

PAKISTAN TELECOMMUNICATION AUTHORITY

Study Paper
on
Implications of Merging
14 Local Loop(LL) and 1 Long Distance &
International(LDI) License

Strategy & Development Division

Deadline for Industry's Comments: Dec 15, 2011

As part of PTA's initiatives on licensing reforms for development of a more conducive telecom regime in Pakistan, this is a study paper to explore the implications of merging 14 Local Loop and 1 Long Distance International License to form a consolidated license. The stakeholders' consultation is aimed at providing relevant & useful inputs to GoP for consideration in new telecom policy framework.

Abstract

As a result of advanced level programming and the latest circuit designing techniques, the delivery of multiple services through NGN platform is a well known reality. This has opened a new business avenue for service providers; besides raising many challenges for regulators in terms of establishing new licensing/regulatory regime. Resultantly, the geographical licensing is changing into unified licensing.

PTA in the past has gone through various studies & consultations on convergence which involves legislative (PTA Act & PEMRA Act) and higher level institutional framework changes, and therefore may take us some time before we could see the benefits of this much desired change. Keeping in view these barriers and technological change, this study paper is an effort which is well within the ambit of Telecom Act; but no doubt would require a new policy for implementation. With the availability of non-geographical (IP oriented) access solutions, the restriction of services within the local loop regions is neither a technological trend nor could easily be enforced. The scope and ease of LL operators getting involved into the LDI business has increased. Therefore a logical option for PTA is to start working on a level playing regulatory framework for merging the LL & LDI licenses in line with technological trends. Given this, the main objectives of this study paper are:

- Explore the implications of merging 14 LL and 1 LDI license into a consolidated license.
- Keeping in view the global impact of Value Added Services (VAS) on operator's ARPU, explore the possibility of including the existing CVAS under the umbrella of proposed consolidated license. The standalone existing regime of CVAS will remain intact.
- Finally; in order to introduce a unified licensing regime through a new policy, provide the requisite inputs to Ministry of IT & Telecom (MOIT&T).

1. Introduction

PTA's Class Value Added Services Licensing (CVAS) regime was the part of Authority's initiatives on licensing reforms for development of a regime which is more conducive for investment. This study paper is in continuation of these efforts. The broadcasting services are out of scope of this study.

The regulators around the world are devising the regulatory reforms to regulate convergence in telecommunications and broadcasting. The main objectives of such reforms are to support the delivery of multiple services, promoting the innovation, the reduction of consumer prices and creating a more conducive regime for investment.

As far as the legacy networks are concerned; there are separate regulatory frameworks for wireline, wireless and broadcasting services. For such networks, the markets are divided into

local and long distance segments. Convergence has blurred these boundaries. In light of this, the regulatory reforms for converged systems should focus on¹:

- a. Introduction of the principles of technology and service neutrality.
- b. Greater flexibility in key aspects of existing regulatory framework like licensing which includes rights and obligations of operators, interconnection framework, numbering, QoS, universal service, and spectrum use.

There are two main approaches for service licensing reforms:

- Regulators have simplified the licensing structure which involves the consolidation of different services in a single license/unified license. In this study paper we would focus on this particular type of licensing reform.
- Reduction of the administrative requirements to enter a telecom market. This trend involves modifying the general authorisation category to allow more services to be provided or the establishment of notification or registration systems that replace licences or general authorisations altogether, therefore simplifying the process of obtaining them and, in some cases, making it automatic. One extreme of this approach is open entry.

The regulatory reforms stated above are indeed vital as the importance of this subject has been recognized at the highest level including World Summits for Information Society (WSIS). Decisions taken in WSIS have been endorsed by UN General Assembly. Major developments during the period 2002-2006 have occurred in the telecommunication/ICT environments that have significant and far-reaching implications including²:

- The continued growth, albeit uneven across countries, of the internet and other IP-based platforms and related applications, and the deployment of national and regional IP-based backbone networks;
- The continuing rapid development of wireless and mobile radio communications, and their convergence with both fixed telephony and broadcasting services;
- The need for high-quality, demand-driven international standards, which are developed rapidly, in line with the principles of global connectivity, openness, affordability, reliability, interoperability and security;
- The substantial investment of resources being made by service providers and equipment manufacturers for standards-making in next-generation networks (NGNs);
- The continuing trend towards separation of regulatory and operational functions, and the creation of many new independent telecommunication regulatory bodies, in particular in developing countries and regional economic areas, as well as the growing

¹ : ITU SQ 10-2/1 SG-1, 2009, Regulatory trends for adapting licensing frameworks to a converged environment

² Annex 1 of Plenipotentiary Resolution 71, apart from changing “over the last four years” to “during the period 2002-2006”.

role of regional organizations, in order to ensure the consistency and predictability of regulatory frameworks, and encourage capital investment;

- The trend in a number of Member States to regulate telecommunications/ICTs with less reliance on sectoral regulation in competitive markets;
- Encouraging the effective use of telecommunications/ICTs and recent technologies during critical emergencies, as a crucial part of disaster early warning, mitigation, management and relief strategies;

2. Legislative Framework

As per the Section 21 of the Telecommunication (Re-organization) Act, 1996, all the licenses referred to in section 20 shall be granted by the Authority. Moreover as per the section 22(1) of the Act:

“The Authority shall have the right to modify a license or its conditions with the consent of licensee.”

As per section 8(1) “The Federal Government may, as and when it considers necessary, issue policy directives to the Authority, not inconsistent with the provisions of the Act, on the matters relating to telecommunication policy referred to in sub-section (2), and the Authority shall comply with such directives.

And as per section 8(2) of the Act, The matters on which the Federal Government may issue policy directives shall be:

(a) the number and term of the licenses to be granted in respect of telecommunication systems which are public switched networks, telecommunication services over public switched networks and international telecommunication services, and the conditions on which those Licenses should be granted;

From the underlined part of section 8(2), it is evident that in order to merge the licenses, Federal Government would need to issue a policy directive.

3. Deregulation Policy

MOIT&T had introduced two types of licenses in the De-regulation policy 2003. As per the section 4 of this policy:

“It is proposed that there will be two types of licenses for fixed line operators:

- Local loop (“LL”) fixed line telecommunication within a PTCL region

- Long-distance and international (“LDI”) fixed line telecommunication”

Section 4.1 of this policy highlights the rights of above two types of licensees. As per Section 4.1.10: “LL licensees who opt for wireless solutions may provide limited mobility within a cell, but not beyond local call charging radius. No inter-cell handovers and roaming to other networks will be allowed.”

Section 4.2.3 of the policy highlights the fee to be paid by licensees.

As per the Section 4.3.2: “As long as the premium (incoming international traffic generates a financial premium over the cost of conveying and terminating the traffic into Pakistan) continues to exist, a reasonable portion of the premium is proposed to be used to promote infrastructure expansion. The portion of the premium applied to promoting infrastructure expansion is referred to as the “Access Promotion Contribution” (“APC”).

The prevalent APC model is based on same the above policy provision.

3.1 Policy Duration

As per the Section 10.1 of this policy: “The Policy would be valid for five (5) years from date of implementation and will be subject to review after this period. The licenses awarded to LL / LDI operators will be valid for 20 years.”

It is evident that the policy is no more valid at this stage.

4. Scope & Rights of licenses

The summary of rights and scope of licenses which have been issued under deregulation policy are given below:

Table 1: Terms of license

S/No.	Subject	LL (FLL&WLL) License	LDI License
1.	Scope	<p>This Licence authorizes the Licensee to provide the Licensed Services in the Licensed Region(s). Licence does not authorize the provision of Telecommunication Services:</p> <ul style="list-style-type: none"> • Outside a Licensed Region. 	<p>The Licensee shall provide the mandatory services of Long Distance And International Public Voice Telephone Services.</p> <p>This Licence does not authorize the provision of:</p> <ul style="list-style-type: none"> • Basic Public Telephone Access Service.

