

# **ICT Sector Performance Review**

**for**

**Pakistan**

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## List of Acronyms

ARPU: Average Revenue per User  
CCP: Competition Commission of Pakistan  
DSL: Digital Subscriber Line  
FDI: Foreign Direct Investment  
FTTH: Fiber to the Home  
FY: Financial Year  
GDP: Gross Domestic Product  
GNI: Gross National Income  
GSM: Global System for Mobile Communication  
GST: General Sales Tax  
HFC: Hybrid Fibre Coaxial  
HHI: Herfindahl-Hirschman Index  
IMF: International Monetary Fund  
IPTV: Internet Protocol Television  
ISPAK: Internet Services Providers Association of Pakistan  
ITU: International Telecommunication Union  
MCP: Mobile Cellular Policy  
MNP: Mobile Number Portability  
MoIT: Ministry of Information and Technology  
MOS: Mean Opinion Score  
PTA: Pakistan Telecommunication Authority  
PTCL: Pakistan Telecommunications Company Limited  
QoS: Quality of Service  
RIO: Reference Interconnection Offer  
RITR: Reconciliation of International Telephony Traffic Regulations 2008  
SMP: Significant Market Power  
TH: Threshold  
TRE: Telecom Regulatory Environment  
USF: Universal Service Fund  
USFCo: Universal Service Fund Company  
WLL: Wireless Local Loop  
WiMax: Worldwide Interoperability for Microwave Access

## 1. Executive Summary

Pakistan crossed the 100 million mobile subscribers’ mark in July 2010 – a landmark achievement, rising from a mere 1.7 million in 2002. The country also surpassed the 1 million mark for the number of broadband subscribers in October 2010. With these motivating accomplishments, the total teledensity of the telecom industry of Pakistan increased to 64.08 percent at the end of FY 2010, recording a growth of 3.5 percent from the preceding financial year.<sup>1</sup>

The TRE survey measures informed stakeholders’ perceptions about the regulatory and policy environment with regard to the telecom sector in a given country. The current TRE survey (2010) is a third in the series. The first survey was conducted in July 2006 by LIRNEasia in five emerging Asian countries, India, Sri Lanka, Pakistan, Thailand, and the Philippines using six dimensions: i) market entry; ii) access to scarce resources; iii) interconnection; iv) tariff regulation; v) anti-competitive practices; and vi) universal services, for the fixed and mobile sectors. In the second TRE survey in 2008, a seventh dimension dealing with the “quality of service” was added, and the survey was conducted for the broadband sector in addition to fixed and mobile sectors, in 8 countries: Bangladesh, India, Indonesia, Sri Lanka, Maldives, Pakistan, Thailand, and the Philippines.

The TRE survey results for the year 2010 for Pakistan are reproduced below:

**Table 1: Summary of TRE Scores (2010)**

<b>Dimension</b>	<b>Mobile</b>	<b>Fixed</b>	<b>Broadband</b>
Market Entry	3.9	2.9	3.6
Access to Resources	3.2	3.2	3.3
Interconnection	3.7	3.4	3.4
Tariff Regulation	3.3	3.1	3.1
Anti-competitive Practices	3.6	3.1	3.2
USO	3.6	3.1	3.2
QoS	3.5	3.4	3.2
Average for Sector	3.6	3.2	3.3

**Table 2: Comparison of TRE Scores (2008 & 2010)**

Dimension	Mobile		Fixed		Broadband	
	2008	2010	2008	2010	2008	2010
Market Entry	3.9	3.9	3.0	2.9	3.2	3.6
Access to Resources	3.5	3.2	3.1	3.2	3.2	3.3
Interconnection	3.7	3.7	3.2	3.4	2.9	3.4
Tariff Regulation	3.2	3.3	2.7	3.1	2.6	3.1
Anti-competitive Practices	2.8	3.6	2.4	3.1	2.4	3.2
USO	3.2	3.6	2.8	3.1	2.0	3.2
QoS	3.2	3.5	2.7	3.4	2.7	3.2
Average for Sector	3.4	3.6	2.8	3.2	2.7	3.3

**Table 3: Comparison of TRE Scores (2006, 2008 & 2010)**

Dimension	Mobile			Fixed			Broadband		
	2006	2008	2010	2006	2008	2010	2006	2008	2010
Market Entry	4.0	3.9	3.9	2.9	3	2.9	-	3.2	3.6
Access to Resources	3.6	3.5	3.2	3.1	3.1	3.2	-	3.2	3.3
Interconnection	2.8	3.7	3.7	2.6	3.2	3.4	-	2.9	3.4
Tariff Regulation	2.6	3.2	3.3	2.7	2.7	3.1	-	2.6	3.1
Anti-competitive Practices	2.3	2.8	3.6	2.3	2.4	3.1	-	2.4	3.2
USO	2.6	3.2	3.6	2.2	2.8	3.1	-	2	3.2
QoS	-	3.2	3.5	-	2.7	3.4	-	2.7	3.2
Average for Sector	3.0	3.4	3.6	2.6	2.8	3.2	-	2.7	3.3

The TRE score has improved in all three categories: mobile, fixed and broadband. The perception has improved for mobile sector by 0.2 points, for fixed by 0.4 points and for broadband by 0.6 point.

In addition to crossing the hundred million mobile subscribers mark,<sup>2</sup> the other salient achievements for year 2010 are: i) a saving RKR 1.5 billion/month through action against grey telephony<sup>3</sup>; (ii) PTA issued the Monitoring and Reconciliation of Telephony Traffic Regulations<sup>4</sup> and is finalizing the draft Cellular Mobile Network QoS Regulations<sup>5</sup>; (iii) Pakistan bagged Telecom Awards at SAMENA (South Asian, Middle Eastern and North African) Awards 2010, where PTA was declared Most Progressive Telecom Regulator in South Asia for the year<sup>6</sup>; (iv) Wi-tribe Pakistan successfully ranked number one in both the ‘Technology Neutral’ and ‘Technology-wise’ categories for highest QoS, despite being the youngest broadband company<sup>7</sup>; (v) Telenor Pakistan became the first telecom operator in Pakistan to receive the ISO/IEC 27001:2005 certification for Information Security Management System (ISMS) for mobile banking services<sup>8</sup> while Telenor’s

Easypaisa won the award for the 'Best Mobile Money Transfer Entrant of the Year'<sup>9</sup>; and (vi) Mobilink and NADRA joined hands for utility bills' payment solution.<sup>10</sup>

In summary, the year 2010 brought positive changes, and improved the ICT sector in Pakistan.

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## 2. Country overview and macro level perspectives on the telecom sector

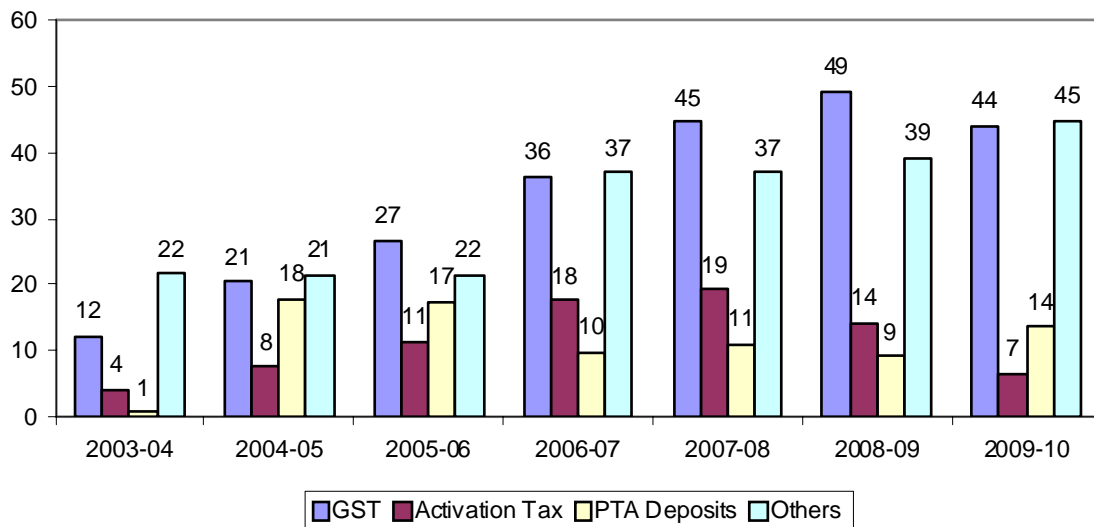
### 2.1 Basic socio-economic structure of Pakistan

Pakistan is the sixth most populous country in the world<sup>11</sup> with an adult literacy rate of just around 50 percent<sup>12</sup>. Despite severe social, economic and political challenges faced by this developing country, Pakistan’s economy witnessed a growth rate of 4.1 percent in FY 2010 on an inflation-adjusted basis as compared to 1.2 percent in the preceding financial year.<sup>13</sup>

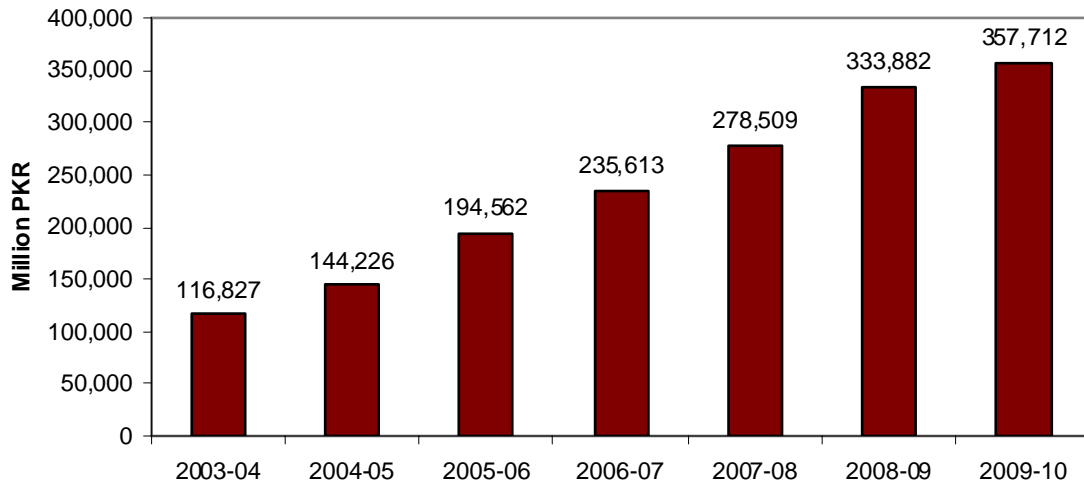
### 2.2 Role of ICT in Pakistan’s economy

