Exploring the Ways to Increase Broadband Deployments: A Critical Discussion and Possible Breakthroughs for Turkey

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Abstract

How to devise and implement a broadband strategy has been figuring on the agenda of many developing countries as well as developed countries for a decade. Broadband strategy hinges upon a number of parameters, i.e. geographical restraints, availability of alternative networks, prevalence of ICT facilities, entry level prices, etc. Whether and to what extent infrastructure-based or service-based competition to be adopted is another discussion which has its repercussions in building a broadband strategy. Turkey, among these discussions, is at the cross-road as to how to build a broadband strategy in face of a number of legal and economic barriers to entry, i.e. lack of authorizations in some areas, e.g. broadband wireless access, WIMAX; judicial breaks deterring competition in a number of services, e.g. cable and local call telephone services; no harmonised policy for rights of way. On the other hand, the aspiration of regulatory authority (ITCA) and the competition authority (CA) to open the existing networks and facilities to third parties prevents new barriers from being erected. Though contributing price competition, this latter aspect of broadband policy of the two agencies stands out as a challengeable attitude as it could adversely affect broadband deployments. As to the governmental policy, an encouragement policy to ensure availability of Internet across the country leaving the market with itself is prominent from the beginning. From this point of view, there is a disaggregated approach in deprivation of long-term analysis on part of policy makers. In this paper, promising access models for offering broadband services as well as the existing ones are examined with the view to envision a well-designed investment-based prospect for Turkish broadband market. After review of the entrenched methods available to ISPs including LLU, the possible breakthroughs that both government and the regulator would aim to achieve are analysed in the paper. It is ultimately proposed that, both infrastructure and service based competitors should be in place in liaison with investment-spurring governmental projects, i.e. allocation of a portion of general budget or universal service funds to broadband deployments, making ample capacities of utilities available to broadband operators, enlargement of tax reductions, introduction of new statutory rules enabling municipalities to build broadband infrastructure. While a variety of measures are put forward, it is found that making a multi-dimensional plan entailing all the relevant parties (e.g. municipalities, universities, public utilities), delegating a task force for implementing the plan, ensuring a level of flexibility nearby creating the necessary funds are the major success factors which Turkey should adapt itself as many of the developed nations have done before. Stronger coordination between governmental bodies, the regulator and the operators, and gradual forbearance from regulation of the entrenched models along with the roll-out of LLU and other emerging broadband platforms like FTTx are the other strategic behaviours suggested hereby. Last but not least, public debate over the broadband strategies and projects should be maintained on the country agenda, attracting more participants to discuss how to build and implement a sound broadband strategy in Turkey.

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1. Introduction

How to devise and implement a broadband strategy is to be considered one of the priorities of a nation who wishes to a member of the global information society. It is apparent that the degree to which a country is closer to an information society could be evaluated by looking its number of broadband users, the most prevailing Internet speed/price and availability of IP-based services, e.g. IPTV, and triple play like innovative packages. All these indicators reveal the importance of a regulatory vision for building of a broadband strategy. Developing countries, who import technologies without devising a broadband strategy, would have to face bigger problems threatening their social and economic well-being. A society lacking high-speed and competitive broadband connections is destined to face a fragmented marketplace with limited opportunities to run long-term projects and investments.

Turkey is at the cross-road as to how to design and draw a broadband strategy in face of a number of legal and economic barriers to entry, i.e. lack of authorizations in some areas, e.g. cable services, MVNO. In Turkey even though a new Electronic Communications Act has been put into force entrusting ITCA (Turkish NRA) with greater powers, there still remain many problems with regard to creation of a competitive and sustainable broadband market. Reluctance of incumbents to invest in new technologies, lack of an overall governmental project and inclination of new entrants to rely on existing technologies and networks at promotional prices are the existing problems which harden devising and implementing a broadband strategy in Turkey.

Absence of inter platform competition via cable or other technologies, late liberalization (by the beginning of 2004), and demographical/geographical constraints are the other aspects that require regulatory attention for Turkey. On the other hand, low penetration level, the existence of young population, the lowness of the entry price level, and commercially extensive room for bundle, triple-play and innovative services are the advantageous points for prospect of Turkish broadband market. Notwithstanding, concentration level and the number of available technologies in Turkish broadband

market demonstrate a clear need for pursuing a macro and long term point of view. This is why near 99% of the Internet consumers use the DSL network of the fixed incumbent, and 93.5% of these users are the subscribers of the subsidiary of the fixed incumbent.

In this study, first the historical background of Turkish telecommunications sector is summarised and applicable regulatory framework is expounded. Afterwards, the analysis of Turkish broadband market is gone through by explaining development of access models as well as regulatory interventions done by ITCA. In this section, already-taken regulatory measures, i.e. concerning LLU, facility sharing regulations, etc. and possible successive steps that would be taken ITCA are analysed. Among the things to be done, possible governmental projects and steps are also mentioned, with the view to ensure increased involvement of the government into the process and utilise the state resources to the end of targeting a competitive and dynamic broadband market. Thereafter, interrelationship between Turkish Competition Authority (CA) and ITCA and fruitful conclusions that would be brought out via their collaboration are touched upon. Ultimately, it is concluded that a multi-dimensional and long-term policy approach targeting a self-sustaining marketplace is inevitable in order to reap the benefits of and not to lag behind the information society.

2. Historical Background of Turkish Telecommunications Sector

Until 1994, telecommunications services in Turkey have been provided under state control, namely by PTT, a nation-wide monopoly offering postal and telecommunications services. By means of a legal divestiture pursuant to the Act No. 4000 that entered into force in June 1994, PTT was separated into two parts, and telecommunications services started to be carried out by Türk Telekom, a fully state-owned company at that time.[1] Türk Telekom was a national monopoly with exclusive rights over establishment and operation of all telecommunications services and networks. The cable services were also carried out by Türk Telekom until April 2005. Even cellular mobile telecommunications services in Turkey commenced via revenue-sharing agreements made between Türk Telekom and two undertakings, Turkcell and Telsim.

The liberalization in Turkish telecommunications sector has partially started in April 1998 with the granting of two GSM 900 licenses to Turkcell and Telsim. The bidding for the third license for establishment and operation of a GSM 1800 network was won by Turkish Work Bank (Türkiye İş Bankası) and Telecom Italia Mobile consortium (Aria) in October 2000. Finally, Türk Telekom having been granted another GSM 1800 license in January 2001, started operation under the name of Aycell. However, because of operational and financial hurdles, e.g. inability of making roaming with Turkcell-Telsim, Aycell and Aria merged in 2004 and established Avea, a new company who was granted license in January 2005.

On the other hand, the liberalization of fixed telecommunications services has prolonged until January 1, 2004. The Act No. 4502 dated January 27, 2000,[2] which boosted the structural reform from monopoly towards a liberalised sector, set forth the date of liberalization for fixed line services as 31.12.2003.[3] The said Act, amending the Wireless Act[4] and Telegraph and Telephone Act,[5] which

[1] With the Act No.4000, it became possible to privatise 49% shares of Türk Telekom, as well.

[2] See the English version of the Act No. 4502 via http://www.tk.gov.tr/eng/duzenmaineng2.html

[3] To that end, in 1998 the Turkish government had committed itself, in accordance with the World Trade Organization guidelines, to liberalize its fixed-line telephone network and services no later than the end of 2004. Besides, the Act No. 4502 has shifted the liberalization timetable to the end of 2003 to accelerate the process (Erkan Akdemir, Erdem Basci and Gareth Locksley, Turkish Telecommunications Sector: A Comparative Analysis, in Turkey: Economic Reform and Accession to the European Union, in Hoekman, M. H. and Togan, S. (eds.), Washington D.C.: World

were the two basic telecom laws in Turkey, constituted the baseline not only for opening telecommunications infrastructures and services to competition, but also for regulating the industry, e.g. by means of interconnection and roaming obligations, pricing rules, dispute resolution processes. To fulfil these duties, a regulatory body called 'Telecommunications Authority' (TA) was created, and a number of powers, i.e. numbering, interconnection, tariff control were delegated to it.[6]

After removal of legal monopoly by December 31st, 2003 paved the way for TA to authorise new operators, Authorisation Ordinance on Telecommunications Services and Infrastructure (Authorisation Ordinance)[7] was put into force, and a number of class licenses were granted. First, to enable alternative operators to provide national and international telephone services, licenses for 'long distance telecommunications services' were given in aftermath of May 2004. Since then, satellite telecommunications services, satellite platform services, GMPCS mobile telephone services, telephone message services, data transmission over terrestrial lines, cable platform services, provision of infrastructure, internet service provision, directory inquiry services have also been opened to competition by granting a number of licenses.

Meanwhile, two major events have taken place in Turkey in the first decade of 21st century. Firstly, in November 2005, Türk Telekom was privatised, and 55% of its shares have been acquired by Oger Telecom in return of $6.55 billion after a tendering process.[8] The second development is the sale of Telsim, the second biggest Turkish mobile operator, to Vodafone, who made the highest bid of $4.55 billion (2.6 billion pounds) in an open auction tender. Ultimately saying, 3 licensed GSM operators (Turkcell, Vodafone and Avea) operate in Turkey for the time being without currently facing a competitor in field of 3G or MVNO. 3G services, for which existing 3 GSM operators have been authorised in November 24, 2008, are supposed to be launched in the beginning of the second half of 2009.

Currently, there are 30 long distance carriers offering national and international services in competition with Türk Telekom though 44 alternative operators were licensed to date. However, they could not be able to provide local (inner city) calls because the given licenses do not cover local calls, and TA's attempt to open the local calls to competition has not been successful because of a judicial break. Council of State (Higher Administrative Court) annulled the 'Fixed Telecommunications Service' Annex to the Authorisation Ordinance, which entered into force in August 2007, holding that each telecommunications service requires separate license, and that the coverage of the said Annex is larger than it should be.[9] Similarly, Council of State annulled the 'Cable Platform Service' Annex to

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Bank, 2005, p. 152, http://siteresources.worldbank.org/INTRANETTRADE/Resources/Pubs/Turkey_BHoekman&STogan_book.pdf).

[4] See the English version of the Wireless Act No. 2813 via http://www.tk.gov.tr/eng/pdf/5681.pdf

[5] See English version of the Telegraph and Telephone Act No. 406 via http://www.tk.gov.tr/eng/pdf/ 406.pdf

[6] While at the time of entry into force of the Act No. 4502 only supervising the implementation of telecommunication licenses was referred to as the duty of TA, one year after the enactment of the Act No. 4673, the duty to grant such licences was taken from the Ministry and given to TA.

[7] Official Gazette, Date: 26.08.2004, Number: 25565.

[8] In April 2008, Oger Telekom bought some additional shares of Türk Telekom, once 15% of the state-owned shares have been put on sale to the public.

[9] The legal provision referred by the Court was the Article 3/a of the Act No. 406, which reads as follows:

> *"All telecommunication services, including the value added telecommunication services, services within the scope of supplementary article 2, and telecommunication services within the scope of monopoly rights after the expiration of such monopoly period set out in paragraph (c) of article 2 may only be provided through an authorisation agreement, a concession agreement, telecommunication licence or general authorisation as the relevant service requires"*

the Authorisation Ordinance, relying on the same reasons stated above, in January 2007. The referred Court decisions stopped the authorisation of services that are critical for liberalization and the realization of articulated policy objectives of Turkish Acts.