		<ul style="list-style-type: none"> • The interconnection of the Telecommunication System of the Licensee to the Telecommunication System of a service provider that provides telecommunication services outside Pakistan, • Distribution of radio or television programming by means of a cable television transmission system, • Broadcasting of radio or television programming, • Mobile Communication Service, other than Limited Mobility Communication Service (In case of WLL License). <p>Telecommunication Service by means of a space station transmission facility orbiting the earth, except for VSAT Services for communication exclusively within the Licensed Region.</p>	<ul style="list-style-type: none"> • Distribution of radio or television programming by means of a cable television transmission system. • Broadcasting of radio or television programming. • Mobile Communication Service.
	Duration	This License shall come into force on the effective date and shall be valid for a term of 20 (twenty) years	This License shall come into force on the effective date and shall be valid for a term of 20 (twenty) years
	Numbering	<p>The Licensee has the right to request geographic and non-geographic numbers, as well as short codes, in accordance with the national numbering plan developed by the Authority, for use in the provision of the Licensed Services.</p> <p>Based on the above, LL operators are given the region based</p>	<p>The Licensee has the right to request non-geographic numbers, as well as applicable short codes, in accordance with the national numbering plan developed by the Authority, for use in the provision of the Licensed Services.</p> <p>Based on above, LDI operators can put the request for Access Codes, IN based Pre-paid calling cards & carrier selection code etc.</p>

		<p>number blocks.</p> <p>In addition to above information related to LL license, it may be noted that:</p> <p>For 0900xxxx numbers, CVAS Voice license is needed.</p> <p>For content based short code, CVAS registration is needed.</p>	
	Network Roll out	The Licensee shall establish at least one Network Connection Point in each Licensed Region and commence the provision of Mandatory Services in each Licensed Region within 18 (eighteen) months from the Effective Date.	The Licensee shall establish at least one Network Connection Point in each of any five Regions and commence the provision of Mandatory Services in each such Region within twelve (12) months from the Effective Date.
	Initial Fee	Initial License Fee = USD 10,000/-	Initial License Fee = USD 500,000/-
	Annual Regulatory Fee	Annual Regulatory Fee = 0.5% of annual gross revenue minus inter-operator payments and related PTA/FAB payments.	Annual Regulatory Fee = 0.5% of annual gross revenue minus inter-operator payments and related PTA/FAB payments.

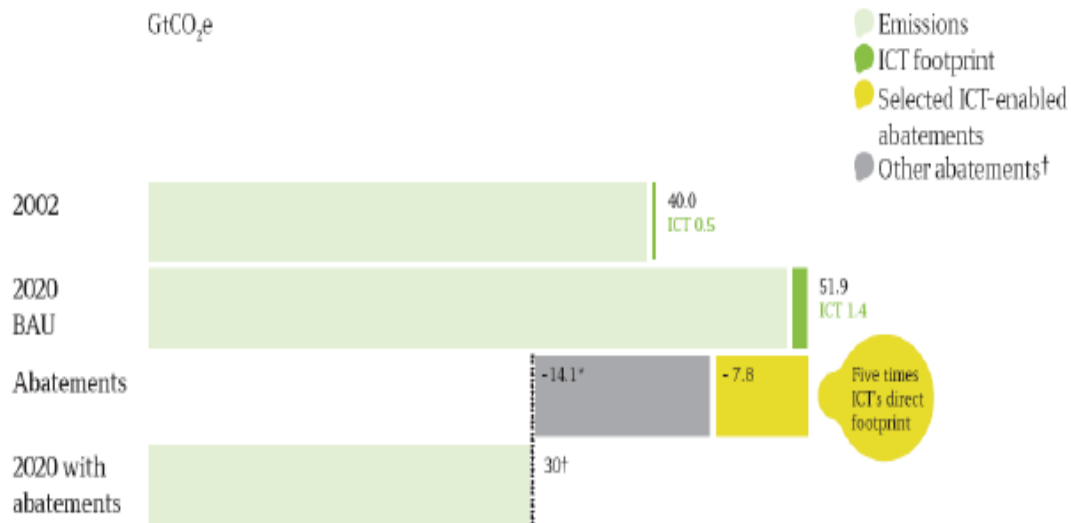
5. Regulatory Implications of Merging the LL and LDI licenses

5.1 Review of PTA Licensing Regime in light of Change in Technological Landscape

Given the above salient license conditions, it is important to review them in light of change in technological landscape.

As we know that fixed and mobile networks are changing to all IP Next Generation Networks (NGNs). The voice and data networks are getting integrated. The voice is shifting from PSTN networks to mobile networks. There is emergence of VoIP and growing trend of voice moving from PSTN to IP. This leads to a number of benefits for operators as well as the customers, including but not limited to, greater ARPU through value added services and bundle packages

for consumers. According to ITU³, since NGN consume less energy so deployment of such networks has the potential to reduce the carbon footprint by 15%.



In 2020 the global footprint is expected to reach 51.9 GtCO₂e (Giga tonnes of CO₂ equivalents). Of this amount, 1.4 Gt would be the direct contribution of ICTs. However by implementing good practices and use of ICTs, total emissions could be reduced in 7.8 Gt, e.g. 15 per cent of the expected amount.

Source: GeSI (2008) "SMART 2020: enabling the low carbon economy in the information age", available at www.gesi.org.

Some of the other important technological trends are:

- Due to the above given benefits, we can observe a trend towards the migration to an all-IP environment where the geographical restrictions are meaningless.
- Total average daily traffic is increasing exponentially. e.g the total average daily traffic from 2012 to 2020 is expected to increase from 250 to 5750 Tbytes in representative Western European countries; according to UMTS forum⁴. According to same research: "The voice will stay a key service. In 2012, voice is still the first service category in terms of daily traffic volumes. Simple voice duration will remain flat in both consumer and business segments. However, total call duration will be higher in 2020 than in 2012 thanks to the increase of rich voice and VoIP calls."
- Location-based services daily traffic will grow thanks to both subscriber growth and frequency of use growth⁵.
- The emergence of Peer-to-Peer (P2P) technologies (e.g., Skype). The Skype is one of the most popular VOIP service present around. It is based on peer to peer communication.

