crimes Act (PECA), 2016 to ensure that no individual or organization is affected from misuse of social media. Similarly, PTA is collaborating with the managements of social media platforms for removal/blocking of the unwanted/illegal content on these platforms. However, these social media platforms are operated outside the geographical boundaries of Pakistan and local laws are not applicable on them therefore, at times it becomes difficult to get desired results. Efforts can be made to devise a strategy for the development of local based social media platforms. The locally developed social media platform will be easy to manage for their content and comply with relevant local laws. The local social media platforms will not only address the issue of monitoring and control of these platforms but also create business opportunities for the local talent and entrepreneurs.

## Establishment of Telecom Tribunal

While making regulatory decisions, PTA ensures that due procedure is followed as prescribed in the legal framework available for passing a decision. Starting from consultation with stakeholders to issuing of show cause notices till the right to appeal, PTA tries to be as considerate and cooperative as possible so that friction can be avoided. However, a large number of PTA's decisions, determinations, orders and even regulations are challenged by the licensees in the courts of law. Despite the fact PTA pursues the cases through its legal counsel and consultants, telecom cases still get delayed for justice due to heavy influx of other cases. Since the nature of telecom cases are mostly time bound, due to rapid advancements in modern technology and associated business model relevance therefore most of the times the delay in passing of decisions renders them ineffective. Under section 7 of the Pakistan Telecommunication (Re-organization) Act,1996 for speedy disposal of litigation related to telecom sector, establishment of telecom tribunal was proposed to the federal government. It is expected that the Telecom Tribunal may be established by the government for speedy disposal of conflicts in the best interest of the telecom sector.

## Establishment of Legal Framework for Technical and Non Technical Issues

Major developments have been witnessed recently in the telecom sector of Pakistan. The main focus of PTA is to extend maximum benefits of latest telecom and ICT services to the end users. Telecommunication service providers need to upgrades their network infrastructure and focus on providing high quality, reliable affordable and secure data/voice services to consumers. There are, however, few policy challenges to manage the latest developments in the sector. Policy guidelines are in place for granting accreditation to the crypto apparatus for its use in private sector. Similarly, one more challenge, waiting in the wings for telcos and ISPs, is the impact of Internet of Things (IoT) that is leading to an explosive growth in the connected devices. This accelerated growth will generate large number of new data sources and therefore push the data traffic to unprecedented amount of data per year on the telecom networks. Policy guidelines, criteria for technical specification of IoT, NOC/type approval on short range IoT devices are required to be

formulated. PTA has launched DIRBS to curb the menace of illegitimate IMEIs, facilitate legitimate device importers and improve overall security situation. In order to effectively implement the system there is a dire need to prepare policy guidelines on enforcement action against such violations. Deployment of small cells are taking place in the developed countries for solving the problem of indoor coverage and spectrum efficiency. There is a requirement to work with existing mobile operators and relevant stakeholders for deploying small cells for improvement of indoor coverage and spectral efficiency.

Unannounced service closure of mobile networks take place on the pretext of security concerns. Resultantly, consumers in such areas are handicapped in terms of keeping themselves connected. Keeping a balance between security requirements and rights of the licensees/consumers is a potential challenge and in this regard a policy may be formulated to address the issue.

## Right of Way

PTA has made every possible effort to improve the national and international connectivity. This is visible through the submarine cable landing stations in Pakistan and the network of OFC across the country connecting huge number of cities and towns. Thousands of miles have been covered with OFC networks providing high speed connectivity to whoever and wherever the requirement comes from. Pakistan is now getting ready for 5G cellular services, CMOs need redundant connectivity for uninterrupted services which requires OFC networks. One of the major issue for Long Distance and International

(LDI)/Local Loop (LL) operators in laying of OFC in Pakistan, is the right of way. In order to address the right of way issue, the Federal Government as per provisions of the Pakistan Telecommunication (Re-Organization) Act, 1996 has notified appropriate government departments/organizations to address the issue. PTA has also initiated a process for engagement of consultant to formulate a framework on the right of way. However, procedural delays, inaccessibility to certain geographical areas and rise in the cost of doing business due to taxes/levies by civic bodies in addition to federal government taxes and cumbersome procedures and some authorities demand for revenue sharing are creating obstacles for increasing OFC and other telecom infrastructure penetration in the country. Similarly, CMOs also face issues while erecting their towers for provision of services in different areas. This issue will become more pronounced when CMOs will start deploying small cells.