3. Turkish Regulatory Framework

TA, after having started to work as of August 15, 2000, took a serious initiative to be engaged with the regulatory issues with particular emphasis to preparation of secondary legislation. To that end, a number of Ordinances and Communiqués have been put into force during 2001-2004. TA, even by taking the risk of exceeding the boundaries set by the Acts No. 2813 and 406, issued detailed regulatory measures, in order to ensure an open and competitive marketplace.[10]

TA first issued Tariff Ordinance in August 2001,[11] in order to set forth the regulatory principles that apply in approval and audit of the tariffs determined by the operators enjoying de jure/de facto monopoly and/or SMP (significant market power).[12] The said Ordinance is based on a tariff approval system rather than differentiated tools for the purpose of price control. Within this system is existing a two-pronged mechanism comprising a price cap method on the one hand,[13] and method of evaluation of *cost of an efficient service provider* on the other. The implementing regulation incorporating the conditions that apply to access and interconnection, entitled 'Ordinance on Access and Interconnection' entered into force on May 23, 2003. The said Ordinance introduced the concept of 'access' which was not laid down in the (formerly) existing Acts, set out the conditions under which access obligations including interconnection, co-location and facility sharing were to be imposed, put forth a detailed dispute resolution process, and prescribed that TA is in charge of examining the access agreements with the view to change the provisions incompliant with applicable legislation by ordering the parties to do so. Many of the access obligations, which were directly imposed on SMP operators under the first version of Ordinance on Access and Interconnection,[14] have been later on put into a basket, from which TA has the discretion to choose and apply to the relevant SMP operator(s).[15]

In accordance with the Ordinance on Access and Interconnection, a tertiary regulation, entitled 'Communiqué Regarding the Procedures and Principles on Unbundled Access to the Local Loop' has entered into force in July 1, 2005.[16] With the entry into force of the said Communiqué, Türk

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The quoted provision has been interpreted by the Court so as to narrow the scope of licensing on the basis of the presumtion that each service requires a separate licence. According to this standpoint, companies who have been awarded fixed telephony service licences, have to get another licence (e.g. general authorisation for internet service provision) in order to provide other services than fixed telephony service over fixed lines.

[10] M. Bilal Ünver and T. Ayhan Beydogan, "What does the Industry Receive as a Signal from the Turkish Electronic Communications Law in terms of Access Policy?: Main Expectations, Existing Situation and the Challengeable Points", paper presented in the 19th European Regional Conference of the International Telecommunications Society in Rome, Italy, 19 September 2008, p. 22-23.

[11] Official Gazette, Date: 21.08.2001, Number: 24507.

[12] Tariff Ordinance, *supra* note 11, Article 2.

[13] In order to define which tariffs are subject to approval through price cap method within the meaning of Ordinance, a Price Cap Communiqué has been put into place in 2002, which has been reviewed for several times.

[14] The first version of the Ordinance on Access and Interconnection (Official Gazette, Date: 23.05.2003, Number: 25116) was entirely changed on June 14, 2007 (Official Gazette, Date: 17.06.2007, Number: 26552) with the view to ensure an approximation with the EU Regulatory Framework.

[15] For instance, unbundling obligation is placed under the Ordinance on Access and Interconnection as a tool available for ITCA (ex-TA) to be imposed on relevant operators. As well, provision of access, non-discrimination, transparency, co-location, facility sharing, carrier selection, account separation and price control obligations are the other remedies foreseen in the renewed version of the Ordinance. According to the Ordinance, the regulatory authority has the discretion to impose one or more of them to SMP operators following a market analysis.

[16] Official Gazette, Date: 20.07.2004, Number: 25528.

Telekom's access network is mandated to be opened to alternative operators pursuant to a number of principles, non-discrimination, cost-orientation, transparency, etc. Likewise, the co-location and facility sharing obligations that are laid down under the Ordinance on Access and Interconnection are detailed in another implementing regulation, entitled 'Communiqué on the Procedures and Principles regarding Co-location and Facility Sharing'.[17] As well, to implement the obligation of accounting separation and cost accounting systems, TA issued a separate regulatory measure bearing the title of 'Procedures and Principles on Accounting Separation and Cost Accounting' in February 2004 with a transition period of two years, enabling SMP operators to establish an applicable accounting separation system.

Apart from the abovementioned regulations, TA has also issued National Roaming Ordinance, SMP Ordinance, Numbering Ordinance, Ordinance on Number Portability, Rights of Way Ordinance, Ordinance on Consumer Rights, Quality Service Ordinance, Ordinance on Data Privacy, Ordinance on Radio and Telecommunications Terminal Equipment, etc. Among these, the SMP Ordinance[18] and the roadmap envisaged therein is worthy of being qualified as the baseline of Turkish regulatory regime.[19] This is why, according to Turkish primary and secondary legislation, the principal path to follow by the regulator is imposition of remedies to SMP operators in aftermath of market analysis, which reveals a harmony with the EU rules. 16 (wholesale and retail) markets (including broadband Internet wholesale access market) have been defined to date primarily by taking into consideration the markets specified by the 2003 Recommendation.

While TA's powers extended to a wide area of regulation which reveals a clear approximation with the EU rules, an increasing number of legal problems have prevailed since the enactment of Act No. 4502. Regulatory authority (TA), instead of awaiting a legislative change, involved itself into a process that entailed a wide range of obligations, dispute resolution awards and determination of access/interconnection fees. In these processes, TA has had to handle the litigations brought before the national courts by operators who voiced the argument that TA's implementing regulations were clashing with the freedom to contract and liberty of ownership, which are originally guaranteed by the Turkish Constitution.[20]

The main reason behind the continuous litigations was related to the loopholes of the (former) Acts No. 2813 and 406, which were far from responding many of the existing regulatory problems at the time. Within the referred Acts, there was neither a properly defined concept of 'access' nor a well-designated pricing regime. Under the scope of the Act No. 406, just interconnection and roaming obligations were envisaged within the meaning of access policy. Rights of way, consumer rights and numbering issues were not elaborated, and simply delegation of power to TA regarding these issues was figured in the Act No. 406. Similarly, there was no reference or signpost for coordination between TA and CA in the said Acts, whereby the CA was obliged to primarily take into account the regulatory decisions made by TA.

[17] Official Gazette, Date: 31.12.2003, Number: 25333.

[18] Ordinance on Procedures and Principles regarding Determination of Operators Having Significant Market Power (SMP Ordinance), Official Gazette, Date: 07.01.2007, Number: 26396.

[19] Under the SMP Ordinance, the Articles 6-8 draw up a framework to be applied in relation to the market analysis process. According to the Article 6, market analysis process consists of the following steps: (a) Definition of relevant market, (b) Analysis of competitive level in relevant market, (c) Definition of operator(s) with significant market power.

[20] Seeking relief from the obligations imposed by TA, operators, solely in field of access and wholesale pricing, filed more than 100 actions against TA's measures.

Because of the loopholes of the Acts No. 406 and 2813, which were entailing many deficiencies, e.g. lack of measures in many areas of regulation, unnecessary procedures and limitations regarding authorisation,[21] etc., an increasing need for a new Act has been echoed by many. After an eight-year implementation period of the referred Acts the need to improve the regulatory framework by enabling TA being released from struggling before the courts and the need to subsist a sound and stable primary legislation especially with regard to authorisation has driven the government to put into force a comprehensive, up-to-date, and long-standing Act. As such, a new Proposal for Electronic Communications Act was prepared and submitted to the Parliament at the end of 2005.[22] After the two year awaiting period and the following MP elections and cabinet change, which have occurred in the second half of the 2007, the Proposal for Electronic Communications Act (ECA) has again figured on the agenda of the Parliament. Prolonging negotiations have not taken place this time, and the Proposal has entered into force on November 10, 2008.

Within the framework of ECA, a number of regulatory issues from authorisation to consumer rights are set out, many of which reveal a real progress in terms of facilitation of offering telecommunications services and networks. This is why with the enactment of ECA, 'notification' that corresponds to 'general authorisation' in the EU system, will be enough for operators who would not need scarce resources to enter the market. Crucially, former judicial interventions blocking licensing process on the basis of former licensing provisions enshrined under the Act No. 406 would no longer be possible for the time being.

Summing up, legislative framework in Turkey is now extensive enough to devise any implementing measure and policy for the regulatory purposes. Thus far, TA has relied on secondary legislation more than the (former) Acts in realising amendment of the access/interconnection agreements, the implementation of insistent and continuous reductions in the fees, i.e. interconnection fees, co-location prices, etc. While ECA has eliminated the previous loopholes, e.g. unnecessary procedures and limitations for authorisation, and a number of safeguards for new entrants have been put in place, Turkey still has the inherent problem of lacking a widely acknowledged roadmap for a number of regulatory topics including broadband networks and services.

4. Analysis of Turkish Broadband Market

4.1. General Information[23]

Until the end of 2003, Türk Telekom enjoyed a monopoly over all the fixed telecommunications services and infrastructures. Ironically, local calls, which have not been opened to competition during more than five years because of legal/judicial breaks, are given way to be offered in May 2009. To date, alternative fixed line operators had the opportunity to offer international and national (inter-city) calls, taking the advantage of carrier selection or carrier pre-selection. They have not yet been assigned

[21] The restrictive character of the (former) Turkish authorisation system could be clearly seen looking class licensing system. In that system, no matter there is a need to use a scarce resource for operation, without publication of an Annex to the Authorisation Ordinance and determination of the minimum fees by Council of Ministers upon the proposal of the Ministry of Transport, authorisation was not possible for the undertakings.

[22] After being presented to the Parliament by the Prime Ministry, the Proposal for ECA has been submitted to the General Assembly on 06.01.2006. However, the Proposal for ECA awaited approximately for two years at the Commission for Public Works and Transport, which represents the lower step before the General Assembly), and could not be enacted before August 2008. Notwithstanding, the Proposal has not entered into force, and after the modifications demanded by the President have been done, the Proposal was re-submitted to the General Assembly in October 2008. Finally, Electronic Communicaions Act has been accepted with the majority of the Parliament, and entered into force on September 10, 2008.

[23] All the figures and numerical details referred to under this chapter are taken from the ITCA sources.

numbering blocks (or numbers) to be allocated to the subscribers. Notwithstanding, the number of Türk Telekom's fixed telephony subscribers has been declining since 2004.

Years	2002	2003	2004	2005	2006	2007	2008
Number of fixed subscribers	18.91	18.92	19.13	18.98	18.83	18.20	17.50

Table-1: The Number of Fixed Line Subscribers (million)
(Source: ITCA)

As could be seen from the table above, the penetration level is decreasing in a firm and insistent manner. While the most recent number of 17.5 million corresponds to 24.4% of the total population,[24] speed of the decline in penetration rate would be sharper with the alternative operators having the ability to offer local telephony services to end-users.

Considering the lack of naked ADSL as well as the reserved area of local calls, decline of the number of fixed line subscribers in the last four years could mainly be explained by the fixed to mobile substitution. With 65 million subscribers, mobile penetration rate exceeds 93 percent as of December 2008. Taking into account the level of per capita income in Turkey (approximately 10500 $), penetration rate of both the fixed and mobile telephony services could be deemed above the expected level. Hence, existing gap between the number of fixed line subscribers and that of the broadband subscribers is considerable as a positive indicator for the potential competition in broadband market. This is why the broadband penetration is equal to 8.1 %, corresponding to one third of the penetration of fixed line telephony (as of December 2008).