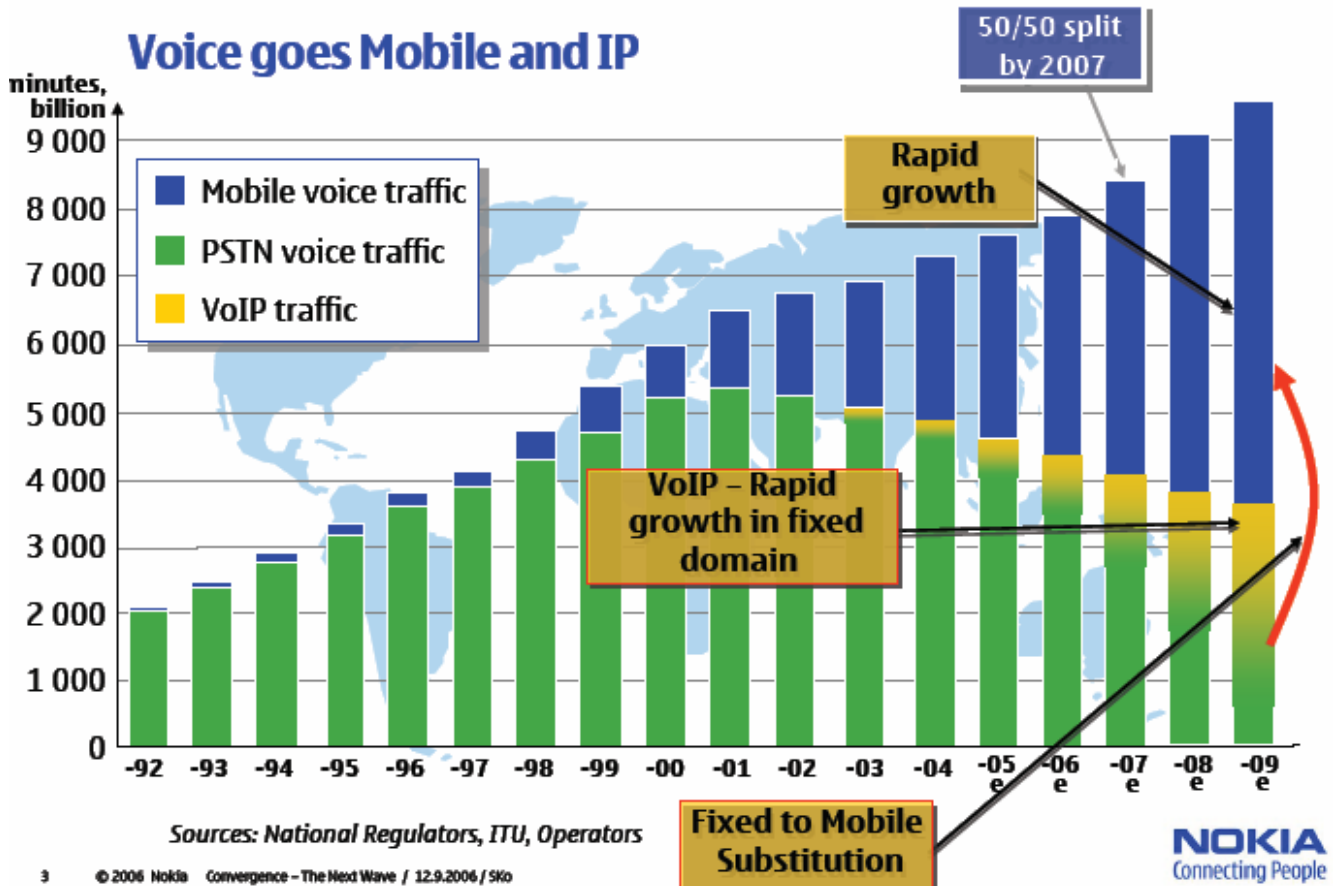
³ ITU, NGN and energy efficiency

⁴ <http://www.itu.int/osg/spu/ni/voice/presentations/S3-3-Bienaima.pdf>

⁵ http://www.3gpp.org/ftp/PCG/PCG_14/DOCS/PDF/PCG14_17.pdf

- The voice is going mobile as evident from the following.

Source: NOKIA, based on data from the ITU, national regulators and operators.



Question No.1

The licensing reform of consolidating LL & LDI licenses into an integrated license is in line with above given technological trend. This particular regulatory initiative, if taken on basis of a level playing field, would create a more conducive regime for investment in Pakistan. Do you agree with this statement? In case of disagreement, please explain your point(s) with reasons for doing so.

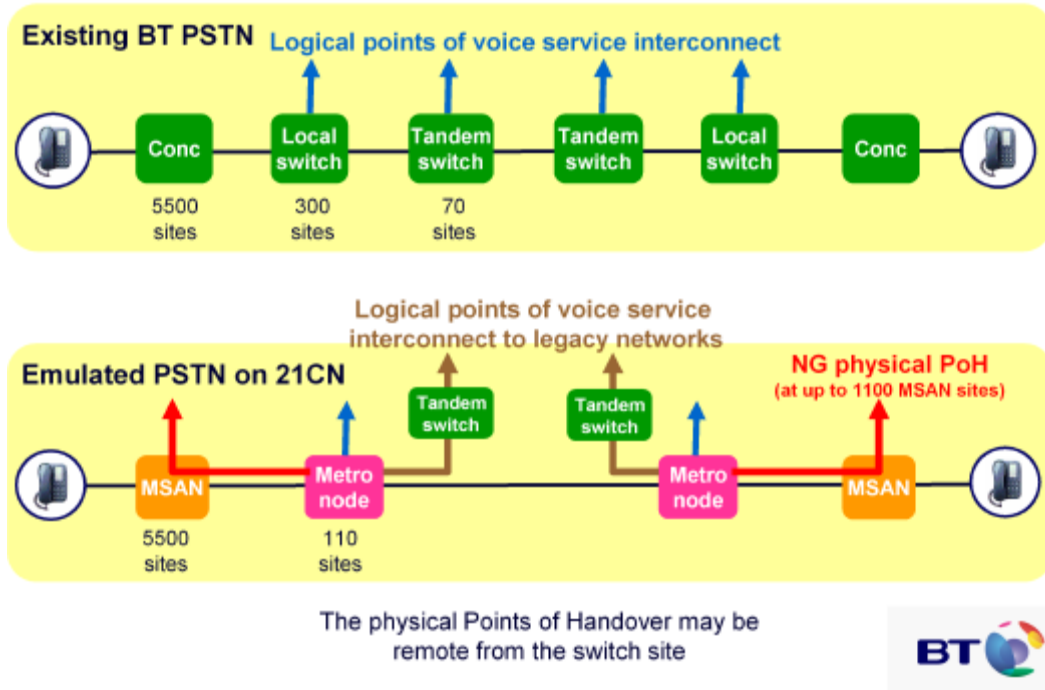
5.2 Existing Policy Regime is hindering End to End NGN Deployment in Pakistan

As we are aware of the fact that Pakistan Telecom market is divided into 14 telecom regions as per telecom deregulation policy and there is a restriction of local switching for LL operators, i.e LLOs are require to switch the call within the telecom region.

NGNs use the distributed call server model which is independent of geographical restrictions. Despite the fact that existing licensing regime is technology neutral, the restriction of switching within licensing area is a hindrance in the way of end to end NGN proliferation. Due to the same hindrance; the operators cannot offer the services which are independent of geographical boundaries. e.g utilization of the same number through soft phone anywhere within Pakistan. Therefore it can be stated that:

- a. The present restriction on putting switching Equipments within licensing area requires reconsideration due to the technical and economical reasons.
- b. The existing interconnect regime for LL operators to handover the call to LDIs is another restriction. Through the network model for a consolidated license; this restriction could be removed which would be beneficial for operators. e.g BT's NGN initiative (BT 21CN) has lead to achieving substantial savings in terms of centralizing and reducing point of interconnection. The same is shown is the following figure

Where are the PSTN interconnects in the UK ?



- c. The existing geographical boundaries in the shape of 14 telecom regions; make the end to end IP based voice solutions less viable in Pakistan. When the licenses are consolidated, this hindrance would be removed.

Question No.2

The present restriction on putting the switching equipment within licensing area requires reconsideration due to the technical and economical reasons. The existing geographical boundaries in the shape of 14 telecom regions; make the end to end IP based voice solutions less viable in Pakistan. If LL and LDI licenses are merged into a consolidated license, the network model for such a license would result in saving on account of Capex, Opex, rental charges due to reduced space, power requirement and maintenance. Do you agree with these points? In case of disagreement, please mention your views.

5.3 The Decoupled Networks and Services

Due to the technological advancement, the network and service layers have been decoupled. In an alternative sense, the networks have merged. e.g in case of legacy environment, there were

⁶ BT

separate networks for voice, data and Cable TV services. In the converged environment a single network (NGN) can support such services.

