Telecom Italia response to BEREC draft report on

Impact of Fixed-Mobile Substitution in Market Definition

(February 2012)

Executive Summary

Telecom Italia (TI) welcomes the opportunity to provide its views on the BEREC report on the impact of Fixed-Mobile Substitution (FMS) in market definition.

Recent technological improvements in mobile networks and coverage have gradually but greatly increased fixed mobile substitution (FMS) leading to the necessity of a detailed reconsideration of the competition and regulation of the affected relevant market at the retail and wholesale level.

In particular, TI believes that the assessment of FMS should be based on an in depth analysis of the demand and price trends of both fixed and mobile voice and broadband access services and the evolution of mobile technologies, such as LTE, which make the performances of fixed and mobile broadband access even closer.

The implementation of the methodological approach proposed by BEREC would confirm the existence of FMS both for voice and broadband access markets in the vast majority of the EU countries.

Therefore, a consistent definition of the relevant markets is needed to assess whether changes are needed to the regulation in force in a member State and, in the due time, to the next list of relevant markets susceptible of *ex-ante* regulation.

In particular, FMS in the voice access seems to actually make the current market 1 of the Recommendation 2007/879/EC ("Access to the public telephone network at a fixed location for residential and non-residential customers") effectively competitive and, hence, not susceptible of *ex ante* regulation in many European countries.

When examining the wholesale broadband access market, FMS is increasingly evident for the typical service needs of residential and SME customers. For these end users, in fact, 3G and the forthcoming LTE broadband and ultrabroadband access services provide a fully equivalent alternative to DSL broadband services. As a consequence, the definition and the regulation of the current market 5 should be modified accordingly to the actual and forward looking demand and supply developments.

Even if the NRAs and the Commission may not define a joint fixed mobile relevant market for either voice or broadband access, the competitive effect of FMS should be taken into account in assessing SMP and in imposing appropriate remedies on SMP operators.

An underestimation of FMS may lead to an undue and inefficient asymmetric regulatory pressure on fixed access operators with respect to the mobile ones, whereas a regulatory level playing field between fixed and mobile platforms is needed to achieve the Digital Agenda 2020 targets.

1. Introduction

Recent technological improvements in mobile networks are creating a possible alternative to fixed services .

As a matter of fact, already in 2002, with one billion users, mobile communication surpassed fixed line subscribers[1]. For about a decade it was actually known that the mobile lines were outpacing – especially in countries less advanced as per infrastructures (i.e. in emerging countries) – the fixed lines by an increasing margin. Anyhow, this situation was occurring while the number of fixed lines was increasing as well. This trend has started changing in the last decade when fixed lines in high income Countries, after peaking in 2000, started decreasing.

Such a trend has been registered in the main EU Countries (such – amongst others – Italy) in which mobile voice lines are increasing while fixed voice lines are decreasing (for an overview on the Italian situation, refer to figure 2 in chapter 2).

This worldwide trend led to today's situation in which we can count over 4 billion mobile users versus about 1.2 billion fixed lines with an increasing mobile penetration and a decreasing fixed penetration[2].

Such a situation – as observed by BEREC in its report – is fragmented at the national level and, therefore, a sound and reliable methodology is necessary to assess FMS.

In the following, we provide:

1) comments to the BEREC methodology to assess FMS;

2) evidence of the key role of LTE in increasing the level of FMS; and

3) preliminary evidence of FMS in Italy.

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[1] ITU (2003). *Mobile Overtakes fixed: Implication for policy and regulation*. Available at http://www.itu.int/osg/spu/ni/mobileovertakes/Resources/Mobileovertakes_Paper.pdf; Garbacz, C., Thompson Jr., H.G. (2007). Demand for telecommunication services in developing countries. Telecommunications Policy 31, pp. 276-289.

[2] ITU (2008). *Worldwide mobile cellular subscribers to reach 4 billion mark late 2008*. Available at http://www.itu.int/newsroom/press_releases/2008/29.html.