The telecom industry of Pakistan contributes around 3 percent to Pakistan’s GDP. In FY 2010, the total telecom sector revenues were around PKR 357.7 billion as compared to PKR 333 billion in the preceding year.<sup>14</sup> Further, the telecom sector has contributed around PKR 110 billion to the exchequer every year in the last three financial years.<sup>15</sup>

Figure 1: Telecom Industry’s Contribution to the National Exchequer



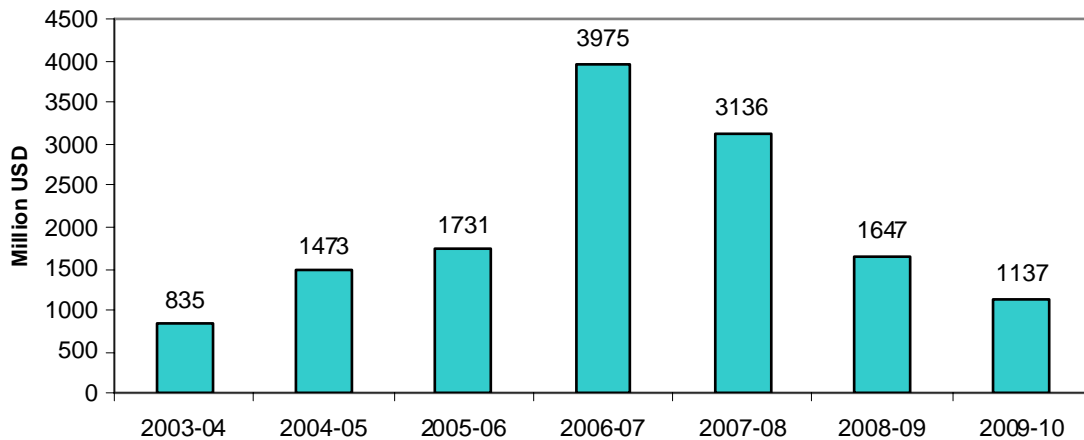
**Figure 2: Revenues generated by the Telecom Industry**



### 2.3 Investment in ICT

The figure below indicates the trends of investment in the telecom industry of Pakistan. A significant decline in investment of 14.2 percent was recorded under the Transport and Communication head from FY 2009 to FY 2010.<sup>16</sup>

**Figure 3: Investment in Pakistan’s Telecom Industry**

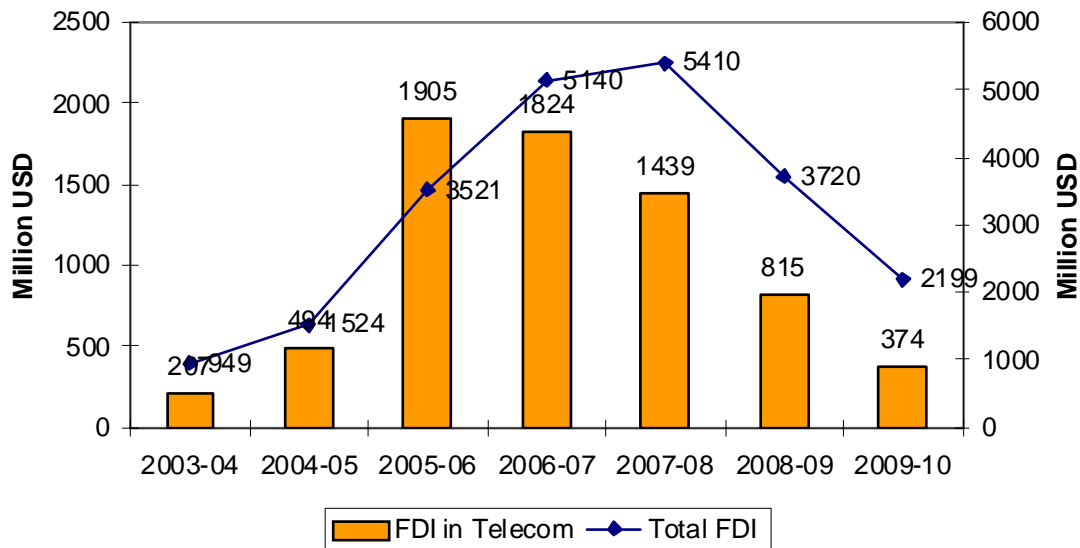


**Table 4: Investment in the Telecom Industry (in million USD)**

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
<b>Cellular</b>	666.1	1,158.10	1,420.90	2,584.50	2,337.70	1,229.75	908.8
<b>LDI</b>	6.4	35.1	50.5	602.8	403.9	276.75	183.1
<b>LL</b>	-	2.3	0.3	40.6	342.1	57.37	22.5
<b>WLL</b>	162.7	277.3	259.4	747	52.8	82.11	23
<b>Total</b>	<b>835.2</b>	<b>1,472.80</b>	<b>1,731.10</b>	<b>3,974.80</b>	<b>3,136.40</b>	<b>1,646.98</b>	<b>1,137.4</b>

Likewise, FDI in the telecom industry has also witnessed a net decline of USD 607 million from FY 2009 to FY 2010.<sup>17</sup>

**Figure 4: FDI in Telecom Industry**



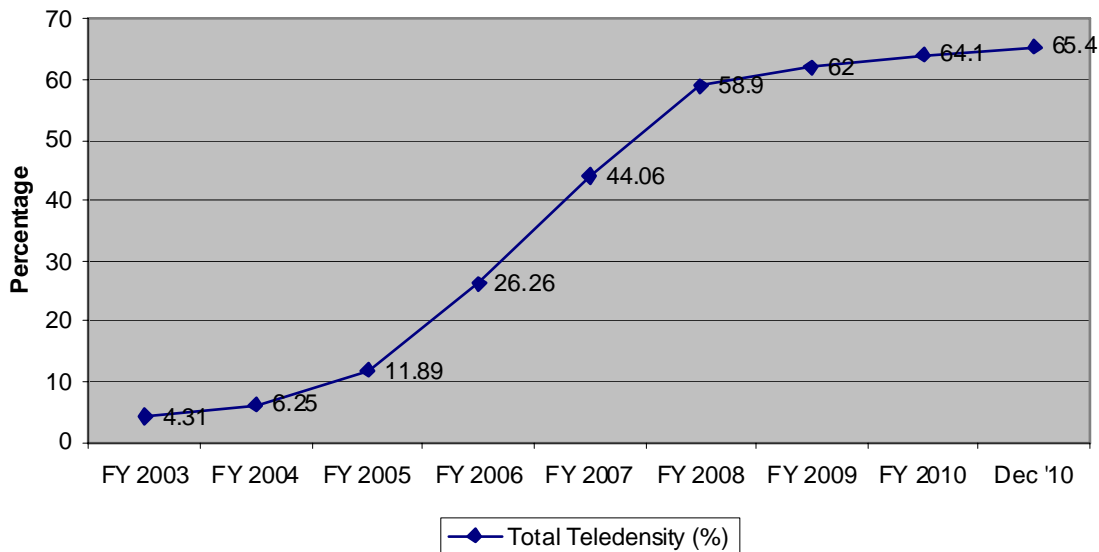
### 3. Market Structure and Market Dynamics

#### 3.1 Key Players

The telecommunications industry of Pakistan consists of three distinct categories:

- i. Cellular companies
- ii. Fixed Local Line companies
- iii. Wireless Local Loop companies

**Figure 5: Total Teledensity (Cellular + Fixed + Wireless)**



**Table 5: Total Teledensity (%)**

Years	Total Teledensity (%)
2002-03	4.31
2003-04	6.25
2004-05	11.89
2005-06	26.26
2006-07	44.06
2007-08	58.90
2008-09	62.0
2009-10	64.1
July-10	64.5
Aug-10	63.8
Sep-10	63.8
Oct-10	64.2
Nov-10	64.7
Dec-10	65.4

\* Note: Including AJK & NAs

### 3.1.1 Cellular Companies

The five cellular service providers in the industry are:<sup>18</sup>

- i. Pakistan Mobile Communications Limited (Mobilink)
- ii. Pakistan Telecom Mobile Ltd. (Ufone)
- iii. CMPak Limited (Zong)
- iv. Telenor Pakistan Ltd.
- v. Warid Telecom Ltd.

Figure 6: Cellular Companies Market Share (subscriber-wise)

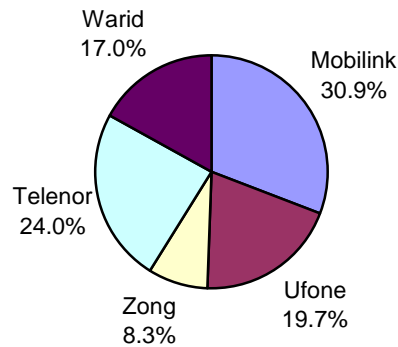
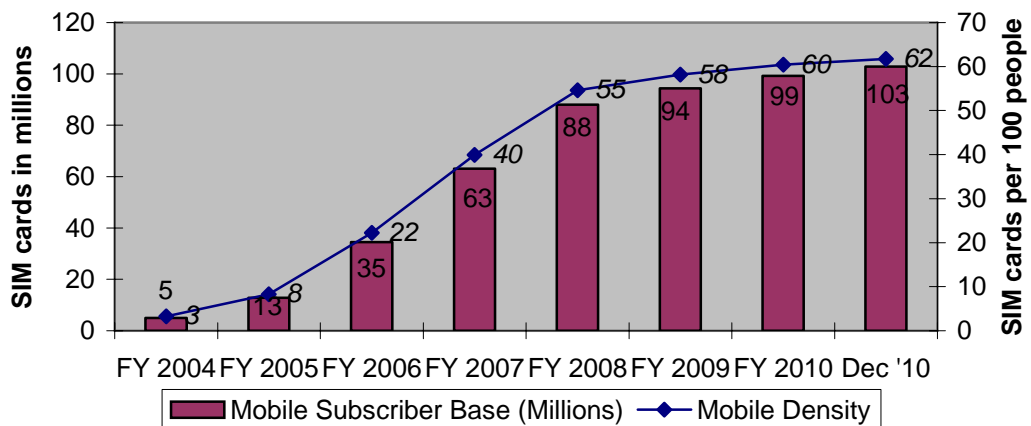
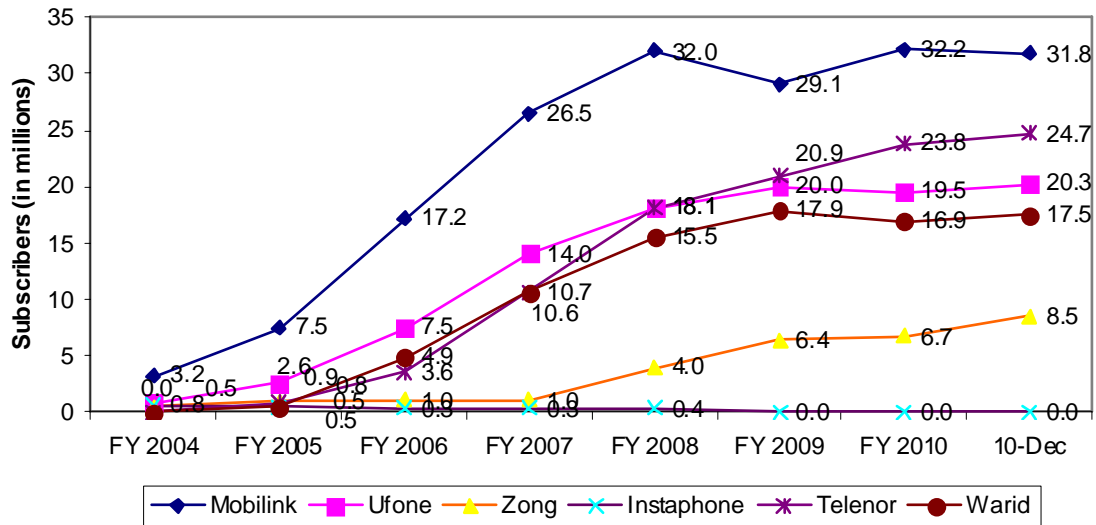