5.4 Fixed Mobile Convergence (FMC) and LL & LDI Merger

The ETSI has defined it as:

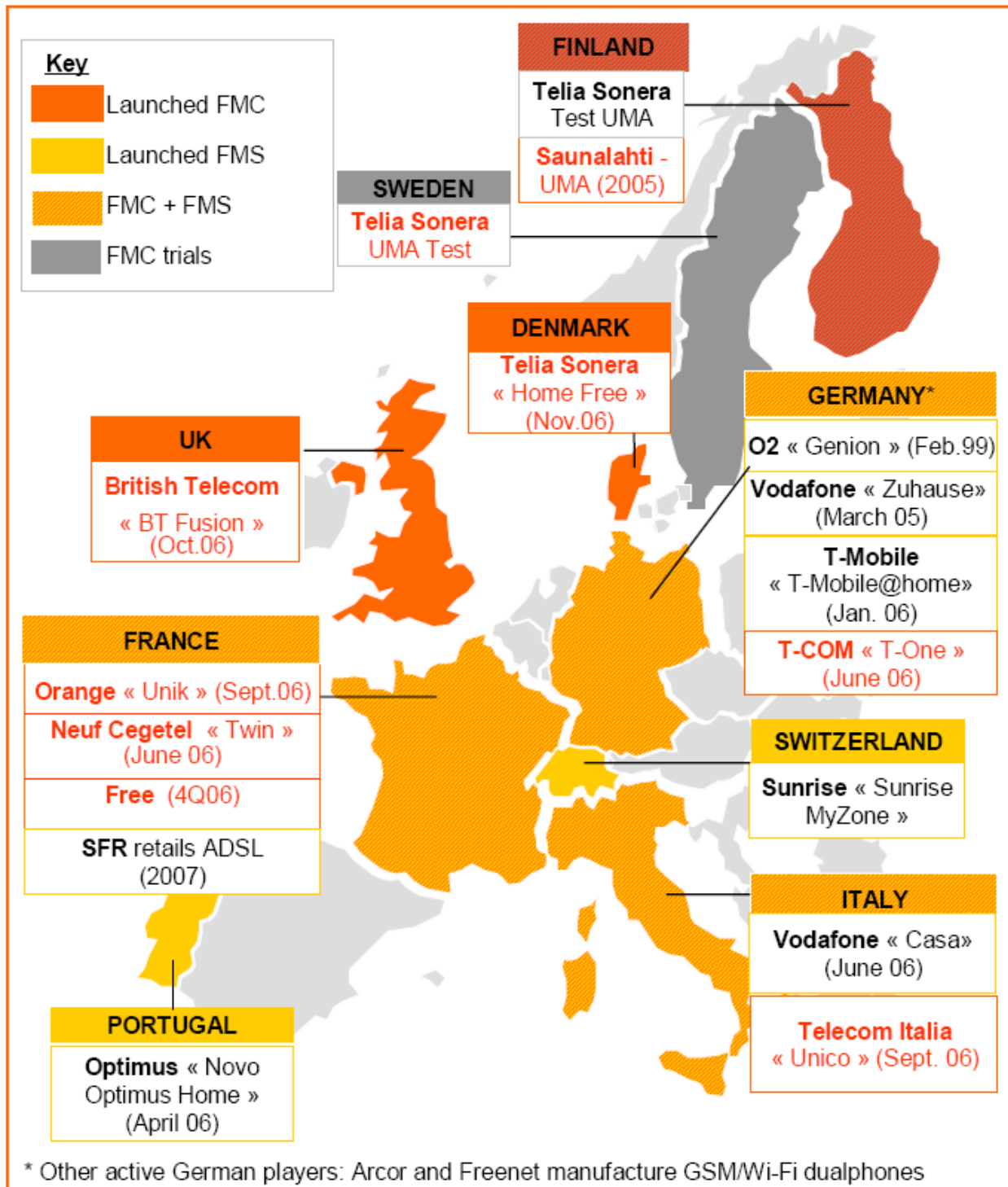
“Fixed Mobile Convergence (FMC) is concerned with the provision of network capabilities which are independent of the access technique. This does not imply the physical convergence of networks. It is concerned with the development of converged network architecture and supporting standards. This set of standards may be used to offer fixed, mobile or hybrid services.

An important feature of fixed mobile convergence is the separation of the subscriptions and services from individual access points and terminals and to allow users to access a consistent set of services from any fixed or mobile terminal via any compatible access point. An important extension of this principle is related to internetwork roaming; users should be able to roam between different networks and to be able to use the same consistent set of services through those visited networks.”

From another perspective, it is the convergence of Fixed (wireline) and Mobile (wireless) networks, services and terminals. ITU-T recommendation Q.1761 highlights principles and requirements for convergence of fixed and existing IMT-2000 Systems. FMC according to Q.1761 is “Mechanism by which an **IMT-2000** user can have his basic voice as well as other services through a fixed network as per his subscription options, capability of the access technology.”

FMC has become reality in most of the countries around the world; particularly in European countries. The same is evident from the following figure:

The advance of Fixed-Mobile Convergence (FMC) & Fixed-Mobile Substitution (FMS) In Europe.



Source: operators, Sofrecom MIS (September 2006)

The merger of 14 FLL or 14 WLL would lead to a national level fixed or wireless network respectively. Such a network combined with LDI would lead to one type of fixed mobile convergence in Pakistan⁷. The following points would further explain:

- Due to IMS based solutions the user would be able to access services independent of type of network. Due to this merger; the delivery of non-geographical services through deployment of a national level IP based network (access and core) would be legally allowed. Such a network combined with IMS based wireless network would lead to one type of FMC. The FMC would allow subscribers to use one device and telephone number to make calls via fixed connection when in range (house or office), but then to be able to use wider WLL network; when outside this range. According to the Network Working Group (NWG) within the WiMAX Forum:

“The forum has developed specifications for users transitioning between WiMAX & different access technologies, such as WiFi. Inter-working between WiMAX and WiFi is significantly simplified as both networks are deployed using Internet Engineering Task Force (IETF) protocols and comply with IETF IP policy definition and policy enforcement rules. Common IETF protocols include:

- Transport protocols: IPv4, IPv6, Transmission Control Protocol (TCP), User Datagram Protocol (UDP)
- Mobility protocols: Mobile IP (MIP) v4, MIPv6 – Security protocols: IP Security (IPsec), AAA RADIUS, and DIAMETER
- QoS protocols: Resource Reservation Protocol (RSVP), Differentiated Services (DiffServ)
- Connectivity protocols: Domain Host Configuration Protocol (DHCP), Domain Name Server (DNS), Virtual Private Network (VPN)
- Manageability protocol: Simple Network Management Protocol (SNMP)

The NWG has defined an Access Service Network Gateway (ASN-GW) to manage access to services, such as AAA and DHCP, in addition to session and mobility management. Leveraging the IETF MIP protocols, the NWG Release 1 specification supports intra-ASN session continuity.¹⁴ Subsequent releases will support inter-ASN session continuity to enable more seamless movement between WiMAX and WiFi networks.”⁸

- Utilization of common backhaul for broadband and LL (WLL/FLL) networks would become more feasible which would lead to FMC at backhaul layer.

⁷ Word ‘Mobile’ in FMC should not be related with full mobility as available in case of CMOs’ network in Pakistan.

⁸ http://files.shareholder.com/downloads/INTC/1507028945x0x195859/40AB6084-0A42-4E87-9AD3-B08BADAA987F/wimax_and_wifi_together.pdf

5.5 Same Access & Core for Fixed and Wireless Services

In case of networks, FMC means that same network (access & core) is used for fixed and wireless services. Therefore a WLL user (for example using CDMA 2000 interface or WiMax interface) should be able to register in a fixed network to obtain the same set of services normally available in the subscriber's network. Subscriber's registration, authentication and access to his/her service profile server by the visiting fixed network need to be defined.

Therefore the growing trend of using the same access and core network for fixed and WLL users is another business motivation for unification of LL and LDI licenses in Pakistan.