# ANNEXES

# Annex -1 : AUDITED FINANCIAL STATEMENTS

**PAKISTAN TELECOMMUNICATION AUTHORITY**
**BALANCE SHEET**
**AS AT JUNE 30, 2018**

| | Note | 2018 Rupees | 2017 Rupees |
|---|---|---|---|
| Due to Federal Consolidated Fund | | **15,888,544,306** | 9,721,953,172 |
| Due from Public Account | 5 | **(6,506,794,246)** | (6,693,197,265) |
| **Due to Government of Pakistan** | | **9,381,750,060** | 3,028,755,907 |
| **Non-current liabilities** | | | |
| Long-term payable to AJK and GB Council | 6 | **-** | 46,195,437 |
| Deferred liabilities | 7 | **1,045,553,017** | 911,385,970 |
| | | **1,045,553,017** | 957,581,407 |
| **Current liabilities** | | | |
| Unearned Revenue | 8 | **4,669,853,650** | 3,647,853,650 |
| Payable to AJK and GB Council | 9 | **274,030,866** | 261,968,688 |
| Income tax payable | 18 | **176,214,130** | 1,622,065,601 |
| Accrued and other liabilities | 10 | **114,888,406** | 305,731,970 |
| | | **5,234,987,052** | 5,837,619,909 |
| | | **15,662,290,129** | 9,823,957,223 |
| **Contingencies and commitments** | 11 | | |

| | Note | 2018 Rupees | 2017 Rupees |
|---|---|---|---|
| **Non-current assets** | | | |
| Property and equipment | 12 | **432,943,741** | 370,056,920 |
| Deferred tax asset | 13 | **186,118,261** | 187,738,001 |
| Long-term loans and advances | 14 | **234,540,295** | 238,689,384 |
| | | **853,602,297** | 796,484,305 |
| **Current assets** | | | |
| Fee receivable | 15 | **86,689,468** | 101,336,741 |
| Receivable from operators on behalf of AJK and GB Council - net | 16 | **7,560,630** | - |
| Advances, deposits, prepayments and other receivables | 17 | **1,445,143,882** | 1,232,863,740 |
| Tax refunds due from Government | 18 | **2,454,180,447** | - |
| Bank balances | 19 | **10,815,113,405** | 7,693,272,437 |
| | | **14,808,687,832** | 9,027,472,918 |
| | | **15,662,290,129** | 9,823,957,223 |

The notes 1 to 27 form an integral part of these financial statements.

**MEMBER (Compliance & Enforcement)**

**CHAIRMAN**

**PAKISTAN TELECOMMUNICATION AUTHORITY**
**INCOME AND EXPENDITURE STATEMENT**
**FOR THE YEAR ENDED JUNE 30, 2018**

| | Note | 2018 | 2017 |
|---|---|---|---|
| | | **Rupees** | Rupees |
| **Revenue** | 20 | **30,920,956,185** | 47,788,482,006 |
| **Expenditure** | | | |
| General and administrative expenses | 21 | **1,048,970,949** | 936,332,592 |
| (Reveral of provision)/ provision for doubtful fee receivable | 15.3 | **(596,207,587)** | 2,308,295 |
| Audit fee | | **800,000** | 700,000 |
| Financial charges | | **6,973** | 11,878 |
| | | **(453,570,335)** | (939,352,765) |
| | | **30,467,385,850** | 46,849,129,241 |
| Amortization of deferred grant | | **-** | 49,275 |
| Other income | 22 | **1,750,469,661** | 1,486,992,229 |
| | | **1,750,469,661** | 1,487,041,504 |
| Surplus for the year before taxation | | **32,217,855,511** | 48,336,170,745 |
| Less: Provision for taxation | 23 | **(8,158,980,659)** | (12,060,959,297) |
| Net surplus for the year transferred to due to Federal Consolidated Fund | | **24,058,874,852** | 36,275,211,448 |

The notes 1 to 27 form an integral part of these financial statements.