2. Assessment of FMS

According to the *Commission guidelines on market analysis and the assessment of significant market power (2002/C 165/03)*, demand-side substitutability is used to measure the extent to which consumers are prepared to substitute other services or products for the relevant service or product.

The existence of any demand and supply-side substitution may be assessed through the so-called '*hypothetical monopolist test*'. Under this test, an NRA should ask what would happen if there were a small, but significant (between 5 to 10 %), lasting increase in the price of a given product or service, assuming that the prices of all other products or services remain constant ('relative price increase'). It is not necessary that all consumers switch to a competing product, but simply that the phenomenon be such that the related price increase is not profitable for the company ("sufficient substitutability" principle established by the European Court of Justice).

The market of the relevant product/service includes substitutable or sufficiently interchangeable products/services, based on:

- their prices;
- their features (under which they are apt to meet specific consumers' needs and, therefore, they are used for the same purpose);
- competition conditions (ex. *switching costs*, alternative technologies).
- "customers typology" (market segments for which relevant market's services/products are in fact interchangeable).

Trends of mobile access/usage *vs.* fixed access/usage seem quite similar across the main European member States. However, the effect of the huge take-up of wireless services at the expense of fixed services may vary according to the national deployment of fixed and mobile infrastructures, customers' habits, and consumption patterns.

Market observation shows both a "*cut the cord*" approach (customers previously having both fixed and mobile access choose to relinquish their fixed line access and exclusively use mobile services) and a "*straight to mobile*" approach (where the users have their first and only experience of communications through mobile services).

In fact, FMS means not only the replacement of fixed-line services with mobile ones[3] but also, more in general the use of wireless instead of wired lines for access and calls[4].

[3] Albon, R. (2006). *Fixed-to-Mobile Substitution, Complementarity and Convergence*. Agenda 13(4), pp. 309-322.

Anyhow, the indicators to be used in order to detect such a fixed-mobile substitution may be different.

Therefore, TI shares BEREC's view on the need of a "*deep understanding of local characteristics in each Country*"[5] which takes into account:

- the level of deployment of fixed infrastructures and mobile coverage at the national level which can bring to a decreasing usage of fixed networks due to the existence of an effective alternative represented by mobile networks leading to a huge pressure on prices;
- the interdependence between fixed and mobile price trends;
- the consumption patterns and the intended use of fixed and mobile services which can be influenced by the perceived quality and features of the different services and offers. In other words, fixed services can be substituted by mobile services if the quality of the two services is perceived as equivalent and the different services functionalities are not able to differentiate the end use of the service;
- the existence of switching costs, if any, to migrate from fixed services to mobile services;
- the deployment of new mobile technologies, such as LTE, which can make the performances and the features of services on fixed and mobile networks even closer.

2.1 Indicators of FMS

As noted in literature[6], the supply has a crucial part in explaining the mobile communications' advance in developing Countries since the relative fixed costs of mobile networks are estimated to be half of wireline networks and the mobile network deployment is faster.

TI deems that in order to assess FMS a quantitative analysis based on economic principles is of the utmost importance to provide a clear guidance which will lead to the harmonisation of the regulatory treatment of such an important issue across Europe.

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4 Vagliasindi, M., Güney, I., Taubman, C. (2006). *Fixed and mobile competition in transition economies*. Telecommunications Policy 30, pp. 349-367.

5 BEREC report on impact of fixed-mobile substitution in market definition, p. 15.

6 Vogelsang, I. (2010). *The relationship between mobile and fixed line communications: A survey*. Available at http://businessinnovation.berkeley.edu/Mobile_Impact/Vogelsang_Survey.pdf .