Years	2003	2004	2005	2006	2007	2008
Broadband Percentage (per 100 inhabitants)	0.17	0.75	2.28	3.95	6.21	8.1

Table-2: Broadband penetration in Turkey between 2003-2008 (per 100 inhabitants)
(Source: ITCA)

With regard to penetration level, while there is a promising and serious increase which was in average equal to %53.6 during the last three years, the same thing could not be mentioned for homogeneity of the market. This is why the total number of DSL subscribers (which correspond to % 98.8 of broadband retail market) is 6 044 490 as of June 2009, and 391 584 (just % 6.5) of them are the subscribers of alternative Internet Service Providers (ISPs). In fact, the predominance of TTNet is clearly a foregone conclusion of combination of incumbent's large investment over its DSL network *with* the legal restraints which have lasted to date, and culminated lack of triple-play type package

[24] However, if we take into account the fact that average household size is 4.5 then it is not wrong to say that effective penetration rate is equal to 112.5% throughout the country. Although the penetration rate (number of fixed line subscribers within the population) is relatively low, household penetration rate has reached 100 percent for many regions in Turkey due to large size of an average household.

services as well as limited infrastructure-based competitors. Fiber investments of alternative operators have not so far spread out to the country, but intensified on specified regions, particularly in metropolitan areas. Another fact aggravating the competitive environment is the low penetration of cable broadband. Considering that the cable modem subscribers barely exceeded 100 000 as of March 2009, which correspond to 1.16% of the total number of broadband subscribers, lack of competition is evident both at intra- and inter network level.

As stated above, concentration of the market closely relates to Türk Telekom's strategy for quick roll-out of DSL network. Historically, after an unsuccessful attempt (by a joint venture)[25] to set up a national Internet backbone, Türk Telekom has undertook the project and completed the roll-out of a backbone called TTNet in 1999-2000. During the pre-liberalization period, Türk Telekom's DSL subscribers were quite a few and barely reached to 56 624, and its voice customers were predominantly using dial-up to reach Internet. At that time, there was also no resale agreement between Türk Telekom and ISPs, which revealed its first examples in 2004. Although broadband Internet has been initially launched over cable in Turkey, DSL usage has took precedence with the commencement of liberalization, namely after the end of 2003. Availability of PSTN all over the country, no need for a big expenditure to upgrade it so as to offer broadband, and government considering this matter as a part of its policy to increase the Internet coverage across the country favoured this strategy.

After a period of more than three years, during which Türk Telekom carried out its activities at both retail and wholesale levels, privatisation of Türk Telekom has figured on the agenda of the Turkish government. In the course of legal proceedings for privatisation, Competition Authority (CA) advised separation of the provision of Internet services from Türk Telekom as a condition of privatisation. Accordingly, in May 2006, Türk Telekom was legally separated into two, namely a wholesale and a retail arm as a requirement of the CA decision. Provision of Internet services was then transferred to TTNet, which has started its activities as an ISP. TTNet, for the time being, provides residential (dial-up, xDSL) and business (ATM, FR, Metro Ethernet) internet access services to end-users. On the other hand, Türk Telekom, owner of the wholesale arm, is the sole provider of wholesale xDSL services to the ISPs whose number reached to 89 as of December 2008.

While the xDSL services have been offering by a multitude of ISPs, number of service providers operating over cable platform is far less in Turkey. Whereas the number of Internet users over cable platform was quite close to DSL users in 2003,[26] the gap widened in time as explained above. As of December 2008, cable network passes around 2.8 million homes and the number of CATV subscribers is 1.140.500, which respectively correspond to 15% and 5.8% of the homes. This also means waste of the resources given the fact that two third of the infrastructure is unused whereas this usage rate far more decreases in case of cable broadband. Availability of cable services and number of subscribers

[25] Internet services were firstly began to be offered as a dedicated 64 Kbps Internet connection between U.S. and Turkey in the scope of a project supported by The Scientific and Technological Research Council of Turkey (TÜBİTAK) on 23 April 1993. Two years later, Türk Telekom announced a tender so as to establish internet backbone for Turkey. GlobalOne, Satko and Middle East Technical University (METU) (as a consortium) were announced as the winner of the tender to set up national internet backbone called TURNET. However, all participants left the consortium as a result of insufficient development of network infrastructure, and the revenue they earned within the consortium was lower than their expectation. Finally, Türk Telekom as a sole participant in the consortium began to roll-out of a second network backbone called TTNet in 1999–2000 to support expansion of the Internet Networks (O. Fatih Akpinar, What needs to be done for competitive broadband market in Turkey, Middle East Technical University, Ankara, June 2009, p. 15.).

[26] While the number of subscribers using Internet over DSL network was 56 624 in 2003, there were 42 700 Internet subscribers using cable platform in the same year.

being far less than DSL figures is due to the uncertainty of the future of cable network which hinders the required investment for the upgrade of the network.[27]

Türk Telekom built the CATV infrastructure initially in 9 big cities and launched CATV services in 1991. In 1997, Türk Telekom made a decision to expand the cable network via tendering not only for provision of CATV services but also for enabling two-way transmission. In the tendering, the firms have been invited to build and operate cable infrastructure in 21 additional regions. After tendering, cable firms, who have signed a revenue-sharing agreement with Türk Telekom, built the infrastructure in the additional regions and started to provide cable services as a sub-contractor but not a licensed operator.[28] In 1998, Türk Telekom called for another tender for modernization, capacity increase and maintenance in the first 9 cities.

On the basis of revenue-sharing model, first broadband offers were started in early 2000. After revenue-sharing agreements have ended, there has arisen a debate between the parties as to the ownership of the cable networks built and upgraded in the local regions. However, the referred case which is pending before court has not been resolved yet. Nor have the licenses granted by the regulatory authority for cable platform services been functional due to a court decision which suspended the given licenses through a stringent interpretation of the former Act No. 406.[29]

Just before such unpredictable developments, the government intended to privatize Türk Telekom's cable business arm, and to that end applied to the CA in accordance with the Competition Act No. 4054. Competition Authority, in its opinion, held that the Cable TV infrastructure, including all rights to own and operate it, should be organized as a separate legal entity within a year of transfer of the ownership of Türk Telekom. And in advance of Türk Telekom's privatisation, namely in April 2005, the statutory right to provide all the (retail/wholesale) cable services was transferred to Türksat, a state-owned satellite company. For four years, CATV platform and its affiliated services have been operated by Türksat, who faces no competitor against itself. Government, whilst revealing its intention to privatize Türksat, has not yet announced a schedule for that purpose. Besides, there is a legal uncertainty (with respect to the ownership of the upgraded cable networks in local regions) owing to the case brought before the court, and the result of these uncertainties has emerged as standing of DSL network without any serious competitor for a past five years.

After the launch of 3G services as expected in July 2009, the broadband penetration would be expected to increase, given the potential effect to take up broadband of the young population and the high level of GSM penetration (93%). Similarly, the promulgated WIMAX and broadband wireless access licenses, which mean introduction of new broadband platforms, if are granted in this year, would also contribute to the broadband penetration. However, their high-cost requiring features and the fact that they are mostly oriented towards corporate customers reduce their popularity as well as their potential contribution to the whole broadband growth.

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[27] Tolga Kilic, The Impacts of Competition and Regulation on the Pricing of Broadband Services, University of Westminster, London, 2007, p, 71. To emphasize here, the potential growth of cable services seems to have been unrealised because of the lack of a privatisation schedule, namely non-implementation of the promulgated privatisation scheme.

[28] Under the revenue sharing agreements, which were signed for 10 years, upgrade, maintenance and repair of the cable network were to be carried out by the operators whereas content provision and subscriber services were in charge of Türk Telekom. It is notable that, the strategic decisions like investment planning were being made by Türk Telekom according to the agreement.

[29] See *supra* p. 4-5.

4.2. Regulatory Landscape

As in many EU countries, provision of broadband xDSL services has started in Turkey via resale agreements between Türk Telekom and ISPs, which traces back to February 2004. To provide xDSL services Türk Telekom attempted to install 60 000 ADSL ports in the last quarter of 2003. ISPs also sought a share between those potential lines, and after failure to reach an agreement with Türk Telekom, applied to both CA and TA (ex-ITCA). While TA concentrated on how to allocate those ports between the parties, CA took an earlier and complementary step, holding that Türk Telekom should suspend acquiring new ADSL subscriptions until TA has come up with a regulation on how the ADSL ports were to be made available to the independent ISPs. TA concluded that ISPs who would act as reseller were to be allocated 5,000 ports and a margin of 18% has been left (between retail and wholesale prices).[30] As of November 2004, the number of the ISPs operating under resale agreement was 11.

In face of Türk Telekom's installing additional ports and its allegedly non-discriminatory acts as to allocating them, ISPs' complaints have re-emerged, and they applied to CA and TA again, this time with the demand that bitstream access be launched as an alternative model. Upon these developments, TA has made a decision to stipulate bitstream access at the IP level, and ordered Türk Telekom to propose a wholesale tariff for bitstream access in June 2004. After evaluating the tariff proposed by Türk Telekom, TA approved the tariff by modifying it so as to ensure the margin to be left to ISPs to fall between 41-50%. However, Türk Telekom has applied to the Court, asserting that TA has approved the tariff by amending it, which it alleged contradictory with the applicable legislation, namely Tariff Ordinance. In the manner postulated by Türk Telekom, the Court has released an interim relief stopping the enforceability of the tariff in February 2005 and finally annulled it in July 2005. During the proceedings of the case, TA and Türk Telekom reached a consensus by readjusting the margin (between retail and IP-level bitstream access prices) to the levels between 29-35%. Before the final judgement of the Court, TA approved the said amicably set tariff for IP-level bitstream access in July 2005. Notwithstanding, the ISPs and Türk Telekom could not have reached an agreement on the issues other than tariffs, and applied to TA for the resolution of the dispute. The privatization process, which has taken place in November 2005, also prolonged reaching to agreement. Despite TA's stipulation in March 2006 that the parties submit their draft agreements in a specified timeframe, Türk Telekom's insistence on its deals and delaying tactics led to first bitstream access agreement being signed in February 2007.

On the other hand, TA issued a Regulation entitled "Communiqué on Procedures and Principles regarding Unbundled Access to the Local Loop" (LLU Communiqué) in order to boost broadband competition, to enrich the available methods for alternative operators to market their products and to create a more sustainable playing field in the long run. The concern to comply with the EU *Acquis* has also influenced the policy making process. Though the LLU Communiqué has been published in 20.07.2004 it has entered into force by 01.07.2005. On the date of entry into force, the unbundling of the local loop was not workable, and after the Reference Unbundling Offer (RUO) has been published on 22.11.2006, the detailed rules that apply to LLU have been clarified.

In the context of RUO, initially three big exchanges were chosen as pilot places, and it was set forth that *additional* LLU switches that were to be available per three months were to be determined by adding 2 (two) to the existing number (n) of opened switches *(n+2)*. The monthly rental fees were set respectively as 20 TL for full unbundling and 6.75 TL for shared access initially (on 22.11.2006)

[30] The allowed margin has been criticized, and the ISPs have brought the TA's decision before the Council of State, which ultimately upheld the regulatory decision.