Figure 7: Mobile SIMs and SIM Penetration



**Figure 8: Growth in Individual Company Subscriber-base**



**Table 6: Annual Cellular Subscribers (in 1000's)**

	Mobilink	Ufone	Zong	Insta-phone	Telenor	Warid	Total
<b>FY 2004</b>	3216	801	470	536	0	0	5023
<b>FY 2005</b>	7469	2579	924	454	836	509	12771
<b>FY 2006</b>	17206	7487	1041	337	3574	4863	34507
<b>FY 2007</b>	26466	14014	1025	333	10701	10620	63160
<b>FY 2008</b>	32032	18100	3951	351	18125	15490	88020
<b>FY 2009</b>	29137	20005	6387	34	20893	17887	94342
<b>FY 2010</b>	32203	19549	6704	0	23798	16932	99186
<b>Jul '10</b>	32265	20087	7018	0	23786	17039	100196
<b>Aug '10</b>	31777	20182	7250	0	23744	17085	100039
<b>Sep '10</b>	31444	20236	7453	0	23836	17165	100135
<b>Oct '10</b>	31454	20187	7786	0	24121	17167	100715
<b>Nov '10</b>	31544	20193	8028	0	24401	17475	101641
<b>Dec '10</b>	31794	20275	8498	0	24693	17517	102777

**Table 7: Annual Cellular Mobile Teledensity (%)**

<b>Year</b>	<b>Mobile Density</b>
<b>FY 2004</b>	3.29
<b>FY 2005</b>	8.30
<b>FY 2006</b>	22.21
<b>FY 2007</b>	39.94
<b>FY 2008</b>	54.60
<b>FY 2009</b>	58.20
<b>FY 2010</b>	60.4
<b>Jul '10</b>	60.8
<b>Aug '10</b>	60.1
<b>Sep '10</b>	60.1
<b>Oct '10</b>	60.5
<b>Nov '10</b>	61.0
<b>Dec '10</b>	61.7

The Average Revenue Per User (ARPU) for Pakistan’s cellular industry was USD 2.46 towards the end of FY 2010.<sup>19</sup>

### **3.1.2 Fixed Local Line Companies**

The fixed local line market has the following players:<sup>20</sup>

- i. Pakistan Telecommunication Company Limited (PTCL)
- ii. National Telecommunication Corporation Limited (NTC)
- iii. Brain Limited
- iv. WorldCall Telecom Limited
- v. Union Communication Limited
- vi. Nayatel (Pvt) Limited

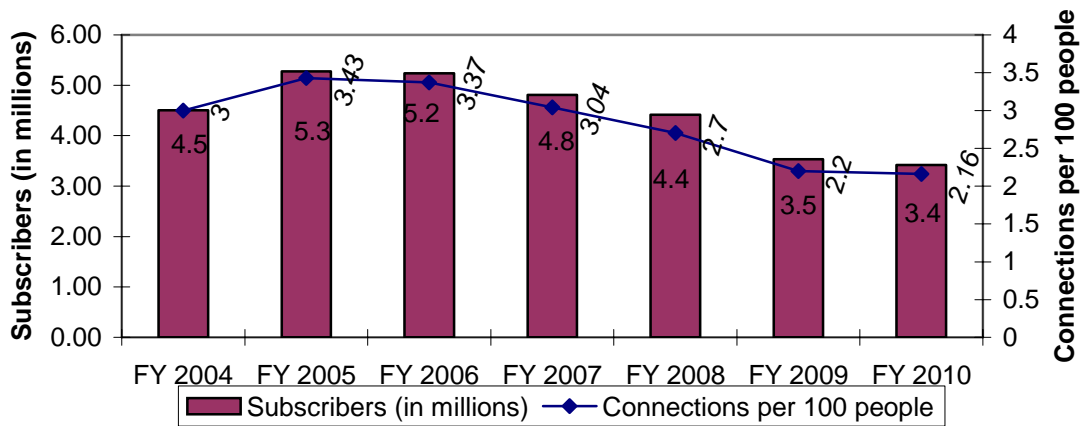
**Table 8: Annual Fixed Local Line Subscribers**

	<b>PTCL</b>	<b>NTC</b>	<b>Brain Limited</b>	<b>World Call</b>	<b>Union Comm.</b>	<b>Naya Tel</b>	<b>Total</b>
<b>FY 2004</b>	4,428,900	73,330			-		4,501,171
<b>FY 2005</b>	5,190,899	81,027	1,520	4,100	-		5,277,531
<b>FY 2006</b>	5,128,442	92,163	5,880	13,327	200		5,240,012
<b>FY 2007</b>	4,676,204	99,665	6,089	10,748	2,500	11,000	4,806,206
<b>FY 2008</b>	4,273,548	103,991	7,376	11,502	3,500	16,500	4,416,417
<b>FY 2009</b>	3,375,103	104,538	12,234	18,850	3,700	18,850	3,533,275
<b>FY 2010</b>	3,268,642	104,819	11,267	9,874	3,700	19,500	3,417,802

**Table 9: Annual Fixed Local Loop Teledensity (%)**

<b>Year</b>	<b>Fixed Line Density</b>
<b>FY 2004</b>	3.00
<b>FY 2005</b>	3.43
<b>FY 2006</b>	3.37
<b>FY 2007</b>	3.04
<b>FY 2008</b>	2.70
<b>FY 2009</b>	2.20
<b>FY 2010</b>	2.16
<b>Jul-10</b>	2.16
<b>Aug-10</b>	2.16
<b>Sep-10</b>	2.16
<b>Oct-10</b>	2.16
<b>Nov-10</b>	2.16
<b>Dec-10</b>	2.16

**Figure 9: Fixed Line Subscriber-base and access paths/100**



### 3.1.3 Wireless Local Loop Companies

The below-mentioned companies have started offering wireless local loop services in Pakistan:<sup>21</sup>

- i. Pakistan Telecommunication Company Limited (PTCL)
- ii. National Telecommunication Corporation (NTC)<sup>22</sup>
- iii. Teletcard Limited
- iv. Wi-Tribe Pakistan Limited (Formerly Burraq)
- v. Wateen Telecom (Pvt.) Limited
- vi. Link Direct International (Pvt.) Ltd.
- vii. WorldCall Telecom Ltd.
- viii. Great Bear Int'l (Pvt.) Limited
- ix. Cyber Internet Services (Pvt.) Ltd.
- x. Defence Housing Authority (operational under JV with Wateen)
- xi. Sharp Communications (Pvt.) Ltd.

**Table 10: Annual Wireless Local Loop Subscribers**

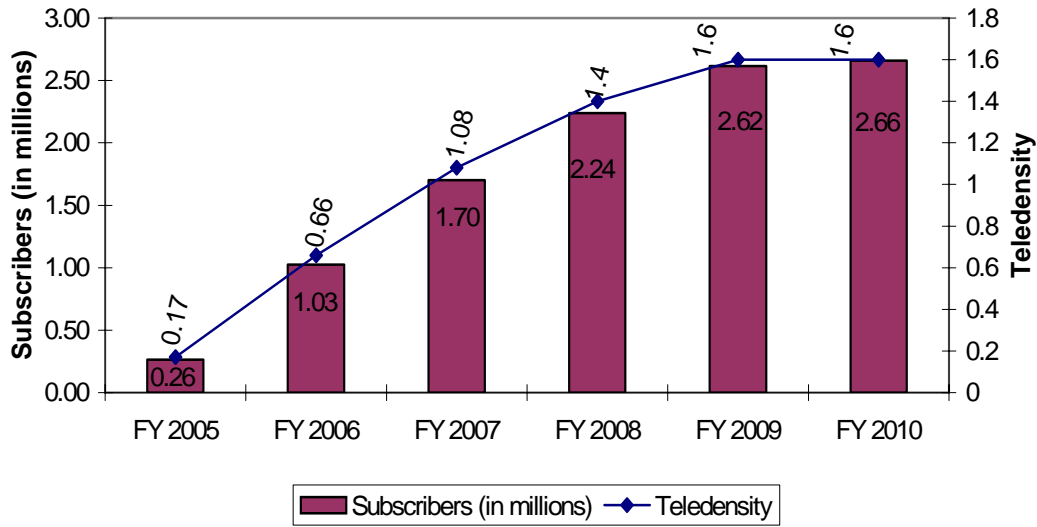
Year	PTCL	Tele Card	World Call	Great Bear	NTC	Wateen	Mytel	Link Direct	Total	Growth %
FY 2005	163,681	98,469	2,678	200					264,828	
FY 2006	661,532	229,292	115,637	21,407					1,025,328	287
FY 2007	1,128,272	396,873	273,616	51,311					1,702,098	62
FY 2008	1,188,416	512,846	487,387	51,280		20,289	140		2,239,613	32
FY 2009	1,305,675	620,921	549,362	45,224	10,275	72,176	125	19,349	2,616,268	17
FY 2010	1,233,027	688,281	584,054	0	11,021	175,600	0	28,129	2,658,685	0.8
Jul '10	1,219,990	693,785	584,054	0	11,021	175,600	0	28,129	2,720,112	-0.3
Aug '10	1,244,102	698,136	582,960	0	11,021	175,600	0	30,871	2,742,690	1.1
Sep '10	1,245,052	702,081	582,960	0	11,021	210,519	0	30,925	2,782,558	1.5
Oct '10	1,281,077	702,281	582,960	0	11,021	216,623	0	31,062	2,824,824	1.5
Nov '10	1,295,014	708,129	590,042	0	11,823	216,623	0	31,857	2,853,488	1.0
Dec '10	1,318,655	710,942	456,048	0	11,823	228,623	0	33,970	2,760,061	1.0