NRAs, when detecting eventual FMS, as shown in the analysis of market 5 by the Austrian regulator, should put emphasis on the *small but significant and non-transitory increase in price (SSNIP) test* mentioned in the BEREC report, but not fully emphasised due to an assumed difficulty in implementing it. Such a difficulty may not exempt NRAs from basing their analysis (for the sake of legal certainty and consistency with the EU regulatory framework principles) on the SSNIP test.

It is, furthermore, true that the above-mentioned SSNIP test is a "*hypothetical monopolist test*" but the evaluation of the trends as per *cross-elasticity* of both fixed and mobile communication, the *consumption patterns* and the in-depth analysis of *prices trend* can provide a trustworthy proxy.

As per cross elasticity, the BEREC report highlights data for both calls and access (page 17 of the report). The two sets of data provide huge evidence at EU level of the FMS process underway.

The decrease in fixed voice telephony traffic from 2005 (1.194.219 million of voice minutes) to 2008 (844.483) is almost compensated by the mobile traffic increase in the same period (from 433.608 million of voice minutes in 2005 to 760.176 in 2008), showing a 1% decrease in overall traffic. The same dynamics are represented when access is concerned: if in 2005 18% of households had a fixed telephone access ("fixed-only households") and 18% had a mobile access ("mobile-only households"), in 2008 only 9% of households were "fixed-only" while the number of "mobile-only" households rose to 27%.

In addition to this, consumption patterns can give further FMS evidence, as shown in the following for the Italian voice and broadband market.

Such an assessments should be crossed with an in-depth evaluation of prices trends in order to analyse the interdependency of the fixed and mobile services. Observing the fixed operators timely reaction to changes in price put in place by mobile operators, we have clear evidence of the competitive pressure the latter are exerting on the former and have a proxy of the FMS in the related market.

The interdependence between fixed and mobile prices may find further confirmation in the promotions launched by fixed operators which can be actually considered the answers of fixed market to the competitive pressure of mobile operators on entry-level broadband access.

2.2 Market definition

TI deems it of the utmost importance to base the assessment of FMS on a correct definition of the concerned relevant markets.

The increasing penetration of double-play offers (voice + data) and the technological evolution towards "all IP" networks increasingly blur the past clear-cut boundaries not only between fixed and mobile markets, but also between voice and broadband markets.

Within the broadband access market we can identify two different segments for the FMS assessment: 1) a market for residential customers and SME without very high bandwidth needs and 2) a market for large business who need very high speeds (e.g. fibre-based bandwidth) and particularly reliable network performances for specific applications which are currently unavailable on mobile network.

Looking forward to the next Commission's Recommendation on relevant product and service markets susceptible to ex ante regulation, TI expect the following possible revisions in the light of the increasing FMS at the EU level:

a) FMS in the voice access is making the current market 1 ("Access to the public telephone network at a fixed location for residential and non-residential customers") effectively competitive and, hence, not susceptible of *ex ante* regulation;

b) FMS is making mobile broadband access a viable alternative to the fixed one, at least for residential and SME customers and this could lead to the exclusion of this segment from the current market 5 ("Wholesale broadband access").

3. Impact of LTE on FMS

In a forward-looking approach, LTE looks like one of the key driver for FMS.

LTE currently provides only data services (making use of the legacy 3G network for the voice calls), but in the next few years also voice (VoLTE) will be available.

Regarding data services, the comparison between fixed and mobile speed provides evidence of the role that LTE can play in FMS.

Both VDSL vectoring/FTTC and LTE technologies are considered by most operators possible solutions to extend the broadband coverage to meet the Digital 2020 Agenda targets since LTE could theoretically provide up to 100 Mbit/s. Nonetheless, LTE networks require less investments than fixed NGA networks.

The increasing competition between wireless and fixed technologies in terms of bit rate and roll-out timing is represented in the figure 1 below.