(which correspond to 10.5 €/month and 3.55 €/month according to the prevailing exchange rate). The said prices were further reduced, respectively, to 17 TL and 5.75 TL on 01.08.2007 (which correspond to 8.02 €/month and 2.71 €/month according to the prevailing exchange rate). This reduction culminated a price level that is quite low comparing to the EU average (10.88 €/month for full unbundling, 4.13 €/month for shared access).[31] Such steps, which are worth being considered serious achievement(s) on the way of LLU progress and broadband competition, have brought out its fruits with an increasing number of LLU agreements, which reached to ten in early 2008.[32]

However, LLU has not been so attractive in economic terms owing to a number of reasons, among which the obtrusive difference between Türk Telekom's (most prevailing) fixed monthly retail fee (11.15 TL) and the full unbundling (monthly rental) fee seems to be the most obstructive one. In view of the negative margin between the former and the latter,[33] ITCA has lastly intervened to the LLU prices by decreasing not only the LLU prices but also the connection fees. After the reduction made so as to be applicable by June 11, 2009, the full unbundling monthly rental fee has become 15.3 TL while the shared access fee has remained the same. On the other hand, the connection fees have been decreased for the first time after the first approval of RUO (by November 11, 2006), and reduced to 68 TL and 74 TL respectively for full unbundling and shared access.[34]

Despite the fact that more aggressive regulatory steps were taken for LLU, bitstream access and resale were deliberately chosen by ISPs who seemed to intensify market penetration first. On the other hand, it is arguable that rather big entry costs and abovementioned legal/judicial breaks, e.g. regarding authorization, have also prevented ISPs from investing much more into LLU. While in general the regulated prices could be deemed reasonable in the sense that they are lower than EU average rates, it is eye-catching that the fixed monthly fee (of the standard telephony subscription package) of the incumbent is still lower than the monthly LLU price for full unbundling. Given this picture, one could consider that in order to effectively compete with Türk Telekom's voice services, flat-rate bundle services (e.g. offering broadband and voice services together) are going to be eventual solution for alternative operators, who intend to offer voice services.

Considering that the local calls are to be launched by alternative operators, at earliest, in early September 2009, feasibility of LLU for alternative operators depends on their success in marketing bundle services, which would enable them to have a sufficient rate-of-return. To date, the inability of alternative operators to offer local call services harnessed the LLU development, at least, limited it to the model of shared access. Accordingly, the total number of LLU subscribers is just around 13 000, while the bitstream access and resale subscribers reached almost 6 million as of June 2009 (See the Table-3).

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[31] EU Commission, Commission Staff Working Document, Progress Report on the Single European Electronic Communications Market (14th Report), Volume 1, p, 44-45, http://ec.europa.eu/information_society/policy/ecomm/library/communications_reports/annualreports/14th/index_en.htm

[32] TA has examined the said agreements according to the applicable legislation, and ordered to the parties to omit or change anti-competitive, restrictive, and unfair terms and conditions pursuant to the LLU Communiqué. Accordingly the parties prepared and signed additional protocols incorporating the revisions required by TA in March 2008.

[33] In case of negative margin, an offsetting traffic (including both broadband and narrowband) volume is required on part of ISPs to meet the price difference between the full unbundling price and Türk Telekom's fixed monthly fee; and this means only larger alternative operators with an economies of scale could enter the voice market and market their products without incurring a deficit.

[34] The firstly approved connection fees for full unbundling and shared access were 110 TL and 100 TL, which means a 32.5% price cut on average has been made by the regulator in June 2009.

Access Model	Number of Operators	Market Share
Simple Resale	18	0.1%
Bitstream Access	11	99.7%
LLU	10	0.2%

Table-3: Distribution of LLU, bitstream access and resale in the market (according to the number of subscribers) (Source: ITCA)

In reshaping the regulatory environment and the access models available in Turkey, reference wholesale offers approved by ITCA have so far played a critical role, having a functionality to represent the policy signals that are going to be given by ITCA. Between the three year period until July 2007, Türk Telekom has been obliged to prepare and send three wholesale reference offers, specifically IP-level bitstream access, simple resale, and LLU. By approving the first reference offers for bitstream access and resale, TA (ex-ITCA) also ordered Türk Telekom to prepare a new reference offer at the ATM level until the end of 2007. Türk Telekom has, though reluctantly, prepared a reference offer for ATM-level bitstream access. Yet, Türk Telekom aggravated the conditions that apply to the access seekers, putting forward a justification that it has been investing into IP network from a couple of years, and since market parameters show an inclination towards IP-level bitstream a reasonable return from its future investments to the ATM level would not be possible for itself. Finding a mutual understanding, ITCA pursued a balancing approach by giving an extension (until 01.07.2009) as to the enforceability, and did not impose a specific cost-based method sticking in the (retail minus based) methodology proposed by Türk Telekom to approve the ATM bitstream prices.

Affecting all the existing wholesale reference offers, ITCA has made a big step towards creation of a competitive environment for infrastructure deployments. In June 2008, ITCA ordered Türk Telekom to submit a facility sharing annex to the wholesale reference offers, aiming to enable alternative operators to deploy their infrastructure throughout the Türk Telekom's transmission lines towards specific aims, namely for bitstream access, interconnection and LLU. After the approval of the so-called Annex, operators' access to the aerial and underground infrastructure, e.g. ducts, manholes controlled by Türk Telekom has been rendered possible, and applicable terms and conditions have been clarified. For the time being, operators have the opportunity to take the benefit to rely on their respective F/O infrastructures between their switches and Türk Telekom's exchanges by taking the advantage of facility sharing. In this context, they could apply to Türk Telekom not only for ensuring their cable connections to the Türk Telekom's zero manholes (e.g. backhaul connections) but also for using the transmission grids between exchanges towards the said specific aims.

The referred opportunities granted for sharing of incumbent's aerial/underground facilities including physical co-location are promising, specifically during the period of market penetration of alternative operators. Yet, a number of pre-conditions are prescribed for operators invoking such opportunities with the view not to cause disproportionate results. First and foremost, access seekers require authorisation to build their own infrastructures and to make them available to third parties, namely other operators. Second, the authorised operators, who seek to benefit from facility sharing, ought to have either bitstream or LLU connections or should originate/terminate calls within the Türk Telekom's exchanges which they want to access via facility sharing. Last but not least, facility sharing should be technically possible, and any capacity restraint ought not to exist to meet the request.

While the IP/ATM-level bitstream access prices have been evaluated and approved via retail minus method, prices for access to the local loop including those related to facility sharing have been approved via benchmark rather than relying on costs. The LLU prices, though representing a great harmony with the EU average, have been paid great attention by ITCA for they directly designate the competitive conditions in the mid and long terms given that other access models offer limited opportunities, e.g. typical speed/quality levels. The regulator has shown its determination to make LLU grown and highly preferable by the alternative operators by cutting the full unbundling prices by 23.5% during the last two years. Similarly, ITCA has reduced the co-location prices three times since November 2006, which is evidently a facilitating step towards LLU roll-out as well. As of November 22, 2006, co-location prices applicable at Türk Telekom's exchanges (in metropolitan areas) have been reduced from 385 TL/m² to 186 TL/m², and brought to the level of 111 TL/m² as of February 20, 2008.[35]

4.3. Existing Regulatory Measures *v.* Further Policy Tools

In Turkey, as summarised above, access seekers have had an increasing number of opportunities that would stimulate broadband competition in the past three years. For the time being, most of the ISPs do not only choose up one individual access model, and combine two or more models in order to achieve a market penetration. Many of them compete in the voice market, whilst trying to take up broadband customers as well. A few, intensifying their works towards long-term projects, incline to invest in F/O infrastructure with particular interest to the newly-built apartment blocks.[36] LLU, via which the first subscribers have been achieved in January 2008, has been figuring on the agenda in an increasing pace. While two operators have had access to all the available LLU exchanges and deployed their DSLAMs to the exchanges, the remaining ISPs have established their business models on the IP-level bitstream access with a few exceptions preferring simple resale (0.1%).

It is remarkable that almost all the operators carrying out activities in Turkish telecom sector do wish to take a share in the under-penetrated Turkish broadband market. However, most of them rely on Türk Telekom's existing network and technologies, instead of long-term investments, which could also be inferred from the Table-3. The newly emerging VDSL2 and FTTH services, which have been launched respectively by TTNet and Tellcom on a limited basis, do not promise a big growth in the short term. While only a very small portion of the subscribers is addressed by the so-called emerging services the LLU roll-out would compensate this picture at least for the predictable future, considering that RUO drew a two-year projection whereby respectively 40% and 58% of the whole PSTN subscribers would have been made accessible via LLU in February 2010 and February 2011. The table below shows the number of LLU switches and the increasing subscriber capacities that will be available to alternative operators under RUO in the following two years:

[35] By means of such reductions, co-location prices since November 2006 have been declined by 71%.

[36] In this regard, the biggest F/O investment has so far been done by Tellcom, who has been offering FTTH (fiber-to-the-home) on an increasingly wide scale. As of February 2009 it is estimated that the number of its FFTX subscribers have exceeded to 10.000. The latest successful attempt of Tellcom was covering the distance between Ankara (the capital) and Izmir (the third biggest city in Turkey) with its F/O infrastructure. (See http://www.btdunyasi.net/printnews.php?news_id=5721&cat_id=31, 02.03.2009)

	Number of Switches	Number of PSTN Subscriber	ADSL (Active)
Available Switches (as of February 2009)	49	2.713.465	1.023.202
Switches to be Available in 2009	114	4.486.135	1.528.823
Switches to be Available in 2010	194	3.403.722	1.138.034
Total (as of February 2011)	357	10.603.322	3.690.059

Table-4: Number of LLU switches available to alternative operators between February 2009-February 2011 (Source: ITCA)

The big question is whether possible achievements projected by RUO will have been realized or will ISPs continue their entrenched business models to take up broadband customers. There are many parameters affecting the possible answer(s) to this question; among which the low level of the already-set entry prices takes precedence. The entry price level in Turkish broadband retail market, that corresponds to a speed of 1Mbps (with a quota of 4GB), has been stabilised since November 2004, and most of the broadband subscribers (near %79 as of February 2009) use this package which is commonly marketed by ISPs.[37] With the most recently set prices for IP-level bitstream, ISPs are left margins between 41-50% for different packages including the entry level one. In face of these workable margins most ISPs would continue to stick in their existing models, and refrain from taking risky investments. On the other hand, the regulatory prospect for LLU, with the lastly reduced prices gives a predictable way to go on, even though going that way eventually incurs sunk costs and awaiting long-term returns from the capital employed.

Now, Turkey is at the juncture point as to the prospective steps to be taken with regard to building a sound and long-term broadband policy. At this juncture, the aspiration of regulatory authority (ITCA) and the competition authority (CA) to open the existing networks and facilities to third parties is ought to be reconsidered, even to be challenged, considering its possible negative effects against fiber deployments and high-speed broadband, e.g. 50 to 100 Mbps. Considering the long run benefits to be yielded, the competent authorities should focus on stimulation of the high-speed broadband offers such as FTTH and VDSL2, which are currently marketed on a quite limited basis in Turkey. While some advances in Asymmetric Digital Subscriber Line (ADSL) technology may be able to squeeze 25 Mbps out of our existing copper networks, there is an inherent limit to the capacity of the traditional twisted copper pair that is currently provided by most telephone companies to the home.[38]

Across the globe, FTTx investment is the most potential driving force behind the growth of telecom markets, where operators are diverting their business plans to high-speed multi-media platforms. Considering the unavoidable needs for future-proof and high-performance multi-service infrastructures, such business plans seems to increase within the global arena in the foreseeable future. Despite the downturn that is affecting virtually every economy, the ultra high-speed access market is

[37] See also Kilic, stating that "It is obvious that the floor price has been accepted at this level (29 TL/month) as Türk Telekom has made no decreases in the prices in three years but rather increased the speed of the entry level offer." (See *supra* note 27, p. 74).

[38] John Windhausen Jr., A Blueprint for Big Broadband (An Educase White Paper), January 2008, p. 5.

expected to grow significantly, namely with the global customer base increasing to140 million by 2014 while FTTH/B technologies will dominate the market, accounting for around 114.4 million subscribers, compared to around 25.6 million customer for VDSL.[39] These facts demonstrate that investments are going to be much faster and spread out a larger area with the threat of enlarging the gap between developed and developing countries in respect of technology adoption, consumption of digital content and high-speed Internet. To remedy this picture bigger task relies on developing countries who lag behind the new technology incubation and investment projects.