\* Wateen subscribers as of Oct-10

**Table 11: Annual WLL Teledensity (%)**

Year	WLL Density
2003-04	-
2004-05	0.17
2005-06	0.66
2006-07	1.08
2007-08	1.4
2008-09	1.6
2009-10	1.6
Jul-10	1.6
Aug-10	1.6
Sep-10	1.6
Oct-10	1.6
Nov-10	1.6
Dec-10	1.6

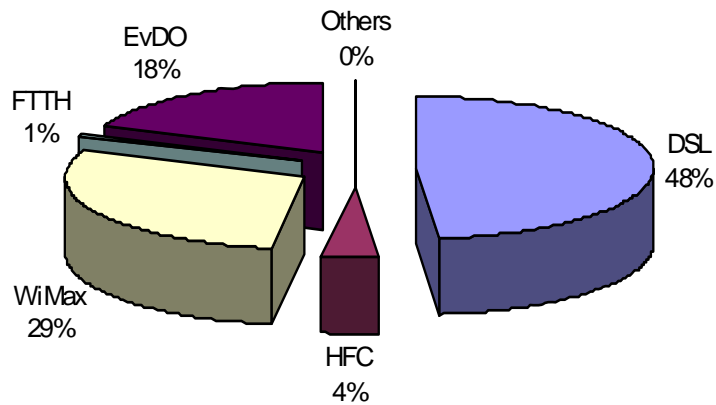
**Figure 10: WLL Subscriber-base and Access Paths/100 People**



### 3.2 Broadband Market

Broadband in Pakistan is defined in as ‘always on internet connection with a minimum download speed of 128 kbps connectivity’.<sup>23</sup>

**Figure 11: Broadband Subscribers by Technology**



**Table 12: Number of Broadband Subscribers by Technology**

<b>Technology</b>	<b>DSL</b>	<b>HFC</b>	<b>WiMax</b>	<b>FTTH</b>	<b>EvDO</b>	<b>Others</b>	<b>Total</b>
2005-06	26,611						<b>26,611</b>
2006-07	44,669			484			<b>45,153</b>
2007-08	102,910	42,760	19,612	2,800			<b>168,082</b>
2008-09	262,661	36,201	88,477	3,967	22,503		<b>413,809</b>
2009-10	476,722	49,110	257,616	5,002	111,194	1,004	<b>900,648</b>
Jul-10	486,409	39,529	261,864	5,255	134,927	1,077	<b>950,594</b>
Aug-10	482,086	39,546	275,490	5,525	146,834	1,113	<b>950,594</b>
Sep-10	488,946	40,127	292,599	5,690	166,407	1,142	<b>950,594</b>
Oct-10	516,167	40,779	306,665	5,882	181,947	1,293	<b>1,052,733</b>
Nov-10	518,898	41,105	310,413	5,547	195,495	1,282	<b>1,072,740</b>

In June 2008, the number of broadband subscribers was 168,082. With the developments in broadband technologies and services, the number of broadband subscribers has grown six times in a matter of two years, crossing the 1 million mark in October 2010.

**Table 13: Card Payphones in Pakistan**

	<b>PCOs</b>	<b>Growth (%)</b>
<b>2003-04</b>	184,920	
<b>2004-05</b>	279,320	51.0
<b>2005-06</b>	353,194	26.4
<b>2006-07</b>	387,490	9.7
<b>2007-08</b>	449,121	15.9
<b>2008-09</b>	405,359	(9.7)
Note: LL, WLL & Cellular PCOs		

## **4. Infrastructure: availability, usage and quality**

### **4.1 Availability of infrastructure equipment and services (coverage)**

The new generation high-capacity submarine cable system named the IMEWE (India-Middle East-Western Europe) that connects India in South Asia to Italy and France in Western Europe via the Middle East was commercially launched in December 2010 to meet the ever-growing bandwidth requirements and facilitate the expansion of broadband services. The 13,000 kilometres long three-pair fibre optic cable, with a design capacity of 3.84 terabits per second and landing routes in Pakistan, UAE, Saudi Arabia, Egypt and Lebanon, is the third major submarine cable operational between India and Europe after SMW3 and SMW4. The IMEWE consortium comprises nine major telecom companies namely Bharti Airtel (India), Etisalat (UAE), France Telecom-Orange (France), OGERO (Lebanon), Pakistan Telecommunication Company Limited (Pakistan), Saudi Telecom Company STC (Saudi Arabia), Telecom Egypt (Egypt), Telecom Italia Sparkle (Italy) and Tata Communications (India). With an IMEWE landing station established at Karachi, PTCL to meet and exceed the demands of both its corporate and household broadband customers in Pakistan.<sup>24</sup>

In December 2008, China's ZTE signed a \$100 million contract with China Mobile's Pakistan subsidiary (CMPak) to help the latter expand its GSM infrastructure capacity as part of its Phase II project. Under this GSM infrastructure extension project, ZTE will provide CMPak with its latest 8000 series of base stations using a unified total IP hardware platform.<sup>25</sup>

### **4.2 Access and usage for fixed and radio infrastructures in terms of voice, SMS, internet, rural connectivity, national and international broadband networks.**

Even though several the difficult operating environment in Pakistan poses several challenges, new avenues for growth and expansion can still be exploited in areas including broadband, mobile commerce, 3G services and WLL. In this regard, some companies have announced new investment plans, such as China Mobile invested over USD 721 million in 2009-10 while Mobilink has invested USD 150 million and planned to invest a further USD 300 million. Telenor invested USD 80 million in Pakistan in April 2010 to develop its infrastructure and expand its telecom services.<sup>26</sup>

Further, efforts are being made to expand fibre-optic infrastructure. As internet access and bandwidth availability have increased, costs have fallen dramatically. Yet, grave

obstacles exist in the development of e-commerce such as insufficient infrastructure, frequent and longed electricity shutdowns, few internet connections, less credit-card usage familiarity and insecurity for online transactions.<sup>27</sup>

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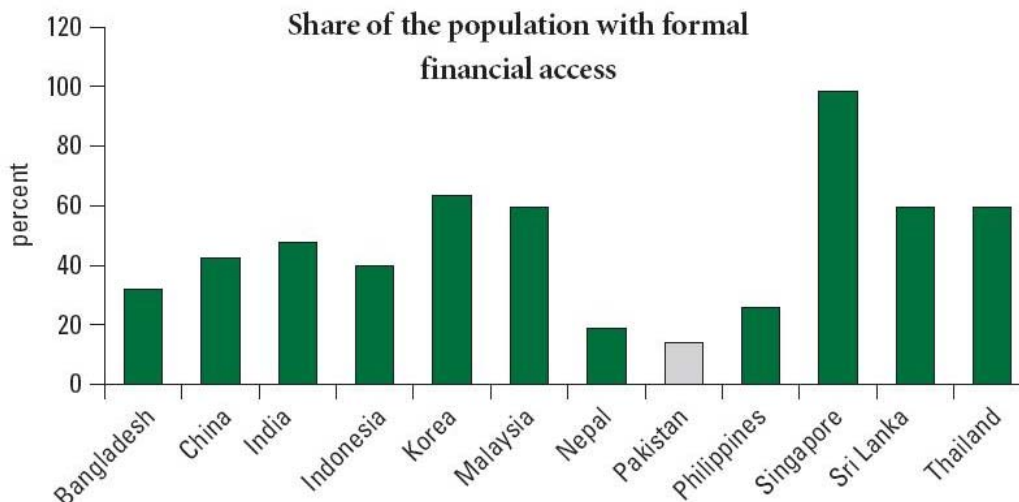
## 5. Beyond Telecom: E-applications, Services, Human Resources, Innovation

### 5.1 Applications and Services

#### 5.1.1 Innovative mobile-enabled financial services in Pakistan

1.6 billion bank accounts exist worldwide in the presence of 4 billion cell phone subscribers across the globe.<sup>28</sup> In contrast, there are over 95 million cell phone subscribers in Pakistan and only some 20 million bank accounts. The statistics quite clearly identify a gap regarding Pakistanis’ access to formal finance. A World Bank Report<sup>29</sup> revealed that by 2009, only 14% Pakistanis were using financial services of a formal institution as compared to 32% Bangladeshis, 48% Indians and 59% Sri Lankans in the South-Asian region (refer to the following figure).<sup>30</sup> Naguib Sawiris, Chairman and CEO, Orascom Telecom Holding, the largest mobile phone service provider in Pakistan said “The case for mobile financial services is particularly strong in emerging markets where penetration of the financial sector is quite low.”