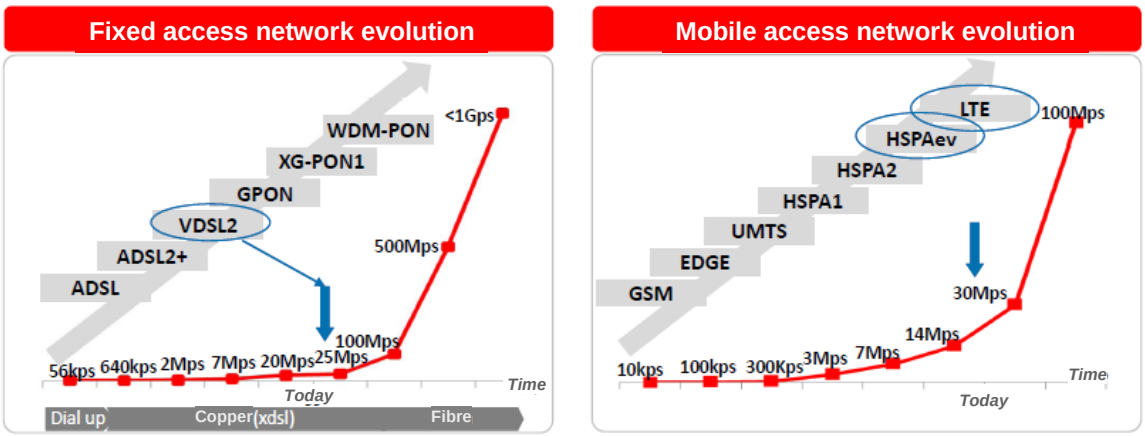

Figure 1: Competition of wireless and wireline technologies

Although mobile networks have several constraints such as spectrum availability, access speed depending on the number of simultaneous connected users and propagation conditions, LTE broadband services will tend to be equivalent or will be perceived as equivalent by most customers (in terms of specific needs).

In addition, LTE network capacity could be easily scaled up to compensate the increase in the number of users.

Verizon has declared that its LTE network can currently provide a data mobile service with an average speed of 13 Mbit/s which is almost the double of the theoretical maximum speed of an entry level ADSL offer (7 Mbit/s)[7].

Therefore, due to its enhanced capabilities in terms of data rates and latency, LTE technology will help to further enhance the customer experience and the perception of substitution with the fixed network.

Moreover, LTE networks will be deployed faster than wireline networks, will require much lower Capex for the same coverage (respectively, about 5 and 20 times less than FTTCab and FTTH) and will allow demand-driven capacity expansion.

LTE allows a significant reduction of the cost per M-Byte delivered to the customer, through:

– increased spectrum efficiency;

[7] See http://www.rethink-wireless.com/2011/09/12/verizon-eviscerates-competition-lightening-lte-speeds.htm

- the IP nature of the technology which makes it more suitable for data applications, while also more suitable for IP-based backhaul;
- a flatter network architecture;
- the capability to reuse most of mobile operators' existing assets (such as sites, where allowed by the regulation on electromagnetic emissions in force).

As a consequences, LTE broadband and ultrabroadband coverage is a viable alternative to the deployment of fixed network not only in rural areas but also in urban ones.

For instance, last summer Vodafone Germany announced[8] that it is recently looking to capitalise on the LTE growth potential and make savings by switching its roughly four million DSL wholesale customers to its LTE cellular network to save yearly five hundreds millions euros. Customers that do not wish to switch to Vodafone's LTE network could possibly be transferred to another fixed broadband provider.

Also interesting is the fact that, in the US, Verizon LTE price in urban areas is aligned to ADSL price.

Finally, even satellite TV providers are starting to use of LTE, instead of DSL bitstream to complete their multi-play offer.

4. Evidence of FMS in Italy

Italy is one of the European Countries where the existence of fixed mobile substitution (FMS) can be better observed both on for voice telephony and broadband services.

To gain an overview of FMS trends in Italy, a preliminary analysis of voice (access and calls) and broadband access developments is shown in the following.