The most prominent solution of FMC is IMS (IP multimedia subsystem). It is a standard that defines a generic architecture based on SIP which allows multiple real-time applications to run across a single network. According to IBM, IP Multimedia Subsystem (IMS) is a set of specifications that describes the Next Generation Networking (NGN) architecture for implementing IP based telephony and multimedia services.

Although it was initially designed by the 3rd Generation Partnership Project (3GPP) for mobile networks, newer releases of IMS are designed to be access-agnostic so that it can be used by any type of access method, be it a fixed line, GSM, CDMA2000, WCDMA, Wireline broadband access, WiFi or WiMax. IMS defines a complete architecture and framework that enables the convergence of voice, video, data and mobile network technology over an IP-based infrastructure. The discussion of mobile networks is not within the scope of this paper.

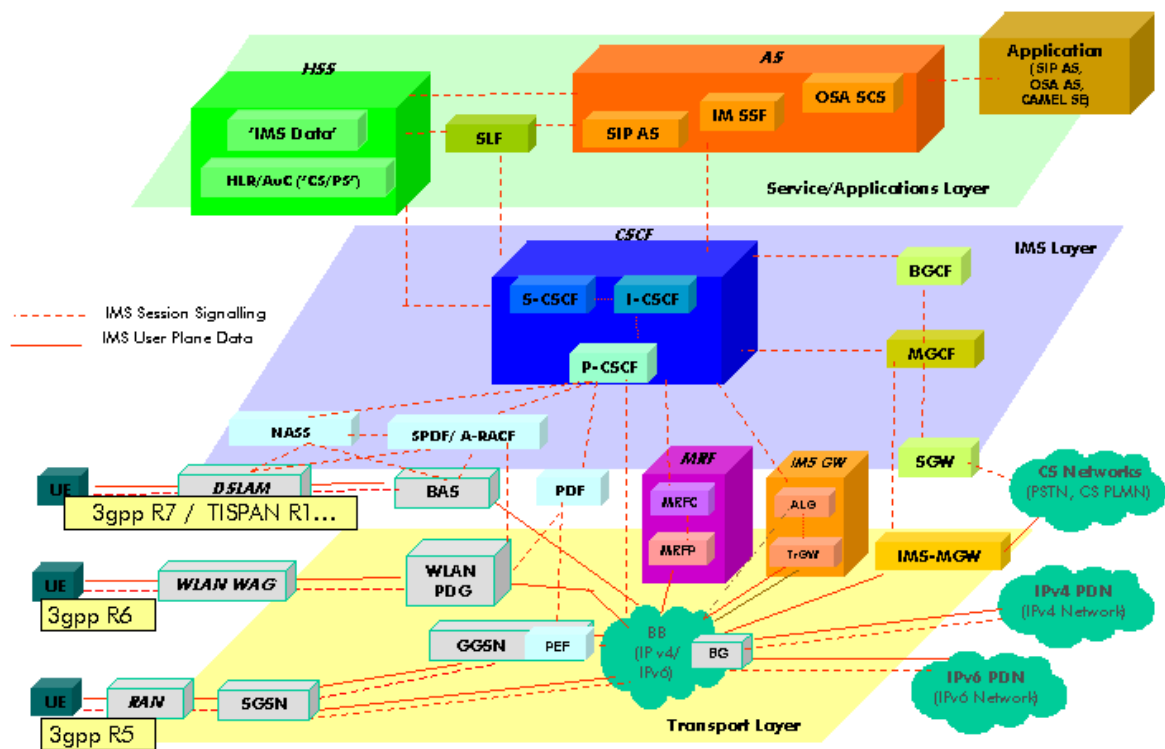
The important landmarks in development of this most significant standard are:

- In 3GPP Release 5, "Session Initiated Protocol" (SIP), defined by the Internet Engineering Task Force (IETF), was chosen as the main protocol for IMS.
- In 3GPP Releases 6 and 7 additional features were included like presence and group management, interworking with WLAN and CS based systems, and fixed broadband access.
- 3rd Generation Partnership Project 2 (3GPP2), also standardized their own version of IMS which was quite similar to 3GPP's version with suitable adjustments.
- On top of IMS infrastructure, there is a service standardization process. For this purpose Open Mobile Alliance (OMA) plays an important role on specifying and developing IMS service standardization. The services defined by OMA are built on top of IMS infrastructure, such as Instant Messaging (IM), Presence service, and group management Service.

The benefits of IMS include:

- Reduced time for delivering the new services to customers. Through the standard interfaces in IMS, the new services developed by third party can be made part of network.
- IMS is capable of enabling Quality of Service within the IP network which improves and guarantees the transmission quality. This is not the case in BE (Best Effort) QoS networks (which are typical in many wireless broadband networks), in which no BW is reserved for any user. An operator can only define "Maximum Sustaining Rate" for BE users, i.e. restrict them to reach a particular value.
- The operators need readily available charging schemes which could be used according to service type. IMS allows the operators to determine how to charge the users based on service types, i.e. they can choose to charge user by the number of bytes transferred, by the session duration (time-based), or perform any new type of charging.

3GPP IMS/TISPAAN Architecture Overview (Ref: 3GPP)



Question No.3

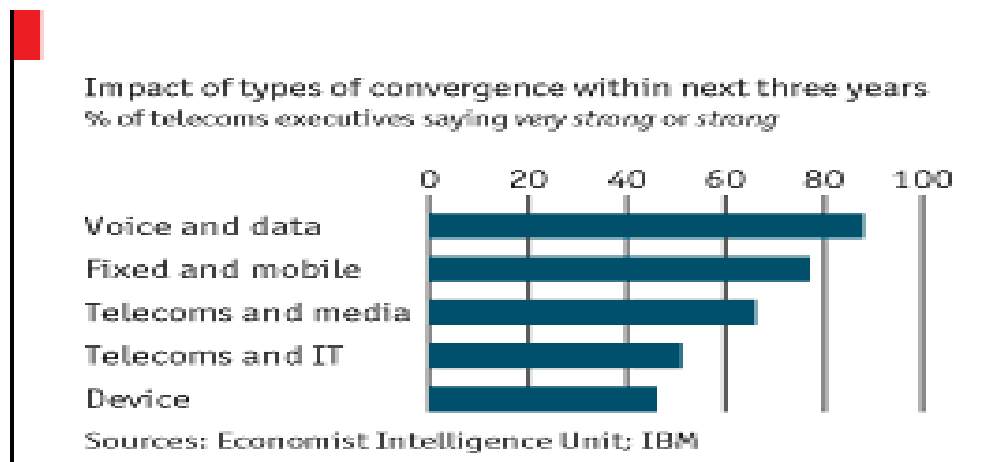
The proposed consolidation of licenses would lead to fixed access & WLL network synergies. How do you view this? What are the expected pros and cons?

5.6 Expected Benefits for LL & LDI Operators:

There are a number of expected benefits of merging the LL and LDI licenses in Pakistan. Some of these include:

- There would be a better business case for integrated licensee to offer the bundled service packages. The bundling will not only reduce the costs for consumer but also add convenience through single billing. This will improve the ARPU of operators.
- Provision of services to a wireless user in an area where the radio network is not deployed or coverage is not claimed.
- Network deployment and operational cost reduction.

According to IBM and the Economist Intelligence Unit⁹, 80% of telecoms executives surveyed agreed that it was essential to embrace convergence (its various types; including the subject of this paper) within the next three years as a source of long-term revenue growth. This is shown below:



5.7 Implications on Competition

5.7.1 Solution to declining Fixed line Revenue:

There is a growing trend towards stagnant or declining fixed line revenues. This is mainly due to¹⁰:

- Reductions in unit prices, not compensated by increase in traffic;
- Flat-rate pricing;

⁹ http://www.economist.com/node/7995312?story_id=7995312

¹⁰ ⁷³ <http://www.itu.int/osg/spu/ni/voice/presentations/S4-6-Gruber.pdf>

- Competition from the mobile sector and fixed-mobile substitution, which has stolen traffic;
- The share of data, which is increasing, thereby resulting in diminished margins.