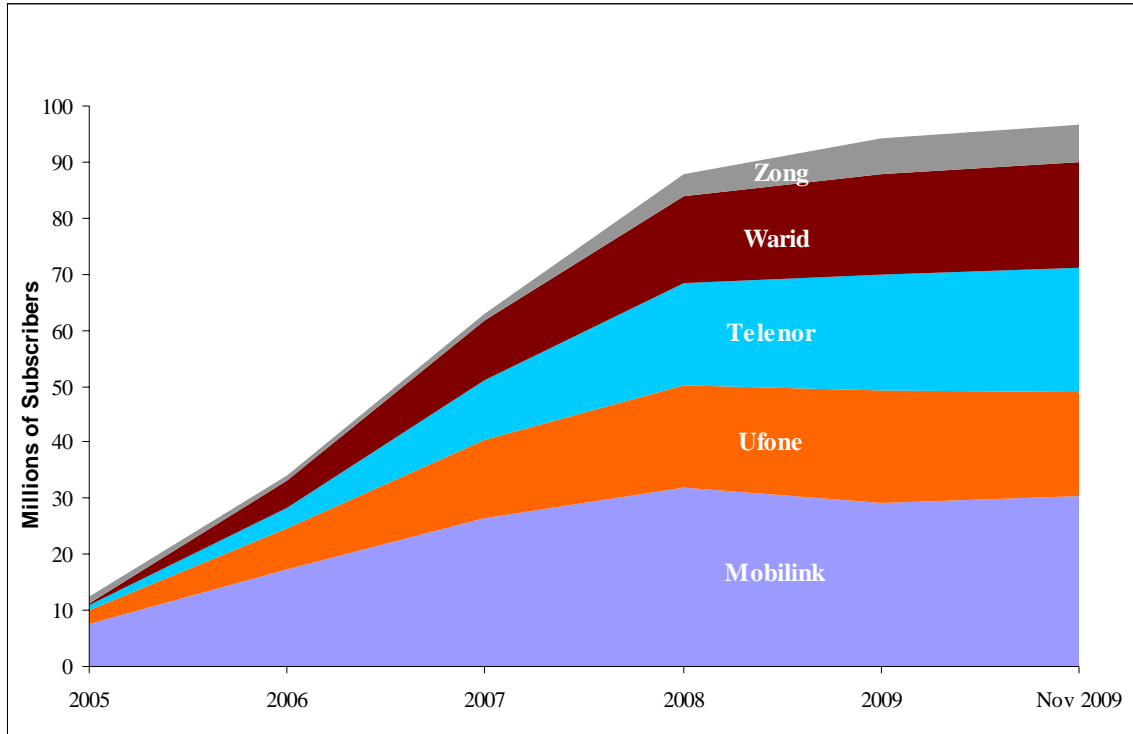
Figure 12: Financial services usage across the globe



The well-developed mobile industry and mobile-friendly populace in Pakistan gives the country an evident edge over several developing countries like Ethiopia that need to strive to develop a robust mobile industry and thereon attempt to implement mobile financial services. The following graph indicates the growth in the cellular phone penetration in the country during the last 5 years. The exponential growth in the mobile phone base, as well as the increased competition between service providers is also quite clearly depicted by the graph. From a subscriber base of 10 million and dominance by

one provider, currently five service providers share the market, providing mobile phone services to 95 million subscribers.

**Figure 13: Historic Evolution of Company Wise Market Shares in the Mobile Telecommunications Sector**



Using the extensive retail infrastructure laid by the mobile operators in Pakistan, efforts can be made to extend financial services to the un-served masses and bring greater efficiencies to existing financial channels. Thereby, basic financial services could be made accessible for people in underdeveloped regions of the country via the mobile service. This would also enhance business prospects for microfinance institutions, allowing them to spread their businesses to remote locations and allure more people to their services.

In the absence of formal finance, informal sources are used by a majority of the population to fulfill their requirements. Although some informal mechanisms in place are exploitative in nature, not all fall under the same category. The following figure<sup>31</sup> indicates a few instances of interest rates charged by informal financial networks for various financial services.

**Table 14: Interest rate charged by informal financial networks for various financial services**

	Effective Annual Interest Rate
Auto-rickshaw informal credit market (Lytton Road, Lahore)	26.4%
Faisalabad yarn market	17.31% to 46.15%, average 28.39%
Moneylenders in rural areas, for household and consumption	120% to 150%
Moneylenders in rural areas, for businessmen and agriculturists	12% to 50%
Moneylenders average, all loans	55.2%
Commission agents, for farm inputs	12.57% to 15.38%
Farm input dealers	2.2% to 74.2%, average 25.81%
Self-reported by farmers, for lending in kind	29.81%
Self-reported by farmers, for lending of cash	85%

The idea of introducing formal finance to the masses should ideally not try to replace the informal finance system, but in fact to learn important lessons from it. Mobile technology can help bridge this gap and the research shall aim to address various innovative solutions to do so.

Already, partnerships between financial institutions and mobile service providers are beginning to crop up. In November 2008, Telenor Pakistan acquired 51% shares in Tameer Microfinance Bank to introduce a branchless banking service by the name of EasyPaisa, which enables users to pay their utility bills and transfer money through the mobile service. Any Telenor subscriber can open a Telenor EasyPaisa mobile bank account, deposit and withdraw money at more than 5000 EasyPaisa merchants in over 450 cities across Pakistan, and execute financial transactions to transfer money or pay utility bills by having details of the valid Computerized National Identity Card (CNIC) of the mobile money’s recipient. This EasyPaisa mobile bank account can be accessed anytime, anywhere by a Telenor mobile bank account user to engage in secure, encrypted mobile banking transactions that have no time or location constraints. Under State Bank of Pakistan’s regulations, there are transactional limits that apply to all EasyPaisa bank accounts. Also, there is a cap on the maximum amount that a mobile bank account can hold at one time. However, these limits still comfortably allow Telenor EasyPaisa users in remote villages to benefit from a host of basic financial services that they could not have imagined with the absence of physical access to a banking institution.

In competition, Mobilink announced the launch of mobile financial services in association with Citibank while Ufone collaborated with Habib Bank Limited to extend mobile banking services. However, since both mobile operators engaged non-microfinance institutions and primarily targeted to cater mobile banking for urban areas as opposed to rural regions, the portfolio of mobile money products offered by Mobilink and Ufone are different from Telenor’s EasyPaisa products and do not have the far-

reaching commendable effects of Telenor’s mobile money service. Efforts are underway to introduce a comprehensive mobile banking regulatory framework to facilitate the application of telecom services in the financial sector.<sup>32</sup>

United Bank Limited has started UBL Omni Branchless Banking across Pakistan. The service uses CNIC numbers and mobile phone numbers where the latter becomes the bank account number irrespective of the network used by the customer. A UBL Omni account holder can engage in basic banking transactions and pay utility bills and postpaid mobile bills.<sup>33</sup>

Efforts are underway to introduce a comprehensive mobile banking regulatory framework to facilitate the application of telecom services in the financial sector.<sup>34</sup>

### **5.1.2 Education/health facilitation through telecom**

ICT plays a major role in facilitating education by making accessible and available information resources from around the world in a matter of seconds.

### **5.1.3 Public sector transformation through telecom**

In January 2011, Mobilink and NADRA initiated a mechanism for the payment of utility bills' payment by using mobile phone services, suggesting means of increasing convenience for the masses by implementing innovative applications in telecom.<sup>35</sup> The free of charge 24 hours facility would enable Mobilink retailers to accept and deposit utility bills from all Mobilink and non-Mobilink customers. Through this service, people will be able to access bill payment facility in the absence of banks even. This will also serve as the National Smart Service Platform for e-commerce whereby organisations could utilise e-Sahulat touch points for cash-in and cash-out transactions under the branchless regulations issued by State Bank of Pakistan.<sup>36</sup>

## **5.2 Human Resources and Innovation**

Over the years, ICT has emerged as one of the most promising sectors for Pakistan’s economy. ICT has directly and indirectly its multi-stakeholder platform through its vast contributions to revenue generation, consumer welfare enhancement and creation of employment opportunities. In recognition of the eminent role played by ICT in the economic, social and political development of the country, the government is striving to encourage human resources for ICT development in Pakistan and foster venues for innovation and growth.

In February 2010, during an endeavour initiated by PTA to promote ICT in Pakistan, Advisor to the Prime Minister on IT, Sardar Muhammad Latif Khan Khosa said that the

government would continue to extend the necessary support to the industry and the academia to enhance manpower quality in the ICT sector in Pakistan.<sup>37</sup> In December 2010, the 'Excellence in IT-Enabled Service Offering' Teradata Award was presented to Muhammad Amir Malik, Director (ICT), PTA, for his contributions towards development of IT-enabled services.<sup>38</sup>

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## **6. Institutions and the Policy & Regulatory Environment**

### **6.1 Legal, Policy and Regulatory Developments - 2008 to 2011**

After developing a robust telecom policy and regulatory environment, the Government of Pakistan has engaged in efforts to bring about legal, policy and regulatory developments to boost productivity of the ICT sector of Pakistan.

Efforts have been made by the Government of Pakistan to expand Universal Service Fund (USF) projects in remote areas of the country. As a consequence, a number of projects have been completed by the USF Fund in Sindh and Balochistan, including optical fibre projects worth PKR 4.5 billion and twelve broadband projects costing PKR 6.35 billion. As a result, broadband proliferation increased manifold, placing Pakistan amongst the top ten countries in the world in terms of growth.<sup>39</sup>

Grey trafficking in telecom in Pakistan is reported to cost PKR 30 billion annually.<sup>40</sup> Since 2008, several efforts have been made to check illegal trafficking. Among these, PTA’s action against grey telephony saved around PKR 1.5 billion (US\$ 18 Million per month) by July 2010. Since March 2009, PTA is reported to have conducted 39 successful raids<sup>41</sup> on grey traffickers. Further, PTA confiscated 263 illegal systems, while approximately 250 SIMs and IMEIs suspected of grey trafficking are daily blocked.<sup>42</sup> PTA has also been blocking 570 IPs on daily basis and blocked 40,000 SIMs/Connections of different operators. The technical system does a real time monitoring of IPs and approximately 0.17 million IPs involved in illegal call termination have been blocked.

In 2010, PTA issued the Monitoring and Reconciliation of Telephony Traffic Regulations. Further, to check the quality of services of mobile operators, PTA drafted Cellular Mobile Network Quality of Service Regulations, 2010. Gateway Exchanges along with a number of tellulars, routers, switches, SIMs, antennas and other accessories have also been confiscated by the FIA.