4.1. Voice access and calls

Fixed voice telephony is showing a declining path both in terms of revenues and volumes. On the contrary, mobile voice telephony is reporting increasing revenues and volumes. On the basis on analysts' forecasts, these trends are expected to be confirmed in the next years.

[8] http://www.telegeography.com/products/commsupdate/articles/2011/08/23/migration-of-dsl-users-to-lte-to-save-vodafone-millions/

The general picture drawn by the last Digital Agenda Scoreboard figures[9], considering the period December 2005 - March 2011, shows that in Italy the share of mobile only households increased (from 25% to 34%) and fixed-only households decreased (from 12% to 5%).

The same picture also shows that dual access (both fixed and mobile telephone access) has been declining from 2009 to 2011 (from 62% to 59%) even if it is still the most common situation. Such a decrease provides evidence that the two services are not seen as complementary by an increasing number of people.

Consequently, considering the overall period 2005-2011, the number of households having at least one mobile telephone access increased from 85% to 93% (+8%); on the other hand, fixed line penetration decreased from 72% to 64% (+8%).

The evolution of the percentage of "mobile-only" households clearly demonstrates that mobile service in Italy are seen as a viable alternative to fixed services since a large number of users are switching from fixed to mobile services.

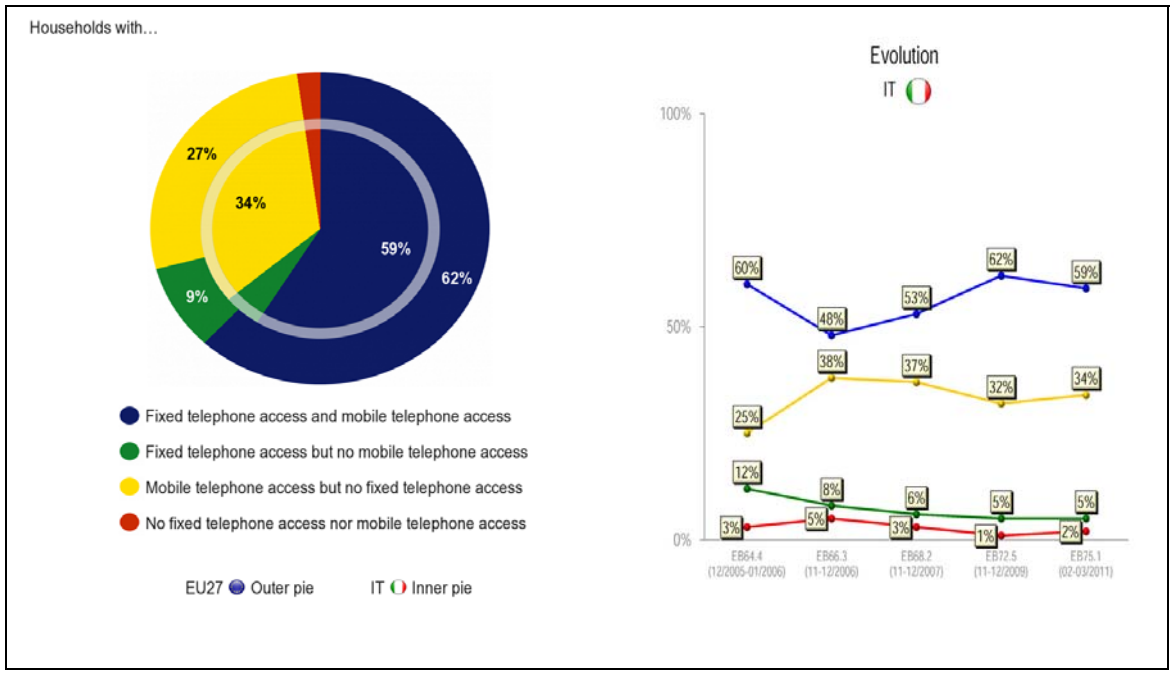

Figure 2: Telephone access evolution in Italy

FMS is confirmed by the constant decrease of fixed voice lines between 2006 and 2011, compared to a contemporary increase of mobile voice lines.