One of the ways to tackle the above situation is through the licensing reforms. The consolidation of licenses in Pakistan will lead to emergence of big players in market. These big players are expected to be better placed to compete with existing SMPs; which will have positive impact on the competition in Pakistan. The expected benefits are:

- The consumer tariffs are expected to reduce; in particular the line rents etc. which are still being charged by some of the operators in Pakistan. The integrated licensee would be able to offer more services; in addition to basic voice service. This will promote the trend of bundle packages in Pakistan. At present PTCL being an integrated licensee is providing multiple services such as voice, internet, and IPTV and therefore able to introduce various bundled packages. For example one of the bundle packages being offered by PTCL is as follows¹¹:

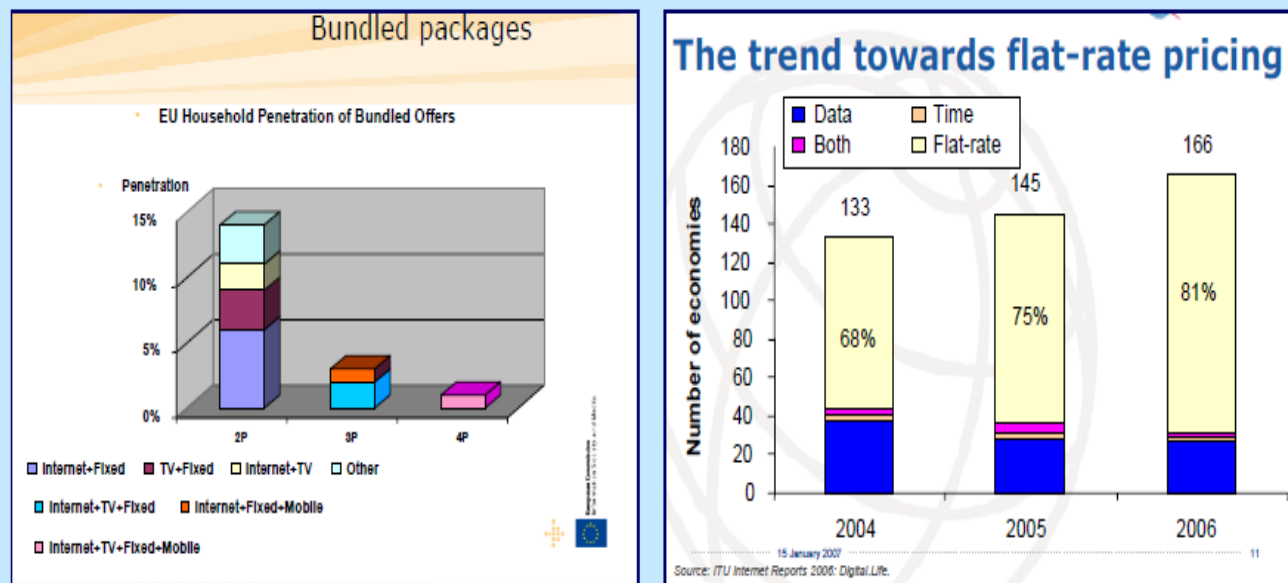
“Double up Unlimited packages were launched in August 2009 to promote Broadband and PSTN with double play offering. **Now PTCL has come up with the all new Double impact packages which offer a bundle package of capped voice minutes and data services.**

- Double-Play 1Mb @Rs 1,499 with 750 On-Net voice minutes
- Double-Play 2Mb @Rs 1,799 with 750 On-Net voice minutes
- Double-Play 4Mb @Rs 2,499 with 750 On-Net voice minutes
- Double-Play 6Mb @Rs 5,499 with 750 On-Net voice minutes
- Double-Play 8Mb @Rs 7,499 with 750 On-Net voice minutes
- Double-Play 10Mb @Rs 10,499 with 750 On-Net voice minutes”

The global trend of offering the bundle packages by the operators is evident from the following figure as well.

¹¹ http://www.ptcl.com.pk/related_pages.php?pd_id=161&rp_id=171

Proportion of EU households with bundled offers (left chart); flat-rate pricing packages as a proportion of commercial broadband offers worldwide, 2004-2006 (right chart).



Source: Benable, "Review of the Regulatory Framework for Electronic Communications" (left chart); Kelly & Ponder, "The Future of Voice: Framing the Debate" (right chart).

Question No.4

The proposed consolidation of licenses would be beneficial for telecom consumers in Pakistan. It will have positive impact on competition. How do you view this?

5.7.2 Regulating the Bundled Packages:

As per the European Telecommunications Network Providers' Association¹², the bundled offers are also a challenge for regulation - bundling voice with other services should not lead to the whole bundle being subject to regulation to ensure investment in new services. As per European Regulators' Group (ERG), the regulatory approach to bundles involves different critical questions¹³. In particular, the questions for regulators on triple play include:

- Are component services completely below cost or is it replicable (totally or partially)?
- Is content distributed over IPTV bound by exclusive contracts?
- Even if individual components are not below cost, is the overall offer replicable?

¹² <http://www.etno.be/>

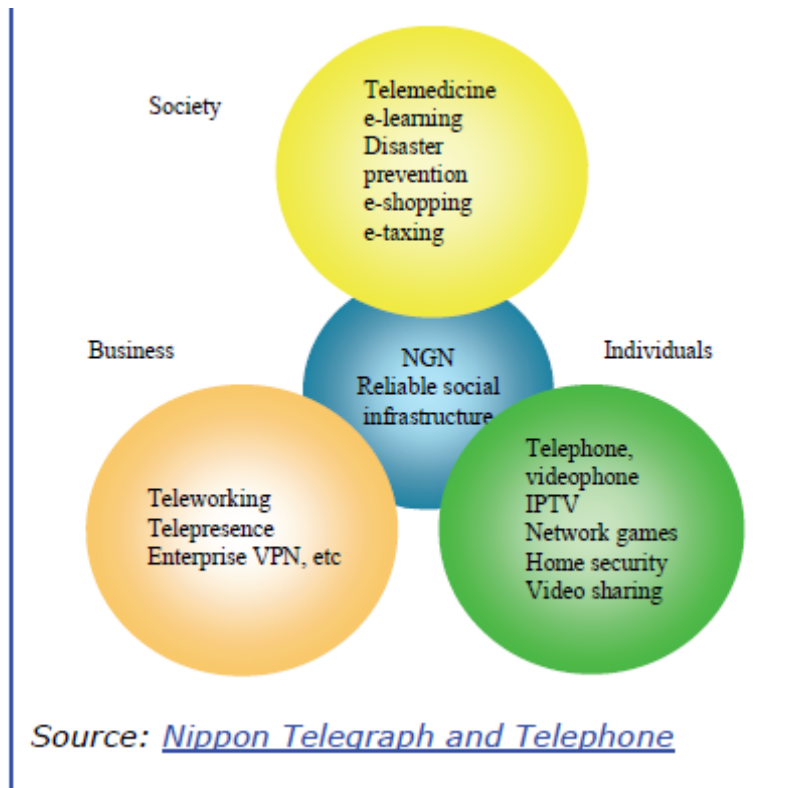
¹³ <http://www.itu.int/osg/spu/ni/voice/presentations/S7-Gallino.pdf>

5.7.3 Fiber Deployment:

The consolidated licensees are expected to deploy the fiber which will reduce the media charges due to competition with PTCL and other existing infrastructure owners.