**MEMBER (Compliance & Enforcement)**

**CHAIRMAN**

**PAKISTAN TELECOMMUNICATION AUTHORITY**
**STATEMENT OF CASH FLOWS**
**FOR THE YEAR ENDED JUNE 30, 2018**

| | Note | 2018 Rupees | 2017 Rupees |
|---|---|---|---|
| **CASH FLOWS FROM OPERATING ACTIVITIES** | | | |
| **Surplus for the year before taxation** | | **32,217,855,511** | 48,336,170,745 |
| Adjustments for: | | | |
| Depreciation | 12 | **31,872,570** | 21,281,824 |
| Provision/(reversal of provision) for | | | |
| - accumulating compensated absences | | **13,895,079** | 33,828,015 |
| - employee's gratuity scheme obligation | | **72,098,867** | 9,133,196 |
| - pension obligation | | **876,636** | 1,004,550 |
| - post retirement medical benefit | | **36,879,560** | 35,990,644 |
| - doubtful fee receivable | 15.3 | **(596,207,587)** | 2,308,295 |
| Profit on bank deposits | 22 | **(646,271,353)** | (385,676,806) |
| Markup on NGMS license | 22 | **(1,079,524,773)** | (1,086,177,581) |
| Amortization of deferred grant | | **-** | (49,275) |
| Gain on sale of property and equipment | 22 | **(8,626,194)** | (11,251) |
| | | **30,042,848,316** | 46,967,802,356 |
| **Changes in working capital** | | | |
| Decrease/(Increase) in current assets | | | |
| Fees receivable | | **610,854,860** | 86,253,880 |
| Advances, deposits, prepayments and other receivable | | **(2,254,657)** | (3,454,739) |
| Receivable from operators on behalf of AJK and GB Council | | **(7,560,630)** | - |
| Increase/(decrease) in current liabilities | | | |
| Unearned revenue | | **1,022,000,000** | 161,702,400 |
| Accrued and other liabilities | | **(186,313,378)** | 212,175,252 |
| Payable to AJK & GB Council | | **84,009,651** | (239,237,341) |
| | | **1,520,735,846** | 217,439,452 |
| **Cash generated from operations** | | **31,563,584,162** | 47,185,241,808 |
| Contributory provident fund payable | | **51,992,475** | 37,989,362 |
| Long-term payable to AJK and GB Council | | **(46,195,437)** | - |
| Loans and advances | | **(1,296,772)** | (35,996,841) |
| Income taxes paid | | **(12,129,340,310)** | (11,615,970,705) |
| Accumulating compensated absences encashed | | **(33,200,714)** | (32,835,643) |
| Gratuity, pension and post retirement medical benefits paid | | **(12,905,042)** | (20,403,668) |
| **Net cash generated from operating activities** | | **19,392,638,362** | 35,518,024,313 |
| **CASH FLOWS FROM INVESTING ACTIVITIES** | | | |
| Purchases of property and equipment | | **(94,780,396)** | (26,928,199) |
| Profit on bank deposits received | | **466,123,066** | 390,582,459 |
| Markup on ISF of NGMS License received | | **1,055,093,436** | 198,958,182 |
| Proceeds from sale of property and equipment | | **8,647,199** | 46,642 |
| **Net cash generated from investing activities** | | **1,435,083,305** | 562,659,084 |
| **CASH FLOWS FROM FINANCING ACTIVITIES** | | | |
| Contribution to Federal Consolidated Fund (FCF): | | | |
| - Payment made to Frequency Allocation Board | | **(761,608,964)** | (447,431,978) |
| - Transfers made to FCF | | **(14,900,592,604)** | (33,127,056,084) |
| - Federal excise duty paid / adjusted during the year | | **(2,230,082,150)** | - |
| Movement in Public Account | | **186,403,019** | (198,129,094) |
| **Net cash used in financing activities** | | **(17,705,880,699)** | (33,772,617,156) |
| **Net increase in cash and cash equivalents** | | **3,121,840,968** | 2,308,066,241 |
| Cash and cash equivalents at beginning of the year | | **7,693,272,437** | 5,385,206,196 |
| **Cash and cash equivalents at end of the year** | 19 | **10,815,113,405** | 7,693,272,437 |

The notes 1 to 27 form an integral part of these financial statements.