PTA promulgated Protection from Spam, Unsolicited, Fraudulent and Obnoxious Communication Regulations, 2009 to protect the consumer interests as mandated under the Pakistan Telecommunication (Re-organization) Act 1996.<sup>43</sup> PTA also issued Telecom Consumer Protection Regulations in April 2009.<sup>44</sup>

PTA has formulated two sets of Key Performance Indicators (KPI’s) to improve and monitor the Quality of Service (QoS) of “Fixed Broadband” and “GPRS/EDGE” networks.<sup>45</sup>

3G services are predicted to be available to Pakistani mobile users by the end of 2011, while the Policy for auction of 3G services licenses would soon be presented to the government and ECC for discussion and approval.<sup>46</sup>

In October 2010, Pakistan bagged Telecom Awards at SAMENA (South Asian, Middle Eastern and North African) Awards 2010, where PTA was declared Most Progressive Telecom Regulator in South Asia for the year.<sup>47</sup>

In line with the national security objectives, in October 2009, PTA introduced the "SIM Information System - 668" enabling mobile subscribers to know the total number of SIMs issued against their names with each mobile operator by sending their CNIC number via SMS to 668. Within eight days since the launch of this service on 15 October 2009, some 12.9 million unverified SIMs were blocked throughout Pakistan.<sup>48</sup>

NTT DoCoMo, Japan's largest mobile network operator, is considering the possibility of investing in Pakistan's fast-growing mobile market.<sup>49</sup>

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## 7. Effectiveness of Telecom Policy and Regulatory environment

As a consequence of the transparent policy and regulatory apparatus in the ICT in Pakistan, the ICT industry in Pakistan has witnessed liberalization, greater private sector participation and enhanced competition in new technologies, lower prices and better customer services.

Figure 14: TRE Survey Results

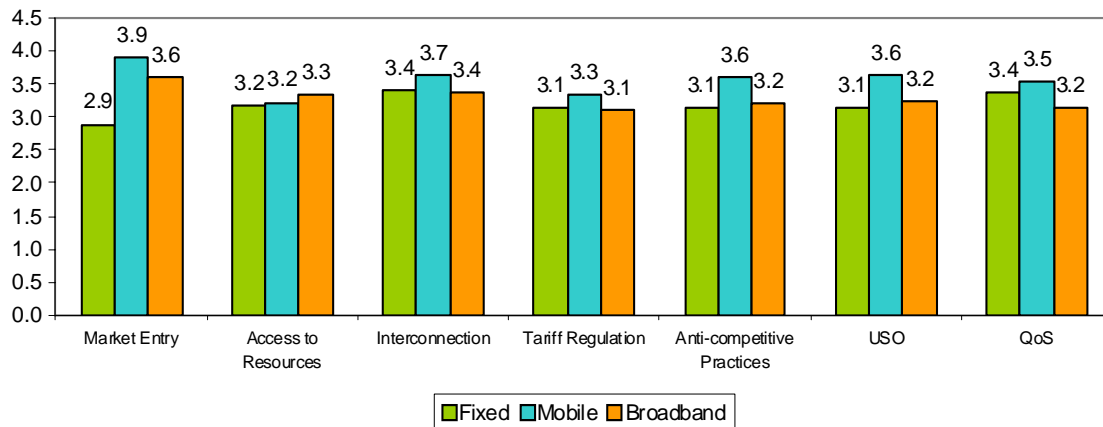


Figure 15: Total TRE Score Chart 2010

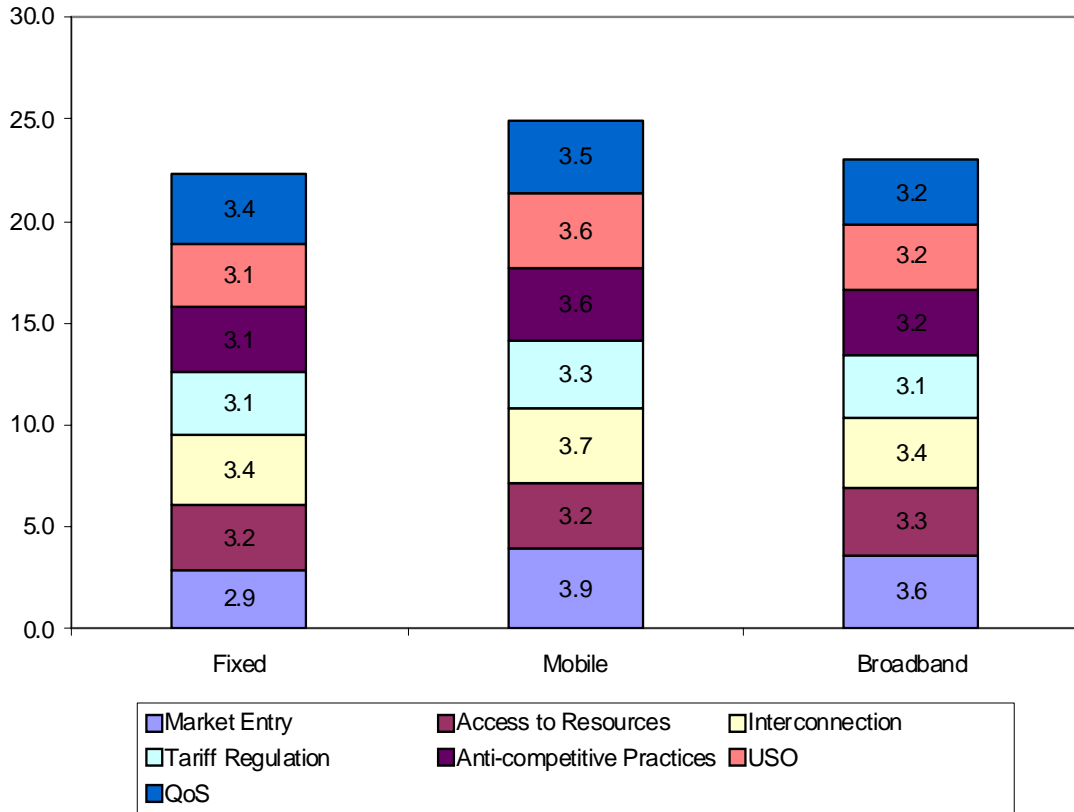
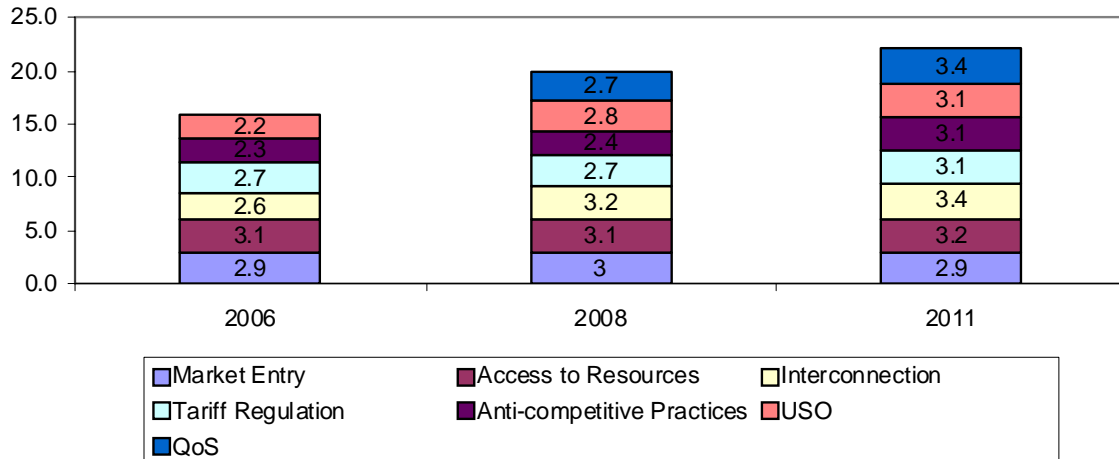
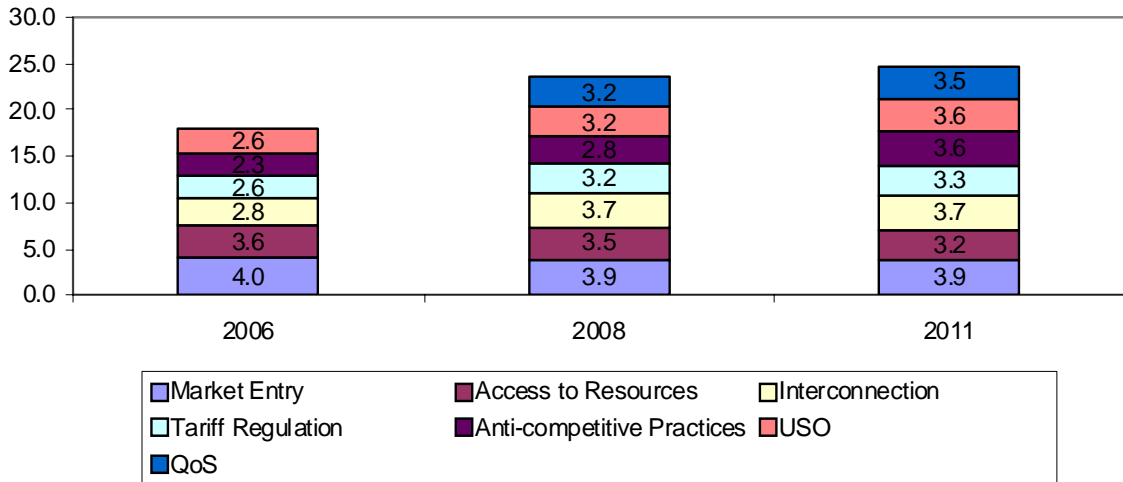


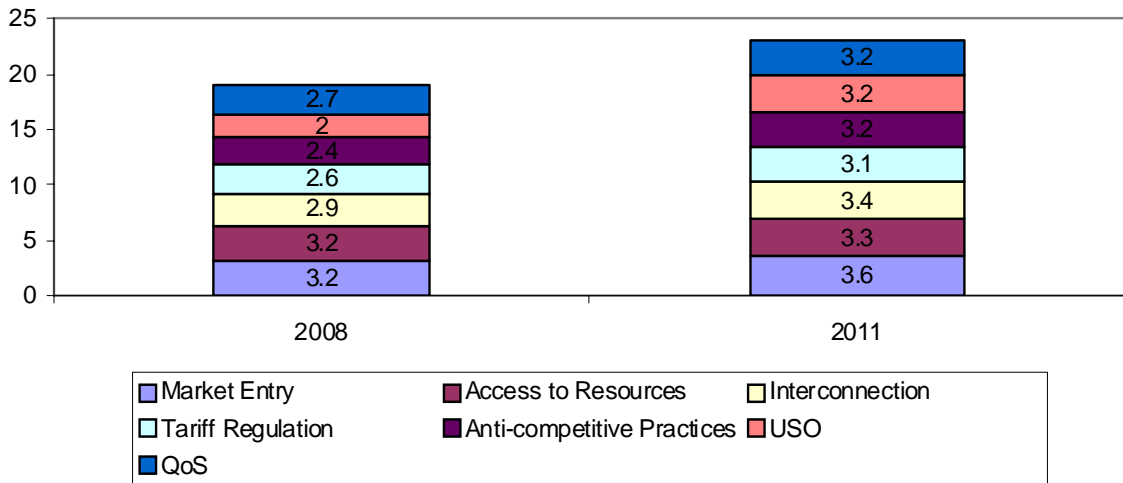
Figure 16: Comparison of TRE Scores across the Fixed Sector (2006, 2008 & 2010)