[9] See also European Commission Consumer research, July 2011.

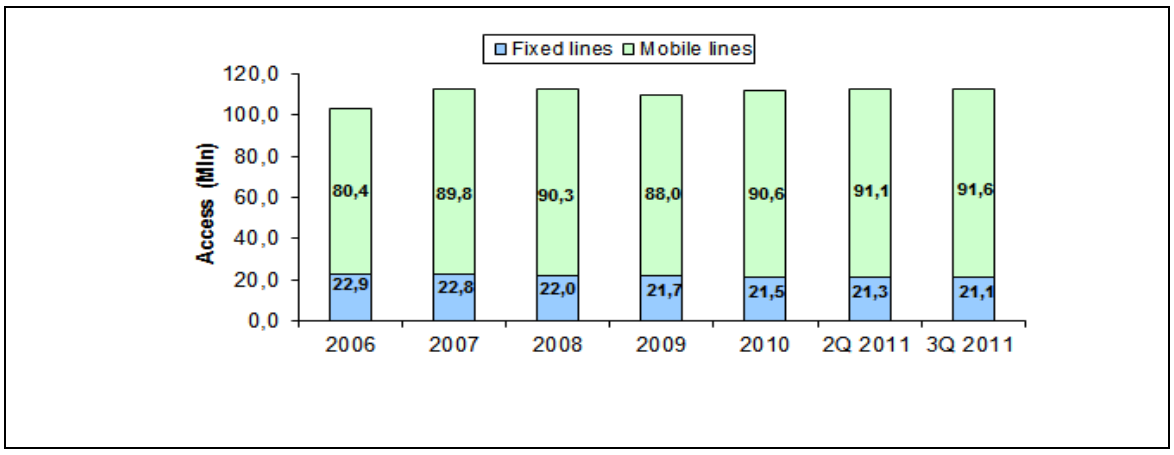

Figure 3: Fixed and mobile voice lines in Italy (source: AGCom)

Moreover, one can also observe the competitive pressure put in place by prepaid pricing of mobile voice offers[10], which cost much less than fixed voice offers that include the cost of telephone fixed access.

Based on these general figures and on the evolution of access market described above, it may be concluded that in Italy fixed and mobile access could be considered as increasingly substitutes.

Turning to the voice call markets, the total voice traffic originated from fixed access has constantly decreased from 2006 to 2010, while voice traffic originated from mobile access has increased.

As a result of these diverging trends, in Italy overall voice traffic slightly increased in the relevant period: such a growth has been actually driven by mobile traffic which has compensated the decrease of voice traffic originated from fixed network.

The outgoing voice traffic originated from mobile networks increased from 38% in 2006 to 57% of total voice traffic in 2010.

Mobile voice offers have recently included unlimited traffic towards fixed geographical numbers as the fixed voice offers, but at lower cost, so increasing the competitive pressure.

In addition, the perceived quality of voice calls on fixed and mobile networks is practically the same, as shown by quality KPI measured and published by mobile operators[11].

[10] In 2010, 85% of mobile lines were associated to “prepaid” offers (see 2011 AGCOM Annual Report).

The market evolution described above suggests that there has been an increasing and significant substitution from fixed to mobile calls and that market dynamics towards a full FMS seem not slowing down.