5.7.4 Miscellaneous Issues:

As a result of this merger, the broadband is likely to grow due to deployment of NGN networks and ARPU concerns by the big players. Broadband is needed to offer the services and applications of NGN as displayed below:



Moreover the standalone LDI filtering would be easy. Those LDIs which have not been able to compete due to various reasons; would be filtered out thus putting positive impact on market.

NGN platforms are costly to deploy. The investment would involve high risk if the expected service uptake is slow. Given this, the big players would need policies for network (active as well as passive) sharing to minimize the costs. This will promote the trend of network sharing in Pakistan.

High level of competition is expected in services layer due to NGN networks. The promotion of this type of competition is beneficial for customers as they can opt for the services according to their requirement QoS and tariff.

In the existing framework for SMP operators, as per last determination by Pakistan Telecom Authority¹⁴; the SMP is based on product/service and geographical areas. An operator is declared SMP if it has more than 25% of share of a particular market in terms of revenue. Retail broadband is a relevant market for SMP determination. Market share of each operator is used to determine the SMP in domestic leased line market.

In new consolidated environment with IP based solutions; the interconnect costs involved are bound to change and therefore the new rates would need to be determined. It may become important to segregate the service layer from the infrastructure layer and therefore determine separate criteria for SMP in service layer (these are the value added service providers using the infrastructure of main players). This would only be applicable if the full blown competition in service layer emerges in Pakistan. Regulatory intervention to balance the infrastructure level completion and service layer competition would become vital.

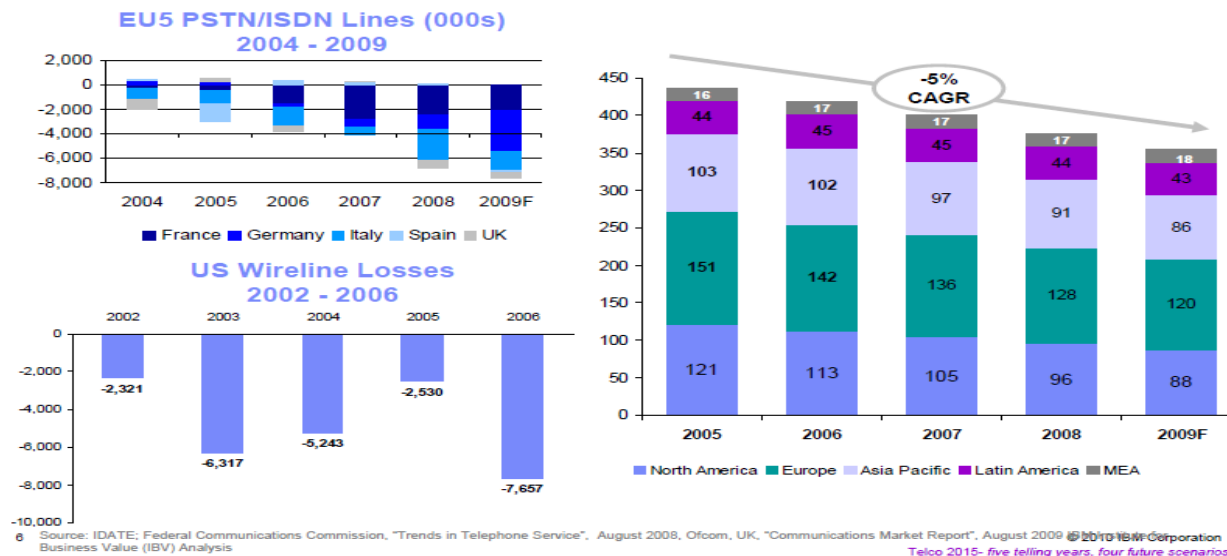
Question No.5

The proposed consolidation of licenses would promote the service layer completion leading to a large number of benefits for consumers. What are your views in this regard?

6. Value Added Services (VAS) and Infrastructure Deployment:

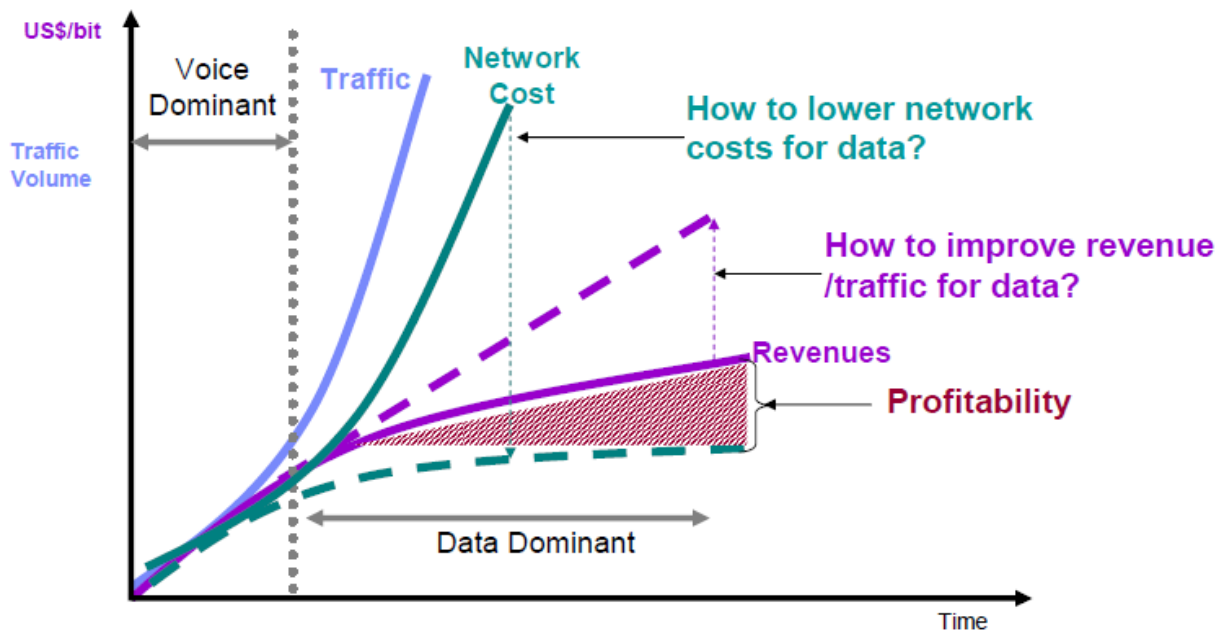
The number of fixed lines and related revenues are falling globally as shown below:

There is a long-term decline in fixed telephony (PSTN) lines and revenues



¹⁴ Relevant markets and SMP operators in Pak, AJK and GB, 2010

Moreover; the cost of delivering data is not matched by revenues as revenue and traffic volume are decoupled in a data-dominant world.¹⁵ The same is shown below



Source: Nokia-Siemens; IBM Institute for Business Value (IBV) Analysis

One of the ways to tackle this issue is to allow the operators to provide additional value added services under the umbrella of consolidated license. This will improve the revenues.

Keeping in view the above and in order to make the proposed consolidated license more feasible for investment, it is recommended to add the existing Class Value Added Services under the umbrella of this consolidated (or merged) license. Some of these are:

- Premium Rate Services
- Payphone Services
- Trunk Radio Services
- Public Internet Service
- Data Service
- Tracking System for public application
- Voice Mail
- SMS Aggregator
- Closed user group Video Conferencing

¹⁵ Nokia-Siemens; IBM Institute

- Content Service Provider Networking
- Interactive Voice Response (IVR)

Further to above, it is being proposed to add the rights of existing infrastructure license under this consolidated license.

Question No.6

Do you agree with the idea of adding the Class Value Added services and the rights of infrastructure license under the umbrella of proposed consolidated license? Or you think that CVAS should only be offered as standalone license. In case of yes, explain the expected benefits. If not, explain with reasons to disagree.