**Figure 17: Comparison of TRE Scores across the Mobile Sector (2006, 2008 & 2010)**

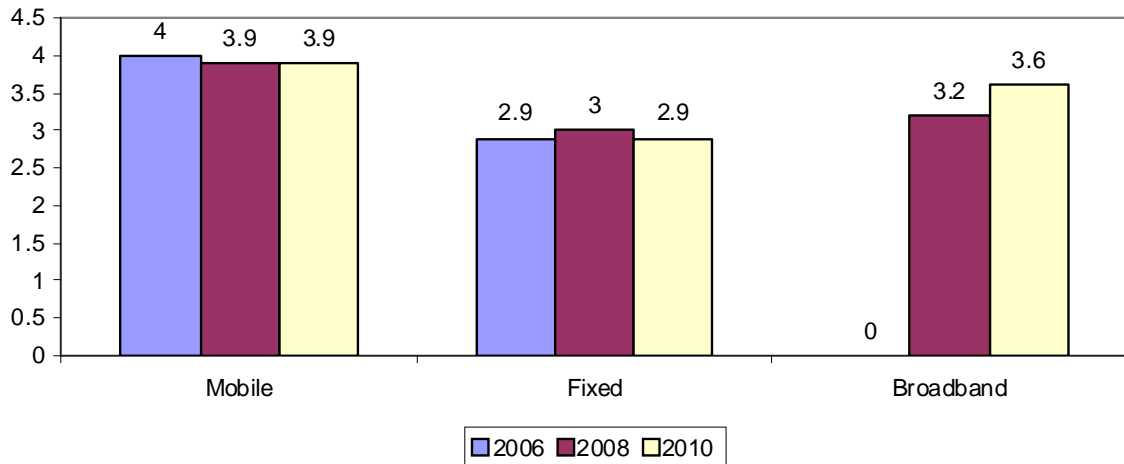


**Figure 18: Comparison of TRE Scores across the Mobile Sector (2008 & 2010)**



## 7.1 Market Entry

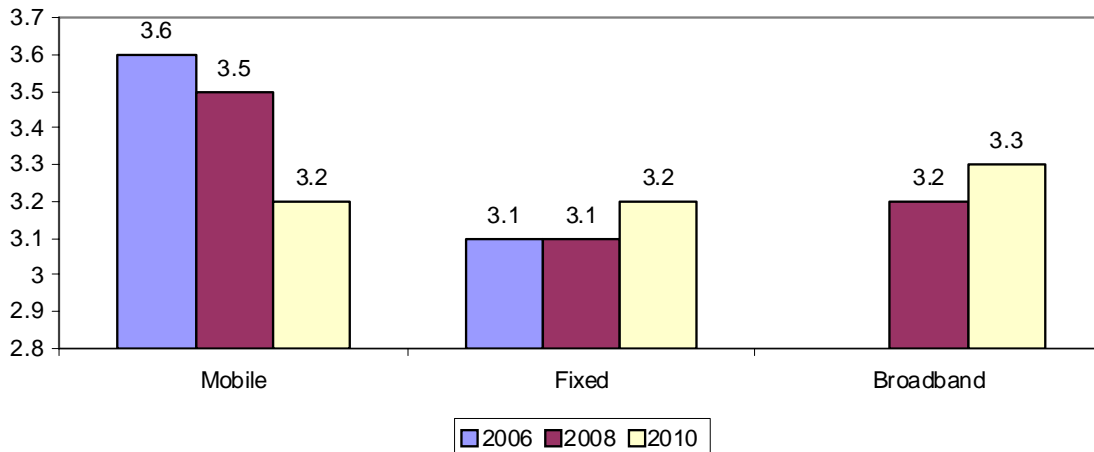
Figure 19: TRE Survey Results for Market Entry (2006, 2008 & 2010)



## 7.2 Access to Scarce Resources

Over the years, the TRE outcomes for Access to Scarce Resources for the mobile sector depict a decline while the TRE scores for the same dimension for fixed and broadband sectors have marginally increased.

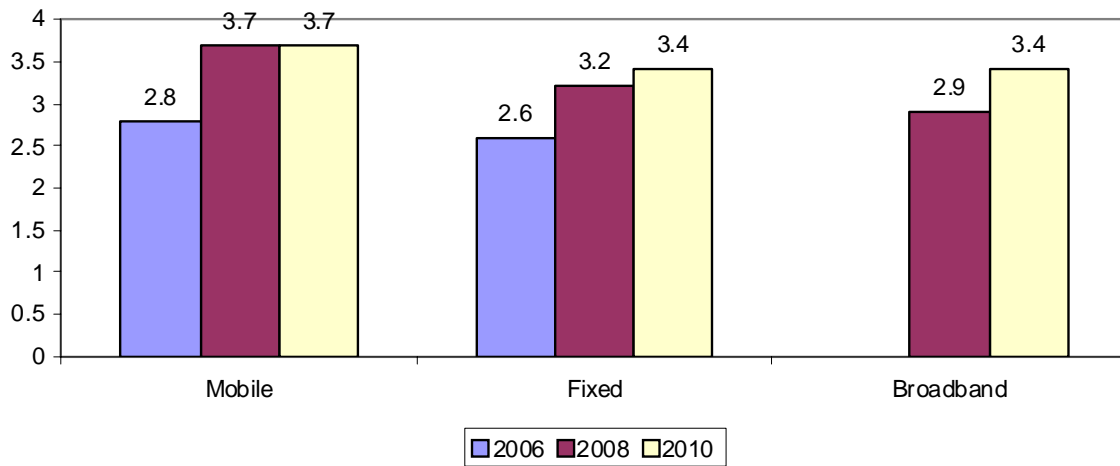
Figure 19: TRE Survey Results for Access to Scarce Resources (2006, 2008 & 2010)



### 7.3 Interconnection

While the TRE survey results for Interconnection recorded an increase in values from 2006 to 2008, from 2008 to 2010, the TRE scores for the dimension remained the same for the mobile sector while they increased in both fixed and broadband sectors.

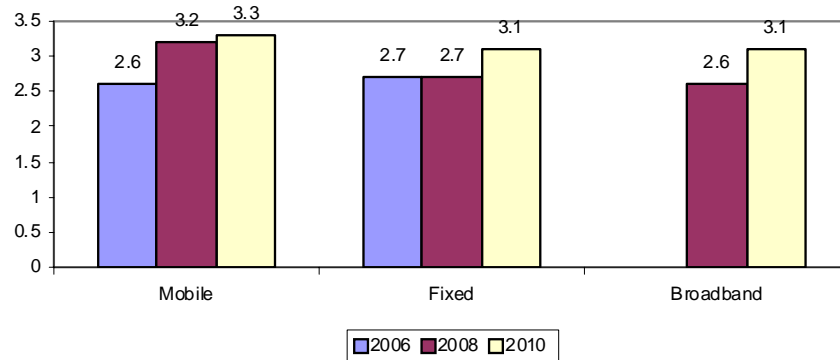
Figure 20: TRE Survey Results for Interconnection (2006, 2008 & 2010)



### 7.4 Tariff Regulation

The TRE scores for tariff regulation depict an increase from 2008 to 2010 in all three telecom sub-sectors.

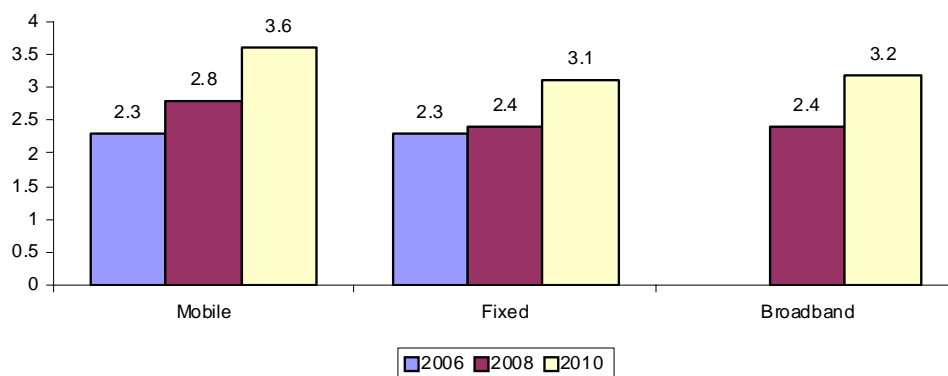
Figure 21: TRE Survey Results for Tariff Regulation (2006, 2008 & 2010)



## 7.5 Regulation of Anti-competitive practices

The TRE survey results indicate a gradual improvement in the regulation of anti-competitive practices in the telecom industry across all sectors of the industry – mobile, fixed and broadband, as reflected by the figure below.

**Figure 22: TRE Survey Results for Regulation of Anti-competitive Practices (2006, 2008 & 2010)**



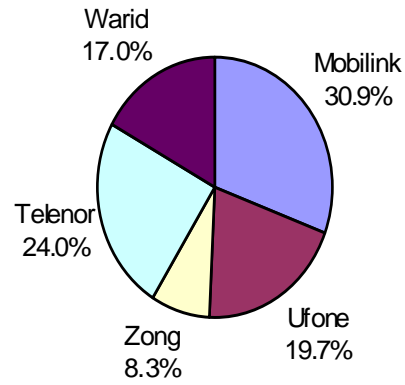
The Competition Commission of Pakistan and PTA have been actively engaged in promoting competition in the telecom industry and checking anti-competitive practices which curtail competition and restrain consumer welfare. The Commission enforces the Competition Act, 2010 prohibiting certain anti-competitive business practices. Under section 10 of the Competition Act, 2010, the Commission took action against China Mobile Pakistan Limited and Pakistan Telecom Mobile Limited for engaging in deceptive marketing practices.<sup>50</sup> China Mobile advertised a call rate but did not mention that rate is not based on per minute call, which is the norm, but rather based on per 30 seconds call, and Pakistan Telecom claimed to offer “World’s cheapest call” without any supporting evidence.