In view of these facts, Turkish policy makers have to adopt a solid and realizable approach for creation of ICT-inclusive, high-speed broadband platforms. First and foremost, infrastructure and service based competitors should be granted an equal basis to compete in the market, which means a favourable approach for investment-oriented undertakings that bring out cost-effective results in the long run. To that end, regulator would rather follow a light-touch regulation for newly emerging services, e.g. FTTx services, and gradually forbear from regulation of entrenched access models. In this regard, first and foremost, simple resale via which around 6000 subscribers are offered broadband services, should not be mandated any more. Second, IP-level bitstream access, being the most prominent access model for the time being, should be relaxed from price regulation until and insofar as LLU, which represents the half-way house between intra-platform competition and facilities-based competition,[40] reaches to the two third of the whole population. Third, these two steps should be followed by gradual forbearance from regulation of LLU prices, e.g. after all the local exchanges have been accessible under LLU.

While abovementioned steps have the potential to pave the way to gradually boost fiber investments, non-pricing barriers should also be taken into account in this process. Among such barriers, diversified and incoherent practices with regard to facility sharing and rights of way figure on the agenda as an overriding problem. This is why because a number of public authorities have a capacity to offer third parties their underground/aerial facilities as well as to give consent to operators for digging in their properties, installation of their equipment, deployment of fiber, etc, and their practices vary according to many parameters including the relevant legislation. Like many countries, Turkey has lack of a one-stop shopping mechanism, and numerous rights of way measures, e.g. imposed by municipalities, utilities, etc. would easily deter investors from deploying fiber investments. While this fact poses difficulties in respect of deploying F/O cables, facility sharing opportunities, which are laid down within the current legislation and reference wholesale offers,[41] alleviate such difficulties to an extent. In particular, facility sharing obligation of the fixed incumbent operator, being detailed in the current wholesale reference offers, do offer a fair playing field for new entrants.

With regard to rights of way, Electronic Communications Act No. 5809 provides for an obligation, which also gives an important signal in favour of new entrances into the market. The Act envisages rights of way obligation to be applicable for *technically possible, economically proportionate and non-substitutable requests*, providing that any permanent damage is not to be caused, usage of rights over immovable(s) is not to be hindered. This obligation, to which a number of terms and conditions are

[39] IDATE News 465, 6 April 2009, http://www.idate.fr/pages/index.php?rubrique=news&idr=20&idl=7, (03.06.2009). By the end of 2008, there were 1,661,895 FTTH/B subscribers in the EU-31 and around 11.2 million homes/buildings passed. The number of homes and buildings passed increased significantly (27%) in the second half of 2008, while the number of FTTH/B subscribers rose (25%) at a slightly lower rate during that period (IDATE Press Release, 11 February 2009, http://www.idate.fr/pages/index.php?anneedem=2009&rubrique=news&idr=20&idl=7&idp=571, (03.06.2009)).

[40] Richard Cadman, Inconsistent Regulation, Market Structure and Broadband Adoption in the EU: A Dynamic Model, 2008, CCP Working Paper 08-14, p. 11, http://www.strath.ac.uk/courses/postgraduate/

[41] See *supra* p. 13.

attached in the Act,[42] is conceivable a step forward towards broadband deployments; yet it could not be successfully applied unless some safeguards have been provided. More explicitly, although the ITCA does not have an obligation to set the rights of way prices, to remove relevant technical and economic impediments and/or to arbitrate between the parties in that sense, it would be facing further difficulties in case this issue has not been handled by itself or government. In this regard, the Authority should, at least, undertake the coordination task among the public authorities who have ample capacity, and lead them to sign a memorandum of understanding in regard to provision of rights of way.

Most of the referred steps, which generally rest on the regulator, would also require a governmental intervention to certain degrees. Though this does not necessarily mean the best, it is fair to conclude that without a specified level of governmental support, regulatory arbitrate between available methods and policy making to change the competitive environment via access regulation would hardly yield effective results.[43] Access regulation and/or deregulatory approaches should be questioned as to whether they bring out the expected results of long-term efficiency and consumer welfare in face of the best practices of governmental schemes that volunteered to financial support aiming to deter market failures and/or conduct a deliberate action to stimulate broadband supply. Many developed countries demonstrate the benefits from long-term involvement by honest, technologically sophisticated government officials that understand the stakes involved and work conscientiously to establish a transparent, efficient, flexible and positive business environment for the long run.[44] Governments can enhance ICT development by articulating from the top a broad vision of what ICT can do for a nation and its citizens, while leaving to community champions the flexibility to propose specific, "bottom-up" projects that aggregate the supply of services needed to support the build out of a telecommunications infrastructure.[45] Thus, governmental oversight could favourably be integrated with regulatory arbitrate in a good formulation, particularly in developing countries. Such an integration need stems not only from the lack of adequate capital to deploy great investments but also due to the requirement to fill the so-called increasing digital gap between developed countries.

Considering the success stories of the countries with highest broadband penetrations, governmental support clearly emerges as a serious factor in boosting broadband deployments and spreading out broadband connections to the whole country. While a number of tools figure on the path to enhance broadband deployment, i.e. funding broadband access with grants or low-interest loans, facilitating rights of way, creation of a broadband atlas, establishment of a new tack force, etc., an overall

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[42] Such terms and conditions draw a framework for the rights and obligations of rights of way provider and beneficiary parties, e.g. preservation of the nature, alternative networks and utility infrastructures, etc., compensation of the damages arising out of digging and installation over/under the properties, applicability of mandated rights of way in presence of facility sharing/co-location obligations. However, neither designation of rights of way fee nor the task of Authority in resolving disputes with regard to rights of way is defined in the Act.

[43] British regulator (Ofcom) has also concluded (after its strategic reviews under the Enterprise Act which culminated to the functional separation of BT) that even with regulatory safeguards in place, access regulation has not succeeded in solving the problems of bottlenecks and discriminatory behaviour over the last 20 years. Cave also support this view as he finds factors increasing the incentives to discriminate in the case of BT's fixed telephone services. These factors are tight upstream regulation of the access network, imperfect competition on the downstream retail market, high substitutability on the downstream market, and downstream economies of scale (Fabian Kirsch and Christian von Hirschhausen, Regulation of NGN: Structural Separation, Access Regulation, or No Regulation at All?, *Communications & Strategies*, No. 69, 1st quarter, 2008, p. 74).

[44] Rob Frieden, Lessons from broadband development in Canada, Japan, Korea and the United States, *Telecommunications Policy*, Vol. 29, 2005, p. 603.

[45] *Ibid*, p. 609.

approach is inevitably needed in order to reach a workable system incorporating the regulatory regime as well as to achieve the highest efficiency gains. Typically, first the targets to be achieved are to be set, and the potential as well as actively used tools should be elaborated, in order to draw a roadmap. To illustrate the ambitious goals of the Federal Government of Germany could be given: i) gaps in broadband penetration are to be eliminated and capable broadband access made available nationwide by the end of 2010, ii) a total of 75 percent of households are to have Internet access with transmission rates at least 50 Mb/s by 2014. This level of high-speed broadband access is to be rolled out nationwide as quickly as possible.[46] In France, it is planned that by early 2010, every citizen will have access to broadband speeds of at least 512 Kb/s at a maximum cost of 35 Euros a month (including the cost o broadband installation). PTS has also built a broadband strategy based on the aim to increase accessibility to an infrastructure with the short-term objective of *broadband for all the households (permanent housing) and businesses* by 2010, specifying that the term 'broadband' is used to mean the connections that can be upgraded at access level to transmission rates downstream of at least 2 Mb/s.[47]

In Turkey, Ministry of Transport has published a Strategic Plan[48] for a five-year period, namely between 2009-2013, revealing the targets relating to a number of sectors, i.e. air transportation, rail transportation, marine transportation, postal sector, information and communications. The so-called Strategic Plan draws a strategy for ICT-related issues including broadband, and puts forth the following targets: *i)* to ensure development of the information and communications sector in a sustainable and effectively competitive manner, *ii)* to increase the number of broadband Internet subscribers to more than 11 million, to offer broadband Internet services to all the schools with the social responsibility and to eliminate the access difference between high-populated urban cities and the rural areas within the framework of Universal Service Act, *iii)* to encourage R&D studies in information and communications technologies, *iv)* to conduct the transactions for which Ministry of Transport is in charge, with the view to ensure common usage of information and communication technologies on part of citizens, undertakings and all the public entities. While these targets shape the framework of the Ministry's Strategic Plan, there seems no concrete step to achieve these targets within the said Strategic Plan other than the objective of 'reduction of the taxes at the level of %35 in a proportionate manner'.

Shaping a governmental project for the country-wide development of broadband services, and the surrounding objectives inevitably require macro, long-term and coherent measures. Designation of a number of objectives without defining the roadmap falls far from building a blueprint for broadband strategy, and is conceivable as an incomplete step though being well-projected. Thus, as many developed countries do, a multi-level, macro and well-designed roadmap has to be put into place by Turkish policy makers. It should be born in mind that without a macro viewpoint encompassing a governmental strategy, FTTx type emerging services would be limited to newly urbanizing metropolitan areas, and do not extend to the rest of the country. This also means a destiny of augmented existing service-based models which always fall adequate in attracting new technologies, e.g. IPTV, interactive multimedia services. In a country which has geographical constraints that could easily drive potential investors to refrain from big investments, changing such a destiny becomes more crucial and highly rests on a comprehensive governmental approach.

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[46] Federal Ministry of Economics and Technology, Federal Government's Broadband Strategy, February 2009, p. 8, http://www.bmwi.de/English/Navigation/Service/publications,did=294718.html, (06.06.2009)

[47] National Post and Telecom Agency, Proposal for Swedish Broadband Strategy, Report No: PTS-ER-2007:7, 15 February 2007, p. 22. http://www.pts.se/upload/Documents/EN/Proposed_broadband_strategy_eng.pdf

[48] Ministry of Transport, Ministry of Transport Strategy Plan (2009-2013), http://www.ubak.gov.tr/st/pdf/stratejik_plan.pdf

While all the details pertinent to a broadband strategy are hard to be defined in a harmonised manner, mostly applicable tools in both legal and financial terms are focused here, and are enumerated in the following three categories:

(i) Government subsidization for broadband deployment (with the ultimate goal to ensure a fully-fledged next generation network available to all the access seekers) could be an important solution to stimulate broadband growth across the country. This could be ensured either through universal service or a specified funding mechanism, e.g. via allocation of a specific portion of the public budget.

(ii) Government (and regulator) could encourage establishment of consortiums between the municipalities and the undertakings who would invest in F/O as well as wireless infrastructure. Unfettering the investors, especially the municipalities, from regulatory and legal pressures, e.g. regarding licensing procedures, as well as introduction of tax exemptions or reductions should accompany such course of actions.

(iii) Opening the utility infrastructure, i.e. gas, electricity, water, railway to the undertakings could be considered as either an alternative or a complementary step.

The first option has many advantageous aspects as it offers a centralised viewpoint that would eliminate future conflicts of interest among the alternative and incumbent operators, and culminate in an efficient use of resources on a large scale. However, as the method is to be promulgated a country-wide project it inevitably entails a huge budget and thus requires a Parliament decision, at least decree of the Council of Ministers. The latter would be sufficient in case of using the universal service fund, which was set up to meet the universal service expenditures pursuant to the 'Act on Provision of Universal Service'[49].