**MEMBER (Compliance & Enforcement)** **CHAIRMAN**

# Annex - 2 : TELECOM REVENUES

Rs. Million

| | 2014-15 | 2015-16 | 2016-17 (R) | 2017-18 (E) |
|---|---|---|---|---|
| **Cellular** | 317,016 | 345,537 | 367,530 | 382,410 |
| **Fixed (LL+WLL)** | 81,874 | 82,229 | 76,465 | 77,411 |
| **LDI** | 40,890 | 26,759 | 20,109 | 22,261 |
| **CVAS+BB** | 2,468 | 2,499 | 6,031 | 6,668 |
| **Total** | 442,248 | 457,024 | 470,135 | 488,750 |

R = Revised
E = Estimated
*Revenue of CVAS are estimated (2014-18)

# Annex - 3 : TELECOM INVESTMENT

(US $ Million)

| | 2014-15 | 2015-16 | 2016-17 (R) | 2017-18 (E) |
|---|---|---|---|---|
| Cellular | 977.6 | 659.4 | 486.1 | 568.1 |
| LDI | 12.2 | 8.9 | 11.3 | 14.9 |
| Fixed | 15.5 | 62.6 | 147.1 | 87.3 |
| Total | 1,005.3 | 730.9 | 644.5 | 670.3 |

R = Revised
E = Estimated

# Annex - 4 : FOREIGN DIRECT INVESTMENT

(US$ Million)

| Financial Year | Description | Telecommunications |
|---|---|---|
| 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 (R) | Inflow | 116.6 |
| | Outflow | 207.4 |
| | Net FDI | (90.8) |
| 2017 - 18 (E) | Inflow | 246.9 |
| | Outflow | 174.5 |
| | Net FDI | 72.4 |

Source: State Bank of Pakistan

R = Revised
E = Estimated

# Annex - 5 : TELECOM CONTRIBUTION TO NATIONAL EXCHEQUER

(Rs. Billion)

| | GST | PTA's Deposits* | Others | Total |
|---|---|---|---|---|
| 2013 - 14 | 60.12 | 104.6 | 79.16 | 243.88 |
| 2014 - 15 | 45.77 | 7.0 | 73.49 | 126.26 |
| 2015 - 16 | 44.25 | 34.1 | 81.82 | 160.17 |
| 2016 - 17 (R) | 46.20 | 33.13 | 82.10 | 161.43 |
| 2017 - 18 (E) | 48.18 | 14.90 | 84.15 | 147.23 |

R = Revised
E = Estimated

*PTA's contributions comprise of all its receipts including Initial and Annual License Fee, Annual Radio Frequency Spectrum Fee, Annual Spectrum Administrative Fee, USF and R&D Fund Contributions, APC for USF, Numbering Charges, License Application Fee etc. Others include custom duties, WHT and other taxes.

# Annex - 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 |
| May-16 | 38,992,717 | 20,329,451 | 25,135,832 | 37,907,652 | 11,112,014 | 133,477,666 |
| 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 |
| 2017-18 | 55,469,118 | 20,314,686 | 30,890,633 | 43,564,216 | - | 150,238,653 |

Note: Warid merged with PMCL (Mobilink) with new name PMCL (Jazz)

# Annex - 7 : NGMS SUBSCRIBERS

| *Operator* | *CMPak (Zong)* | | *PMCL (Jazz)* | | *Telenor* | | *PTML(Ufone)* | *Warid* | *Total* |
|---|---|---|---|---|---|---|---|---|---|
| *Technology* | WCDMA/HSPA etc 3G | LTE 4G | WCDMA/HSPA etc 3G | LTE 4G | WCDMA/HSPA etc 3G | LTE 4G | WCDMA/HSPA etc 3G | LTE 4G | |
| 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 |
| 2017-18 | 9,267,411 | 7,353,105 | 14,830,050 | 4,376,394 | 10,511,774 | 3,115,119 | 6,630,766 | - | 56,084,619 |

# Annex - 8 : BROADBAND SUBSCRIBERS BY TECHNOLOGY

| Technology | Mobile BB | DSL | EvDO | WiMax | HFC | FTTH | 3G4GLTE (Fixed) | Total |
|---|---|---|---|---|---|---|---|---|
| 2013-14 | - | 1,352,057 | 1,861,118 | 530,889 | 37,011 | 14,848 | | 3,795,923 |
| 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 |
| 2017-18 | 56,084,619 | 1,590,623 | 410,859 | 100,967 | 61,479 | 67,716 | 23,551 | 58,339,814 |