In March 2011, the Commission looked into a cross-border merger application for the acquisition of Wind Telecom by Vimpelcom Limited. A No Objection Certificate was issued by the Commission for the said merger based on the parties’ commitment to alleviate competition concerns.<sup>51</sup> The Commission has also taken action Wateen Telecom Limited and Defence Housing Authority for entering into an agreement which has the effect of reducing competition in the relevant market.

The Herfindahl-Hirschman Index (HHI) is an index that measures market concentration. The higher the HHI index, the less competitive the market is. Most jurisdictions consider that an HHI of less than 1000 represents an unconcentrated market, an HHI of 1000 but below 1800 represents moderately concentrated market, and an HHI of over 1800 represents highly concentrated market. In a highly competitive market, there may not be a single company enjoying dominant position therefore the chances of abusing dominant position are low.

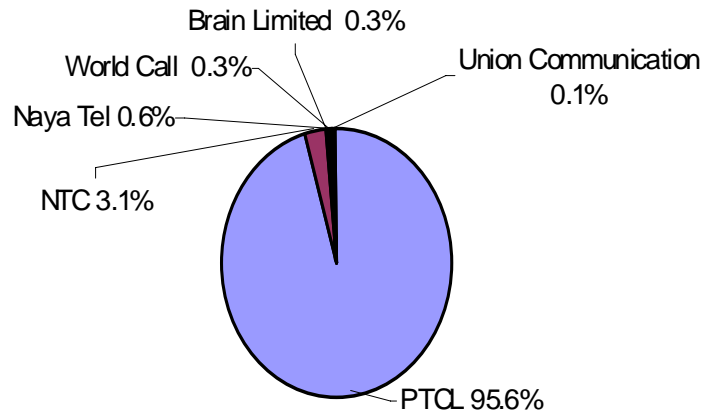
Based on the data available for December 2010, HHIs were calculated for each of the telecom sub-sectors.

**Figure 23: Market Share in the Mobile Sector – 2010**



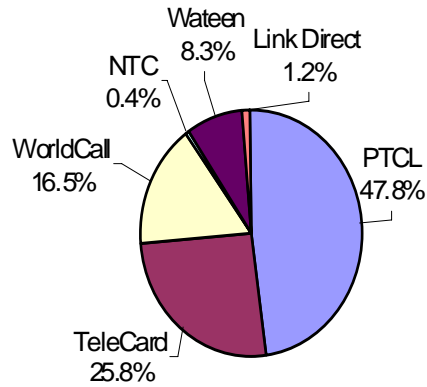
The HHI of the cellular sector is 2282, which represents a highly concentrated market.

**Figure 24: Market Share in Fixed Line Sector - 2010**



The HHI in the FLL sector is 9156, which reflects the existence of a monopolistic market.

**Figure 25: Market Share in Wireless Sector - 2010**

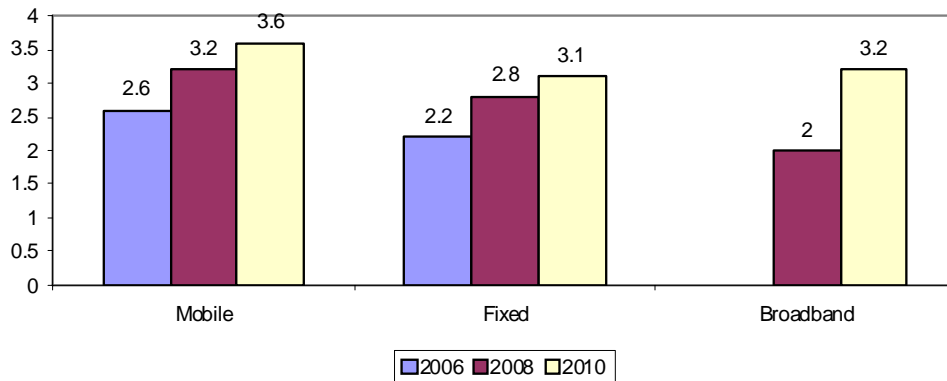


As indicated by the Figure 25, the HHI in WLL is 3289, which reflects a highly concentrated market.

## 7.6 USO

The TRE survey results for Universal Service Obligation reflect an improvement from 2006 to 2010.

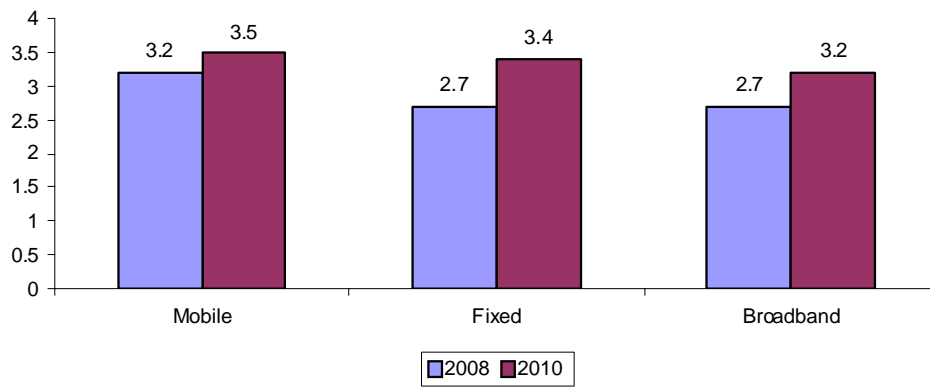
**Figure 26: TRE Survey Results for USO (2006, 2008 & 2010)**



## 7.7 QoS

The Quality of Service parameter was introduced in the TRE survey in 2008. A comparison of the survey results for 2008 and 2010 indicates an improvement in quality of services. PTA is working towards finalizing Cellular Mobile Network QoS Regulations.<sup>52</sup>

Figure 27: TRE Survey results for QoS (2008 & 2010)



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## 8. Summary/Conclusions

The TRE score has improved in all three categories: mobile, fixed and broadband. The perception has improved for mobile sector by 0.2 points, for fixed by 0.4 points and for broadband by 0.6 point.

In addition to crossing the hundred million mobile subscribers mark,<sup>53</sup> the other salient achievements for year 2010 are: i) a saving RKR 1.5 billion/month through action against grey telephony<sup>54</sup>; (ii) PTA issued the Monitoring and Reconciliation of Telephony Traffic Regulations<sup>55</sup> and is finalizing the draft Cellular Mobile Network QoS Regulations<sup>56</sup>; (iii) Pakistan bagged Telecom Awards at SAMENA (South Asian, Middle Eastern and North African) Awards 2010, where PTA was declared Most Progressive Telecom Regulator in South Asia for the year<sup>57</sup>; (iv) Wi-tribe Pakistan successfully ranked number one in both the 'Technology Neutral' and 'Technology-wise' categories for highest QoS, despite being the youngest broadband company<sup>58</sup>; (v) Telenor Pakistan became the first telecom operator in Pakistan to receive the [ISO/IEC 27001:2005](#) certification for Information Security Management System (ISMS) for mobile banking services<sup>59</sup> while Telenor's Easypaisa won the award for the 'Best Mobile Money Transfer Entrant of the Year'<sup>60</sup>; and (vi) Mobilink and NADRA joined hands for utility bills' payment solution.<sup>61</sup>

In summary, the year 2010 brought positive changes, and improved the ICT sector in Pakistan.

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## Key Events in the Telecom Regulatory Environment in Pakistan during 2010

- Pakistan crossed 100 million mobile subscribers mark in 2010.<sup>62</sup>
- In July 2010, PTA was reported to be saving Rs 1.5 billion/month through action against grey telephony.<sup>63</sup>
- PTA is finalizing the draft Cellular Mobile Network QoS Regulations, 2010.<sup>64</sup>
- PTA issued Monitoring and Reconciliation of Telephony Traffic Regulations, 2010.<sup>65</sup>
- On 14 July 2010, PTA issued an amendment in Telecom Consumer Protection Regulations, 2009.<sup>66</sup>
- Telenor's Easypaisa won the award for 'Best Mobile Money Transfer Entrant of the Year' at the world's first Mobile Money Transfer (MMT) Awards held in Dubai, making it the year's best service of its kind in the world. Easypaisa service is now available at more than 11,000 agents across Pakistan. With more than 500,000 unique users in the last month alone conducting more than 1 million transactions with a value of Rs2 billion in throughput, easypaisa is helping to provide people across Pakistan with much needed financial services.<sup>67</sup> (Nov 2010)
- Telenor Pakistan has become the first Telecom Operator in Pakistan to have received the prestigious [ISO/IEC 27001:2005](#) certification for Information Security Management System (ISMS) for mobile banking services.<sup>68</sup>
- With \$70M investment, Qubee becomes latest WiMax vendor to enter Pakistani market.<sup>69</sup> (Oct 2010)
- PTA carried out monitoring of billings of all cellular operators to ensure accuracy of charged rates with advertized rates. The results of the computerized experiment also showed that operators were giving benefit to their subscribers in most of the cases by charging lesser tariffs in comparison to their advertised tariffs.<sup>70</sup>
- In its 2010 annual report, PTA announced that Wi-tribe Pakistan successfully ranked number one in both the 'Technology Neutral' and 'Technology-wise' categories for highest QoS, despite being the youngest broadband company, after just over one year of launching commercial services.<sup>71</sup>
- To provide MVNO services, PTA set an initial license fee of US \$ 5 million.<sup>72</sup> As a result of this high license fee, media reports indicated that MVNOs are reluctant to enter Pakistani telecom market as high license fees has pushed them from operating in the country, causing loss of millions of dollars in FDI.<sup>73</sup>
- 3G services are predicted to be available to Pakistani mobile users by the end of 2011, while the Policy for auction of 3G services licenses would soon be presented to the government and ECC for discussion and approval.<sup>74</sup> (Jan 2011)
- Mobilink, Nadra join hands for utility bills' payment solution (13 Jan 2011)<sup>75</sup>
- In March 2010, Chairman PTA said that the mobile banking regulatory framework would be introduced soon.<sup>76</sup>
- In October 2010, Pakistan bagged Telecom Awards at SAMENA (South Asian, Middle Eastern and North African) Awards 2010, where PTA was declared Most Progressive Telecom Regulator in South Asia for the year.<sup>77</sup>

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- <sup>4</sup> [http://www.pta.gov.pk/media/monitoring\\_telephony\\_traffic\\_reg\\_070510.pdf](http://www.pta.gov.pk/media/monitoring_telephony_traffic_reg_070510.pdf)
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