Considering that the said Act describes the scope of the 'universal service' including *a)* fixed telephony services, *b)* public (pay) telephone services, *c)* printed or electronically offered directory inquiry services, *d)* emergency call services, *e) basic Internet services*, *f)* passenger transportation services to places which are accessible solely via marine transportation means and communication services with regard to the security in seas, it could easily be concluded that universal service fund could be regarded as a leverage to increase broadband penetration. What the questionable aspect of this way is how to establish the link between the universal service and the broadband investments. The facts that not only monitoring the implementation of universal service obligations but also proposing any revision of the scope of the universal service to the Council of Ministers is left to the Ministry of Transport,[50] and that contributions to the universal service fund are collected from several sources at pre-defined levels[51] facilitates answering this question. This legal situation ensures a rather wide

[49] Official Gazette, Date: 16.06.2005, Number: 5369.

[50] Invoking the competence given by the Article 5 of the Act No. 5369, Council of Ministers included the two following elements into the scope of universal service: *i)* services oriented to spread information technologies, including computer literacy, to help the development of the information society (in February 2006), *ii)* services for the provision of the digital broadcasting by the use of various broadcast media and technology via digital terrestrial transmitters to cover all settlements countrywide (in April 2006).

[51] Contributions to the universal service fund are collected from several sources:

a) 2% of the authorisation fees collected by the Telecommunications Authority;
b) 1% of net sales revenues of all operators except for GSM operators;
c) 10% of payments by GSM operators to the Treasury;
d) 20% of administrative fines collected by the Information Technologies and Communications Authority;
e) 20% of what remains in the budget of the Information Technologies and Communications Authority budget after all expenditures are deducted.

discretion as to the scope of the universal service, and would enable transfer of a specified portion gathered under the universal service fund to the objective of broadband investments.

What the supplementary fact supporting this suggestion is the practices which the government has pursued so far. As a matter of fact, Ministry of Education made a decision to spread internet usage whole over the country, and made a tender for that purpose. The Ministry, having worked mainly with Türk Telekom and TTNet, succeeded to provide all the 40,000 schools (at the primary and secondary level) in the country with broadband Internet, even by using wireless and satellite connections in places where alternative technologies do not exist. Considering the fact that a specified portion of the universal service fund has been allocated to financing this project, a similar attempt would be seriously considered in respect of a country-wide high-speed broadband project. Given the fact that *services oriented to spread information technologies* are included into the scope of the universal service in February 2006, broadband Internet, which is widely seen a part of information society development, is easily conceivable within the scope of universal service.

Reinforcing the link between the universal service and Internet services, which is already established by the Act itself,[52] would successfully serve not only to emergence of competitive broadband services but also to the aim of eliminating the so-called 'digital divide'.[53] On the other hand, another governmental way to boost broadband development, e.g. Ministry's opening tender for broadband deployment in specific regions of the country, a direct governmental subsidy. These ways also entail a centralised way for deploying broadband investment, yet both mark a difference from the usage of universal service fund given the fact they require a specific initiative led by the Parliament.[54] Either under the universal service fund or via another funding mechanism, governmental undertaking/subsidizing broadband deployments all over the country means a quite elaborate, detailed, extensive and forward-looking project. Notwithstanding, this is the most effective method to achieve the ICT-based targets, omitting a transitory model, e.g. LLU roll-out. Such a subsidy mechanism is well-grown in Far-East Asian Countries, among which, South Korea is the most string example.

Korea has a history of four consecutive national information infrastructure projects, the National Basic Information System (1987-1991), the Korean Information Infrastructure (1993-2000), IT839 (2004-2006), and u-IT839 (starting 2006).[55] All these projects, which have been refashioned in time and

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These percentages can be increased by up to 20% by the Council of Ministers according to the Law No. 5369. These revenues are collected in the public budget and are allocated to the budget of the Ministry of Transport, although no payments have been made so far. As universal service legislation has not been applied in practice, universal service is still provided by Türk Telekom in line with the requirements set out in its concession agreement (license), (European Bank for Reconstruction and Development, Comparative assessment of the Telecommunications Sector in the Transition Economies (under Legal Transition Programme: Telecommunications Regulatory Development), December 2008, p. 94, http://www.ebrd.com/country/sector/law /telecoms/assess/index.htm). On the other hand, the universal service fund consist of specified payments collected from several sources, it could be speculated that provision of the legally-defined universal services and/or allocation of the revenues to universal service providers is conducted without respect to the universal service net costs.

[52] According to the Article 5 of this Law; the universal service is inclusive of: fixed telephony services, payphone services, telephone directory services to be provided in the printed or electronic media, emergency calls services and *basic Internet services*.

[53] See also Ayhan Tözer and M. Bilal Ünver, Universal Service, the regulation and application of this concept in Turkey and comparison with other countries, paper presented in the 17th Biennial Conference of the International Telecommunications Society on June 28th, 2008 in Montréal/Canada, p. 18.

[54] Among the possible governmental methods to spread out the high-speed boadband connections to all over the country, Ministry's opening tender would be questioned for its possible anti-competitive effects as such a way could easily allow priviliges being granted in relevant regions of the country, giving way possible foreclosures from the geographical market(s).

[55] Kirsch F., and Hirschhausen, C. Von, 2008, *supra* note 43, p. 77

ultimately extended to creation of an "ubiquitous" network society, were carried out in close partnership between the public and private sector including the incumbent as well as competitors. The Korean Information Infrastructure-Government Project (KII-G) is an example of the government's course of action. The initial funding US$1 billion was provided by the government who also became the main tenant on the network to create additional demand.[56] Furthermore, about 10 million Koreans were trained in the use of IT.[57] Like South Korea, Japan is a country with a well-advanced level of FTTx connections and high-speed broadband. For over 25 years there is an increasing pace of FTTx usage via e-Japan scheme and commercial initiatives. At the end of 2007 fiber represented 36% of all broadband connections in Japan, whereby the service is available to 84% of the population and projected to reach 90% by 2010.[58]

Establishment of consortiums between the municipalities and the undertakings who aim to invest in high-speed broadband infrastructure would also be enforceable, considering a great many comparable example in the West. For instance, in Sweden by the end of 2004, only 10 municipalities out of 283 did not have infrastructure in place to support broadband services, and some have developed open access fiber networks.[59] After Sweden liberalized its telecommunications industry in 1993, the city of Stockholm created a municipality owned company called Stokab in 1994 to provide dark-fiber infrastructure capacity to end users and operators. Stokab has laid some 500.000 km of fiber throughout Stockholm, benefiting from the city's water, sewer, and electricity ducts and tunnels and a relationship with city officials, and now leases them to banks, insurance companies, retailers, media companies, universities, etc.[60] Also in the US there are many examples of local governments that are engaged in building municipal fiber networks. According to the data gathered from an in-depth survey of three fiber-to-the-home communities, significant evidence is found so as to support municipal investments in FTTH. Businesses reported total increases in sales of $3.4. million, total decreases in costs of $4 million, and an average increase in employment of 11.9% because of FTTH over a 12 month period.[61] While frequently direct subsidies are granted to local authorities from the governments, e.g. Sweden,[62] in some countries, e.g. Germany[63] general funding schemes are invoked in order to finance the municipal deployments.

As to the municipalities in Turkey a number of decisive actions are required to make them construct high-speed broadband infrastructure individually or in collaboration with operators. First and foremost, licensing procedures pose many difficulties on the undertakings as they require any entity to meet a number of pre-conditions to be eligible to construct any electronic communications infrastructure, which may function as a legal barrier in effect. Not only to eliminate such barriers but also to promote collaborations between municipalities and operators, clear provisions enabling such

[56] Kirsch F., and Hirschhausen, C. Von, 2008, *supra* note 43, p. 77.

[57] Kirsch F., and Hirschhausen, C. Von, 2008, *supra* note 43, p. 77. See also Zizi Papacharissi and Anna Zaks, Is broadband the future? An analysis of broadband technology potential and diffusion, *Telecommunications Policy*, Vol. 30, 2006, p. 70.

[58] Raul L. Katz, Ultrabroadband Investment Models, *Communications & Strategies*, Special Issue, November 2008, p. 108

[59] Windhausen, 2008, *supra* note 38, p. 50.

[60] Windhausen, 2008, *supra* note 38, p. 50.

[61] Windhausen, 2008, *supra* note 38, p. 50.

[62] Papacharissi and Zaks, 2006, *supra* note 57, p. 71.

[63] Federal Government's Broadband Strategy, 2009, *supra* note 46, p. 15. In the Broadband Strategy of Germany, it is stressed pursuant to the existing legislation that in areas assisted by the GRW ("Joint Task or the Improvement of Regional Economic Structures"), all broadband investments made by industry can be financed with the GRW funds under the existing provisions *(Ibid).*

collaborations should be included into the current legislation. By this way, possible collusions between the parties, and inefficient use of resources would have been pre-empted. Exempting joint ventures, which have been established exclusively to roll out broadband infrastructure in a region, from taxes or providing serious tax reductions with them facilitates such projects. Even in case such activities fall under the scope of current statutory provisions, a specific Act and/or a government decree would give clear signals and encourage undertakings towards such collaborations. Not only collaborations between municipalities and operators but also that creating mechanisms for collaboration among regulators, policymakers and industry such as consultative committees, hearings, seminars, forums, and research centres is also crucial to bring out the synergy and the potential benefits with regard to broadband deployment across the whole country. Last but not least, such type of collaborative actions should first be put in place under pilot programmes.

The third course of action, which many governments pursue and could be deemed the least onerous method to boost broadband deployments for Turkey, is the opening of the utility infrastructure, i.e. gas, electricity, water, highways. There are parallel utility networks which pass different routes across the countries, and such networks usually contain enough capacity for alternative objectives such as fiber deployments. Usage of such networks ensures efficient use of existing resources, and Turkey should consider this opportunity as an important -if not the single- means to spread the high-speed broadband connections to the whole country.[64] Not opening a tendering with the view to enable usage of the utility network to one operator, but opening the relevant infrastructure to all the access seekers should be pursued in order to maximize the benefit. Neither big expenditures nor heavy-handed mandatory measures are required in Turkey to realize such a strategy. In light of the above rendered suggestions in respect of rights of way and the evolving facility sharing opportunities (which individually could not meet increasing needs of operators), usage of existing infrastructures ought to be approached in a more favourable manner.

There are many ISPs taking the advantage of utility infrastructures called in European countries. In particular the number of carriers invoking the power lines in EU is appealing with regard to fiber deployments.[65] Denmark and Norway is at the front line in power line broadband, respectively having 285 000 and 170 000 homes/buildings passed as of December 2008.[66] Roll-out of broadband services over power lines is also in place, even supported by the regulator in the US. In fact, FCC has made a number of changes to Part 15 of its Rules to accommodate and promote this new technology in 2004 and 2006. Through the latter amendment, FCC also determined that Broadband over Power-enabled Internet access (PBL) services are information services, thereby placing PBL operators on the same regulatory footing as cable, wireline, and wireless carriers providing Internet access services.[67] It is clear that, utility infrastructures with particular emphasis to power lines (because of its coverage and closeness to end-users) are paid attention across the globe, representing a complementary means to boost broadband deployments. Access to such infrastructures complement to electronic

[64] Turkey so far has faced such an opportunity with regard to opening of the electricity infrastructure to telecom operators, which has not been realized. Because just one operator has participated to the tendering, the tendering was annulled on the ground that there was lack of competition for tendering, and anyone could not achieve the privilege to use the said infrastructure.

[65] As in previous years, municipalities and power companies are still very involved in FTTH/B deployments, accounting for 58.5% of the projects. Their share nevertheless decreased in the second half of 2008, as alternative operators began to make strides (IDATE Press Release, 11 February 2009, *supra* note 39).

[66] IDATE Press Release, 11 February 2009, *supra* note 39.