# Annex - 9 : FIXED LOCAL LOOP SUBSCRIBERS

| | PTCL | NTC | Nayatel | WorldCall | Multinet | Wise Com | Total |
|---|---|---|---|---|---|---|---|
| 2015-16 | 2,658,538 | 114,535 | 47,112 | 1,977 | 5,373 | 795 | 2,828,330 |
| 2016-17(R) | 2,457,949 | 115,203 | 55,378 | 955 | 13,154 | 785 | 2,643,424 |
| 2017-18 (E) | 2,457,949 | 116,333 | 60,742 | 03 | 15,207 | 765 | 2,650,999 |

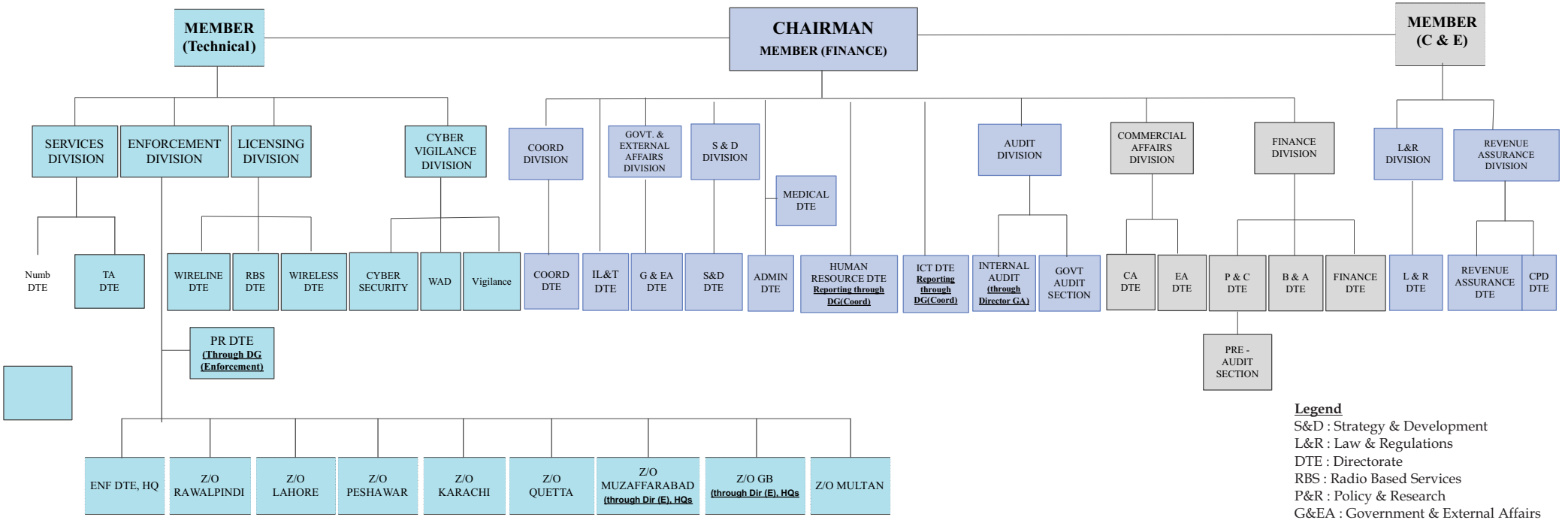
R = Revised
E = Estimated

# Annex - 10 : WIRELESS LOCAL LOOP SUBSCRIBERS

| | 2013-14 | 2014-15 | 2015-16 | 2016-17(R) | 2017-18 (P) |
|---|---|---|---|---|---|
| PTCL | 1,152,635 | 249,000 | 237,039 | 121,379 | 105,652 |
| NTC | 11,998 | 10,717 | 9,380 | 5,945 | 715 |
| WorldCall | 33,500 | 45 | 45 | 45 | 45 |
| Telecard | 258,001 | 8,321 | 8,321 | 8,321 | 992 |
| Wateen | 308,122 | 265,313 | 21,354 | 7,398 | 7,280 |
| Mytel | 32 | 33 | 0 | 0 | 0 |
| Link Direct | 60 | 60 | 60 | 60 | 60 |
| Sharp/Qubee | 80,597 | 80,597 | 59,616 | 59,616 | 53,178 |
| Wi-tribe | 199,886 | 160,880 | 119,466 | 96,746 | 115,715 |
| Nayatel | 14,630 | 14,630 | 14,630 | 14,630 | 15,633 |
| Total | 2,059,461 | 789,596 | 469,911 | 313,973 | 299,270 |

R = Revised
P = Provisional

# PTA ORGANOGRAM




**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

# Pakistan Telecommunication Authority

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