7. Unified Licensing – India Case Study

In India National Telecom Policy 1994 (NTP' 94) was announced. As per NTP'94 licenses for E-mail services, Voice mail services, etc. were also issued. Fixed and Cellular Services were opened to Pvt. Sector in 1994. Duopoly was introduced in these services.

The summary¹⁶ of India's unified licensing is as follows:

In 2001, "basic service operators" (BSOs) in India were permitted to offer "limited-mobility" services over Wireless Local Loop (offerings abbreviated as WLL (M)) using CDMA technology in their coverage areas. This service innovation proved immensely popular, because prices were generally lower than for GSM cellular mobile services. BSOs were also able to offer all-India mobility using the CDMA WLL(M) technology, which contributed to the popularity of this service innovation.

As the popularity of WLL(M) services offered by BSOs grew, a dispute emerged involving the BSOs and GSM cellular carriers. WLL(M) services were increasingly seen as largely substitutable for GSM services. However, GSM cellular carriers had paid substantial amounts for their licences, and they complained bitterly that when they had made those investments they had not known that they would face competition from WLL(M) providers offering similar services. India's dispute over WLL(M) reached its zenith when more than 2 million mobile subscribers were being added each month to the limited mobility CDMA offerings. The competition between BSOs and the cellular carriers spilled over into litigation.

The Telecommunications Regulatory Authority of India (TRAI) and the courts had to find a balance between promoting service penetration and ensuring a level playing field among operators. In an effort to seek a solution, TRAI issued its "Consultation Paper on Unified Access

¹⁶ As given on <http://www.ictregulationtoolkit.org/en/PracticeNote.891.html>

Services Licensing (UASL)” for basic and cellular services on 16 July 2003. On 27 October 2003, it produced a blueprint for a UASL regime that called for a single licence for BSOs and cellular carriers. On 11 November 2003, the government endorsed this plan. As a result, both BSOs and cellular carriers gained the freedom to offer basic and/or cellular mobile services using any technology.

With the introduction of unified access licensing, existing BSOs and cellular carriers can either continue to operate under the old licensing regime or migrate to the new regime. Operators migrating to the UASL regime continue to provide wireless services over existing allocated spectrum, with no additional spectrum allotted under the migration process. No additional entry fees are charged for cellular carriers to migrate to the new UASL licence. BSOs, however, are required to pay an entry fee for migration. The BSO entry fee for a particular service area is based on the difference between the entry fee paid by the fourth cellular mobile service provider in that area and the entry fee already paid by the BSO to provide its existing services in that same area. License fees, service areas, rollout obligations and performance bank guarantees under the UASL regime are identical to those specified in the licence granted to the fourth cellular mobile service provider.

Indian Unified License Summary¹⁷

Licensing Category	Types of service	Registration Charge (Nonrecurring Fee)	Licence Fee	Bank Guarantees	Service Area	Roll-out obligations
Unified Licence	All telecommunication services including basic, cellular, unified access service, NLD, ILD, GMPCS, Broadcasting Services, Internet Telephony, etc. and all services covered under class licence and ‘Licensing through Authorisation’.	Registration charge shall be IRN 1.07 billion (USD 22.8 million) plus a function of BSO’s (entered in/after 2001) entry fee depending on the Service area(s)/circle(s) where the unified licensee wishes to offer access services. ¹⁸ IRN 1.07 billion (USD 22.8 million) is the discounted value of NLD	Same as Class license	Performance bank guarantee (PBG) for Unified Licence will be as per UASL. For NLD/ILD operators and UALs who do not migrate to Unified Licensing Regime, the existing PBG shall continue.	National level or circle level (same as in UAS regime).	For access services: UASL rollout obligations For national long distance services, the licensee shall make an arrangement to pick up/handover long distance traffic of his subscribers in all service areas. Inter-service area traffic could be handed over/picked up at the choice of Unified Licensee/NLDO either at a central location or LDCA. The traffic could also be handed

¹⁷ <http://www.ictregulationtoolkit.org/en/PracticeNote.658.html>

¹⁸ Integrated operators will not pay any registration charge (entry fee) for migration to Unified

		%20ILD entry fee. The total registration charge shall be gradually reduced from the recommended level to IRN 3 million (US \$ 0.06 million) after 5 yrs.				over/picked up at SDCA level with the mutual consent of interconnecting service providers. For ILD services existing roll-out obligations would continue.
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8. Conclusion and Recommendations

8.1 Given the technological trends, the consolidation of 14 LL (FLL or WLL) & 1 LDI license into a unified technology neutral license is recommended. The existing geographical boundaries; in the shape of 14 telecom regions, is a hindrance to realize the full potential of IP based networks in Pakistan. When the licenses are consolidated this hindrance would be removed. A level playing change towards unified licensing in Pakistan has a clear potential for investors. The main features of proposed unified licensing framework are given below. The detailed framework is likely to be established under the new telecom policy to be announced by MOITT&T.

Recommended Services Under Consolidated License:

- Basic Public Telephone Access (Technology neutral through geographically independent numbering) Service including:
 - Emergency services
 - Access to directory enquiry services
 - Access to operator assistance services
- Long Distance & International Public Voice Telephone services
- Public internet services
- Following CVAS:
 - Premium Rate Services
 - Payphone Services
 - Trunk Radio Services
 - Public Internet Service
 - Data Service
 - Tracking System for public application
 - Voice Mail
 - SMS Aggregator
 - Closed user group Video Conferencing
 - Content Service Provider Networking

- Amateur Radio user
 - Interactive Voice Response (IVR)
 - Or any other service added by the Authority from time to time
- Use of technology of choice with no geographical restrictions on switching. e.g the use of IP telephony based on IMS platform
 - Infrastructure deployment allowed in line with existing infrastructure license.
 - Recommended Initial License Fee: 14*10,000(14 LLOs) + 500,000(1 LDI) + 100,000 (Infrastructure) + 4000(Approximate Fee for Country Wide CVAS) = 744,000 USD (Approximate)
 - Bank Guarantees: To be established after mutual consultation with stakeholders.
 - Recommended Annual Regulatory Fee = 0.5% of annual gross revenue from all the services minus inter-operator payments and related PTA/FAB payments.
 - Spectrum Fee (for wireless services) = As per existing framework & as determined by the Authority from time to time.

8.2 Since the NGN networks are CAPEX intensive, the proposed investment would involve high risk due to uncertainty in the expected subscription rate. Given this, the new players would desire the policies for network (active & passive) sharing to minimize the costs. This will promote the trend of network sharing in Pakistan. Therefore it recommended that network sharing to be made mandatory through a policy directive by MOIT&T.

8.3 High level of competition is expected in services layer due to NGN networks. The promotion of this type of competition is beneficial for customers as they can opt for the services according to their QoS and tariff requirements. Criteria for revenue sharing may be determined after consultation with relevant stakeholders.

Question No.7

Do you agree with salient features of consolidated license? In case of no, please propose a framework which in your opinion would be more suitable.

9. How to respond:

The draft study paper is available at PTA website, i.e <http://www.pta.gov.pk>. In order to finalize this paper, the operators are requested to respond back to this consultation within the given deadline. All responses should be sent electronically to Director (Policy & Research) Strategy & Development Division PTA HQs, ikram@pta.gov.pk with a 'cc' to Director General (Strategy & Development) PTA HQs wtauqir@pta.gov.pk. The comments received after Dec 15, 2011 would not be considered.

PTA assures the stakeholder that all the comments received would be duly analyzed and posted on PTA website (unless the operator; due to confidentiality, requests otherwise). The final study paper would be published on PTA website and notification in this regard would be given to all

the operators. This final document would then be sent to MOIT&T for announcement of relevant policy before such a license is introduced in the market.