[67] Karen Lee and Jamison Prime, US Telecommunications Law, in Walden Ian (eds.), Telecommunications Law and Regulation, 3rd Edition, February 2009, p. 264.

communications networks and the so-called 'stepping-stone theory'[68] could also be deemed valid in this context as many operators, who intend to carry out country-wide services, target to build their individual networks timely and usually in a progressive manner. In view of above explanations, government should deal with this topic in intrinsic and detailed manner, by first mapping the existing utility infrastructures and pursuing the policy of minimising the required procedures.

Turkey would harmonise abovementioned referred measures within a tool-box, and draw a blueprint for itself, namely for its prospect to take up broadband and multi-platform ICT services in a timely and effective manner. Handling broadband issues in a comprehensive and pro-active manner, i.e. by involving governmental support as well as public and private collaboration is inevitable for building a long-term strategy. From this point of view, Ministry's Plan should be supplemented with elaborated objectives and measures to be taken via collaboration of all the broadband actors, e.g. the research organizations, universities, the government, regulator, municipalities, ISPs, etc. Given the entrenched models and immature LLU development, the newly launched high-speed broadband services as well as LLU roll-out should be run together, and upgraded with the referred governmental projects. In addition to these steps, the intended privatisation of state-owned cable operator (Türksat) should be given priority and prospective investments on cable network ought to be encouraged. Not only cable but also alternative technologies should be licensed as soon as possible. Accelerated launch of broadband wireless access, WIMAX and 3G services simultaneously with continuous roll-out of LLU would clearly serve to the aim of a long-term policy approach which encompasses competing technologies for broadband.

4.4. The Role and the Decisions of Competition Authority

Under Electronic Communications Act (ECA) No. 5809, ITCA (ex-TA) has principally been entrusted *ex ante* powers to remedy market failures. However, its power to take the remedies so as to ensure a competitive marketplace has been set quite vigorously in ECA, which one could figure entailing *ex post* obligations. ITCA has also thus far considered itself powerful enough to pursue investigation with regard to competition breaches and to take the necessary remedies to that end. On the other hand, CA is entrusted with the general power to investigate all kinds of competition breaches that are *ex post* characterised. Whereas ITCA is responsible for removal of barriers into the electronic communications markets and optimization of the access-related conditions to ensure effective competition in the marketplace, CA is in charge of identifying anticompetitive agreements between undertakings, abusive behaviours of dominant undertakings and of controlling mergers and acquisitions which would affect competition.

The competences and duties of the Competition Authority are governed by the Act on Protection of Competition.[69] The Act prohibits agreements and concerted practices that restrain competition (Article 4) as well as abuses of dominant position (Article 6), and delegates CA to release of negative clearances for mergers/acquisitions (Article 7). Among these, the most influential cases for electronic communications markets have taken place surrounding the implementation of Article 6 of the Act, namely CA's decisions identifying abusive practices of dominant operators. In respect of provision of Internet services and the access conditions, CA's investigations have so far culminated with a number of condemnations towards Türk Telekom's exclusionary and exploitative acts.

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[68] Anastassios Gentzoglanis and Elias Aravantinos, Forecast Models of Broadband Diffusion and Other Information Technologies, *Communications & Strategies*, November 2008, p. 82, stating that "The Access to the network (service-based competition) serves as a "stepping stone" before entrants build their own network adn move to facility-based competition (the so-called "stepping-stone theory").

[69] Official Gazette, Date: 07.12.1994, Number: 4054.

The initial and one of the most challenging decisions of CA was the TTAS decision.[70] In the file brought before the Authority, Türk Telekom acting as the legal monopoly in carrying out all fixed telecommunications services/infrastructure was accused of abuse of dominant position in wholesale markets controlled by itself. The accusations were relating to Türk Telekom's pricing behaviours, i.e. predatory pricing by doubling the tariffs of leased lines used by ISPs; as well as refusal to make available the Primary Rate Interface (PRI) lines to ISPs by inciting them to rent virtual points of presence (PoPs) within its TTNet backbone. In that regard, TISSAD (Association of Internet Service Providers) representing the aggrieved parties claimed that Türk Telekom limited the amount of capacity to be leased to undertakings using the cable TV infrastructure, giving prominence to TTNet branded retail services; and complained about increased royalties paid by satellite earth station operators.

Holding that Türk Telekom was dominant in the market that comprised the necessary infrastructures for the provision of Internet access services, the Competition Board found that Türk Telekom infringed Article 6 of the Competition Act through determining the charges of services provided under the name of TTNet to its users below the charges which it applied to competing undertakings in the same market.[71] The Board also found increases in royalties paid by satellite earth station operators anti-competitive, underlying that such increases had the effect of suppressing competitors, who were carrying out their activities under revenue-sharing before licensing (in August 2002), having had to rely on Türk Telekom's international fiber optic lines. The Board, pointing to the fact that cable modem subscribers were quite a few at the time, and noting the intention as well as future business plan of Türk Telekom concerning granting access over its cable network, did not condemn it for allegedly limitation of cable capacity.[72] Türk Telekom's refusal to rent PRI lines was also not found by the Board as abusive, as the Board saw sharing of virtual PoPs adequate in view of the competitive backdrop for Internet services at the time. On the whole, the Board has imposed a fine of 1.1 million Turkish Liras (near 690 thousand USD at the prevailing exchange rate) for Türk Telekom's infringement.

One of the most recent decisions of CA, which is dated November 25, 2008, demonstrates both the Authority's keeping up to date with the latest developments in the sector and its ability to invoke drastic measures where necessary. The decision in question is based on CA's investigation during the period November 2006 – March 2008 over the pricing strategies of Türk Telekom and TTNet in the market for wholesale and retail broadband Internet access markets. These operators were deemed by the Competition Board as constituting an economic unit, namely a single undertaking in terms of competition law enforcement. Pursuant to the decision, the economic unit has abused its dominant position, by leveraging of its market power in the wholesale broadband Internet access market to the retail broadband Internet access market by means of price squeezing.

[70] Competition Board's Decision dated 06/11/2002 and numbered 02-68/821-333.

[71] The Board held that residential narrowband dial-up tariffs were largely below the cost of infrastructure elements that ISPs had to lease from Türk Telekom, making it impossible for ISPs to survive in the market. Similarly, the tariffs of leased lines provided by Türk Telekom to ISPs were found by the Board as significantly higher than the tariffs that Türk Telekom, under the name of TTNet, applied to corporate Internet users.

[72] However, no cable platform operation licenses has been granted because of the interim decision of the Court of Council in February 2007, and third party access to the cable platform thus has not been figured in the agenda of Türk Telekom (or Türksat, its successor), *supra* p. 5.

The condemned acts of Türk Telekom and TTNet relied on a price squeeze test inspired from Telefonica,[73] Deutsche Telekom,[74] and Wanadoo[75] decisions of the European Commission. CA reached the decision that the so-called economic unit has abused its dominance by conducting price squeeze after it has analyzed TTNet's transactional costs with particular regard to the margin between the wholesale and retail broadband prices.[76] Considering the entry level price (29 TL per month), which is the most common end-user tariff (preferred by near 76% of TTNet subscribers), and the three year distributed transactional costs (on the wholesale basis) incurred by TTNet, the Board found that there occurs a negative margin at the end of three-year, which means no room being left to other ISPs to carry out their activities. In addition to finding of margin squeeze, allegedly discriminatory acts in respect of allocation of ports, i.e. delaying and/or partially meeting port installation requests of other ISPs than TTNet and forcing them to incur a portion of the costs attributed to installation of all the ports owned by Türk Telekom also attracted CA's attention during the investigation phase. The Board dismissed allegations of discriminatory acts, considering that they have come to an end after the launch of a new software (interface) system by Türk Telekom (as of June 2007) to keep track all the ISPs' requests online. The latter issue, namely universal service type obligation Türk Telekom imposed on ISPs to meet a portion of the costs pertinent to the ports installed in Türk Telekom exchanges was also dismissed by the Board depending on the same reasoning. As a conclusion, Türk Telekom and TTNet, being an economic unit was fined 12 394 781,16 YTL (near 7.85 million USD at the prevailing exchange rate) for the said infringements.

The final telecom-related CA decision, which has far-reaching implications and a critical importance, is the one dated February 18, 2009.[77] Upon a complaint arising out of the impossibility of being an Internet subscriber alone on the ground of Türk Telekom's forcing people to be a fixed telephony subscriber first, the Board took a rather aggressive decision, and ordered Türk Telekom to launch naked ADSL by requiring it to apply ITCA in order to initiate the relevant process at most in three months.[78] This means an obligation imposed on Türk Telekom to prepare a new tariff that corresponds to naked ADSL, which, once approved by ITCA, will be operational as a wholesale product for ISPs. Should Türk Telekom's expected tariff proposal come to ITCA timely and the process regularly run, naked ADSL services would be introduced to end-users before the last quarter of this year. This decision is to be noted as an important development enabling facilitated broadband take up, particularly in view of under-penetrated market structure and the expected (low) level of the new price, comparing to the *total* of broadband entry price and fixed monthly fee for PSTN subscription.

This determined step taken by CA bears far-reaching implications for broadband business models in Turkey. The mostly expected outcome would be emergence of new broadband packages including bundle services, especially in case where voice telephony services unfettered from regulation

[73] Summary of the Commission Decision of 4 July 2007 relating to a proceeding under Article 82 of the EC Treaty (Case COMP/38.784 — *Wanadoo España v Telefónica*), http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:083:0006:0009:EN:PDF

[74] Commission Decision of 21 May 2003 relating to a proceeding under Article 82 of the EC Treaty (Case COMP/C-1/37.451, 37.578, 37.579 - *Deutsche Telekom AG*), http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62003A0271:EN:HTML

[75] Commission Decision of 16 July 2003 relating to a proceeding under Article 82 of the EC Treaty (COMP/38.233 - *Wanadoo Interactive*), http://ec.europa.eu/competition/antitrust/cases/decisions/38233/en.pdf

[76] Competition Board Decision dated 19.11.2008 numbered 1055–411, http://www.rekabet.gov.tr/dosyalar/tefhim/tefhim49.doc

[77] *Ibid.*

[78] The Board neither penalised Türk Telekom nor began an investigation, and made a decision by refraining from concluding existence of an abuse of dominant position.

accompany naked ADSL. Thus, the year of 2009 would reveal a number of distinct models to be adopted by ISPs, i.e. from triple-play services to combination of naked ADSL with WLR (which is not in place currently, but is expected to be introduced in this year). On the other hand, this decision, representing a supplementary remedy nearby TA's measures, is to be deemed a cornerstone for both CA and TA in terms of prospective coordinative steps and closer co-operation in future.

While the individually set rules draw distinct roadmaps to follow for each Authority, the recently issued two decisions of Competition Authority represent important milestones not only for a collaborative perspective (especially in case of impossibility of a regulatory step to be taken) but also with respect to glimmering of ideas for broadband policies. While the naked ADSL decision could be deemed sharing or leaving a regulatory power on part of ITCA, via another perspective CA decision could be regarded as alleviating the ITCA's workload and lessening the litigations against itself.

In terms of broadband policies, ITCA's role has so far been mainly to evaluate and approve the reference wholesale offers that consist of conditions and prices to offer broadband services. The Authority has faced many problems which sometimes it could not have coped with the tools in its hand. The Competition Authority's recent decisions, whilst not affecting the harmony with the sector-specific measures, do complement and even reinforce them towards the aim to achieve workable competition in the marketplace. Thus, though conceivable as a pro-active regulatory type measure, naked ADSL decision is a clear step forward in achieving competitive safeguards for market players and consumers. This is what the Turkey needs, especially in the short and mid-term. In fact, the strong cooperation between competent authorities would lessen the concerns they would have in their minds, and clear and mutually-given signals towards the industry should follow the steps taken before, e.g. Coordination Protocol dated September 23rd, 2002.[79]

The determined steps taken by ITCA towards infrastructure-based competition by stimulating LLU and fiber deployments (e.g. by putting forth a two-year projection and paving the way to usage of Türk Telekom's ducts, manholes, etc.) gave, if not devised in such a way, a collaborative message to the industry. These messages, if given in a deliberate and consistent manner in future, would promise a fully equal basis for the race in Turkish electronic communications sector including broadband markets. The fines issued by the Competition Board for penalizing the abusive behaviours of Türk Telekom and TTNet as well as stipulation of naked ADSL by the Board spur service-based competition in nature, but more importantly they contribute to a fair playing field which new entrants do need.[80] Thus, these steps would eventually serve to creation of an effectively competitive broadband market.

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[79] The procedures and principles enshrined in the 2002 Protocol were determined to ensure cooperation in respect of implementing regulations of each Authority, i.e. investigations, mergers/acquisitions, exemptions/negative clearances and secondary regulations. However, the Protocol has not brought out the expected results in terms of coordinative steps and devising of competition policies for relevant markets because each party took a cautious and sceptical attitude in the process, and refrained from active collaboration. On the other hand, a better mutual understanding is taking place between the parties in recent years. The evolving tendency now is that the CA does not investigate allegations of competition law violations when actions in question are in areas regulated by the TA (Izak Atiyas and Pınar Dogan, When good intentions are not enough: Sequential entry and competition in the Turkish mobile industry, *Telecommunications Policy*, 31 (2007), p. 504).

[80] It is to be noted that the benefits of infrastructure and service based competition strategies evolve in time and compensate the negative aspects of the other, i.e. the positive effects of reduced access costs would emerge where service-based competitors exist against those who rely on their infrastructure as well as LLU investments. Service-based competition could help to keep prices low if introduced as a complement to infrastructure-based competition (providing that regulators keep track and properly align the competitive balance between access models by rendering workable margins between the models). (See Jörg Kittl, Martin Lundborg and Ernst-Olay Ruhle, Infrastructure-Based Versus Service-Based: Competition in Telecommunications, *Communications & Strategies*, p. 76-77, December 2006,

5. Conclusion

Turkish broadband market is an under-penetrated and immature market, having been impaired with the predominance of DSL network, which does not compete effectively with an alternative platform and has resulted in a high market concentration. Long lasting quasi-monopoly structure of the market - though incumbent's share has retreated to 93.5%- has thus far led the market conditions, depending on a number of parameters. Tracing back to the launch of broadband services, it could be argued that the unsuccessfully passed years in terms of competition is the conclusion of lack of a pro-active regulation. That is to say, regulatory steps have fallen pre-emptive rather than prescribing a roadmap for development of broadband services. 21 cities over 81 having the ability to access cable services for the time being reveals this fact, namely the fact that cable has been overlooked over time although the first broadband offers have taken place over cable platform. Not only this fact but also DSL competitors even resellers having emerged in 2004 after a half million customers have been subscribers of the incumbent proves a lack of regulatory vision at the time.[81] This could be explained by the fact that the regulatory authority has put into force its secondary legislation, having not been actively engaged with the implementing measures to refashion the marketplace within the initial two years. Another parameter which had the effect to retard broadband competition is the fact that government has seen broadband coverage as a part of its policy to ensure availability of Internet across the country rather than beholding the matter on a regulatory basis.

On the other hand, both the regulatory authority (ITCA, formerly TA) and competition authority (CA) have caved in to demands of the sector in an increasing pace, and took steps to create an environment where alternative ISPs exist actively. To that end, TA has elaborated on the margins to be left to ISPs who wish to compete against the incumbent by either as a reseller or by means of bitsream access, e.g. using the Türk Telekom's exchange units and handing over the traffic at specific locations. On the other hand, CA has taken a number of prohibitive (ex post) measures, by penalising Türk Telekom for its predatory pricing, i.e. through determining the charges of services provided to its users (under the name of TTNet) below the charges of wholesale services; and margin squeeze, e.g. between the retail prices of TTNet and the transactional costs. However, both the ITCA's measures and CA's decisions have fallen just contributing to a level playing field, rather than a creating sustainable marketplace on the basis of inter-platform competition.

After a period of two years following liberalization (commenced by 01.01.2004), during which broadband competition hinged on simple resale, regulatory authority intensified on implementing measures to ensure a wider manoeuvrability for ISPs. Obligation of IP-level bitsream access and access to the local loop have been followed by widening of the margin for bitstream access, reduction of LLU prices (after the last reduction in June 2009 full and shared access prices respectively dropped down to 7.07 and 2.66 €, representing cheaper rates than the EU average), introduction of ATM-level

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http://mpra.ub.uni-muenchen.de/3571). Thus, access products like bitstream access and simple resale could mitigate the FTTx and LLU operators, who could act independently and possibly increase their retail prices after reaching a large scale. The dramatic decrease of FTTH prices in Japan is an example directly fitting with this fact. NTT, who controlls 79% of all FTTx connections, started deployment in 2000 and have reached a well-advanced level, namely near 30% of all the broadband subscribers in Japan. Interestingly, after a short period following launch FTTH access, NTT drastically reduced its FTTH broadband prices (e.g. from 63 € to 33.7 €) in mid-2001. Behind this course of action was existing the market conditions characterised by severe retail price competition and obligation of NTT to unbundle its fiber platform (Raul L. Katz, 2008, *supra* note 58, p. 108).

[81] To defer such a situation, prohibition of incumbent to offer broadband services until making resale applicable could have been thought as a remedy. (For a similar view see Annemijn F. van Gorp, Carleen F. Maitland, Heidemarie Hanekop, The broadband Internet access market: The changing role of ISPs, *Telecommunications Policy*, Vol. 30, 2006, p.110).

bitstream access, within the last three years. Furthermore, cutting co-location prices by 71% (between November 2006-October 2008), alleviated (non-pricing) conditions for both bitstream access and LLU, e.g. adoption of a schedule for opening LLU switches in an increasing manner are other developments worthy being noted in this period. The most spectacular step taken by ITCA is its decision (to approve the RUO) dated February 12, 2009, mandating third party access to Türk Telekom's underground/aerial facilities, e.g. ducts, manholes, etc. With the said decision have the access seekers become able to apply to Türk Telekom for facility sharing at the regulated prices. By enabling access to Türk Telekom's ducts as well as manholes (including access to the inner areas of the incumbent exchanges), alternative operators wishing to deploy fiber to its infrastructure would have the opportunity to fill the gaps between its PoPs and incumbent exchanges, and widen their broadband networks. Considering the LLU roll-out as the half-way house between the intra-platform competition and facilities-based competition,[82] it is arguable that Turkey has taken determined steps to pass the half of the long journey that is destined to individually-created broadband networks of myriad operators.

It is worthy of attention that ITCA, before the prospective problems being accumulated, has introduced mandatory facility sharing. This initiative, that is deserved to be deemed a pro-active approach, would yield fruitful solutions for both service-based and facilities-based competition. Another pro-active step, which was taken by CA, is the decision dated February 18, 2009, that ordered Türk Telekom to prepare a naked ADSL tariff to be submitted to ITCA. This decision, which has a nature rather facilitating service-based competition, would eventually serve to market penetration of ISPs and broadband take up, and contributes to a long-term projection of targeting an effectively competitive marketplace.

Yet in respect of drawing a long-term and realizable target, further steps towards creation of market players who rely on their respective networks and facilities should be focused on in addition to abovementioned competitive safeguards. That is to say, Turkey, by seeing the growth of broadband networks and services as a long journey, should not be content with the steps taken already by ITCA and CA, and should turn its face to a self-sustaining, multi-service, country-wide broadband platform. Seamless or preferably in liaison with a highly-developed cable platform, a next generation infrastructure would undoubtedly serve to many articulated objectives, i.e. affordable broadband connectivity across the country, a level playing field for competing technologies ensuring that market forces can drive continued innovation, full participation of all citizens in Internet-based higher education, workforce development, telemedicine. To achieve these targets, government should deem itself as an active actor to be involved in country-wide broadband stimulation projects, with the consciousness to bring out synergy out of combination between public resources and market forces.

As executives of almost every successful government initiative, e.g. South Korea, Japan and Canada began by announcing a broadband plan and setting specific broadband goals, and created a new organisation focused on implementation, Turkey should do the same before taking action. It should be borne in mind that while the details of a strategic broadband plan often differ among nations, the common 'success factor' of the exemplified three countries was that they each put together a broadband plan with support from the highest levels of the government.[83] At the macro-level, these nations (South Korea, Japan and Canada) created laws that created incentives for risk taking and innovation and penalized litigation and strategies to delay making necessary investment in capital-

[82] Cadman, 2008, *supra* note 40, p. 11.

[83] Windhausen, 2008, *supra* note 38, p. 52.

intensive projects.[84] At the micro-level these nations linked public funding with private initiatives that aggregated demand, generated matching funds and justified the installation of ICT even in geographically unattractive locales.[85] Thus, the synergy required to boost broadband deployment promising a self-sustaining marketplace relies not simply on the recurring subsidies and the extensive funding mechanisms but also on the flexibility to be left to market players for their innovative actions and collaborations with other network/service providers, public/private organisations, e.g. municipalities, universities, utilities, etc.

From this vantage point of view, a concrete and multi-level strategic governmental plan is inevitably needed in order to stimulate broadband investments that ultimately extend to inter-platform competition. Not only well-designed government subsidies but also coordination between government, regulator and operators is required to bring out the potential to realize such achievements. Active coordination with municipalities and utilities to be led by the government and/or regulator even via statutory rules would also facilitate the combination of public and private forces, enabling usage of such organizations' ample capacities towards broadband deployments. This latter issue is a compelling step for the prospect of Turkish broadband market particularly in the short and mid term because there is a disaggregated approach with regard to sharing of public infrastructure, and there is no harmonised policy for provision of rights of way. Eventually, in the context of a prospective broadband strategy for Turkey, it is needed that government should handle the issue by bringing the relevant parties together, providing funding to the entities (including municipalities) to prepare and realize business plans that entail the broadband deployments, taking initiative for resolving the legal barriers (especially for municipalities) as well as financial bottlenecks even by putting new legislation into force and leading the processes. In addition to these multi-dimensional structural measures, the government should also tackle the awaiting inherent problems to speed up the broadband development, e.g. by accelerating the intended privatisation of state-owned cable operator (Türksat), authorisation of broadband wireless access, WIMAX and MVNO services.

Along with a top-level governmental policy is inevitable the pursuit of a long-standing regulatory attitude in the sense that harmonisation of already commenced service-based competition with the investment-based macro policies is critical to create a secure and well-functioning marketplace. To that end, existing entrenched models, e.g. bitsream access should be regarded as a price-cutting tool against the flexibility of infrastructure-based competitors to behave independently and possibly increase the end-user prices. Ultimately by progressively rendering the service-based models less promising and less preserved by the regulatory system, e.g. gradual forbearance from regulation of bitstream access/LLU prices, it should be aimed to reach the intended competition between the FTTx models and the service-based models including LLU. Last but not least, Turkey should seek the blueprint for high-speed broadband at all levels including public consultations and intensified discussions, and behold the issue as country-wide priority for ICT development of a nation by considering broadband deployments similar to the provision of power, water, highways, airports, etc.

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[84] Frieden, 2005, *supra* note 44, p. 610.

[85] Frieden, 2005, *supra* note 44, p. 610.

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