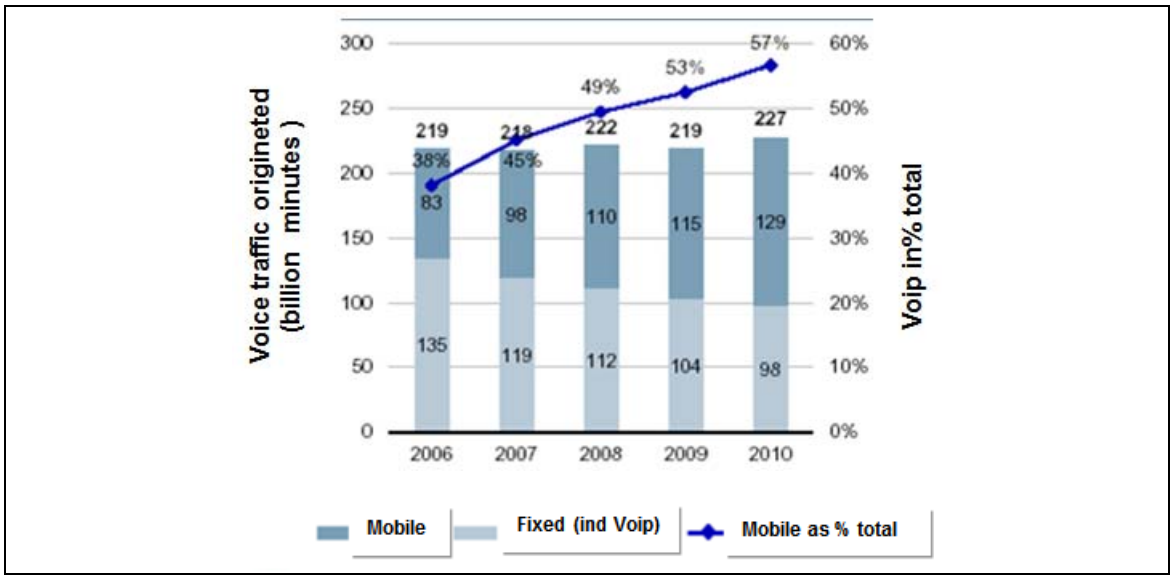

Figure 4: Voice traffic originated in Italy (source: Analysys Mason, 2011)

4.2 Broadband access

In the period 2010-2011[12], overall Internet access in Italy increased by 9.4%.

Going more in detail, fixed broadband penetration did not increase in the same period for the first time. On the other hand, mobile broadband penetration (cards/modem/keys only) increased significantly (+16.3% from 3Q2010 to 3Q2011[13]) and the percentage of the population accessing the Internet via mobile network (20.2%) increased even more significantly (+55.4% in the last year)[12].

On top of that, data traffic is also growing significantly, both on fixed and mobile networks, as observed on Telecom Italia network.

However, the penetration of mobile broadband is growing faster than the penetration of fixed broadband and the ratio between broadband traffic on fixed and mobile network is expected to decline significantly in the next years.

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[11] Successful GSM voice and data connections are above 99.5%.

[12] Source: Audiweb (31 January 2011).

[13] AGCOM Quarterly TLC Observatory (English version) - update Q3 2011.

Based on Italian NRA data, overall mobile broadband traffic already increased significantly (+54.4%) in Italy from 3Q2010 to 3Q 2011[13].

Data cards (Internet keys) can be regarded as real substitute for fixed broadband because they may (and actually do) replace fixed network in accessing the Internet through in-house PC, without any limitation due to the screen size of the new mobile devices. Data from TI mobile network, confirmed by the European benchmark reported in the BEREC document, show that almost the totality of mobile broadband traffic is due to USB keys. Only to a limited extent this traffic depends on smartphones and tablets.

Moreover, even if some differences may exist between fixed and mobile services (for example, the price of fixed broadband offers is still higher than the price of 3G mobile broadband offers and the downstream bandwidth of fixed broadband offers can be also higher than current downstream bandwidth of mobile broadband offer), the end-user's preferences, consumption patterns and intended use of services make these differences not relevant for the majority of broadband customers.

In the Italian broadband market are already provided very cheap mobile offers based on the use of Internet keys with a cap of 10 GB/month, which are very appealing for the majority of ADSL customers who surf, on a monthly basis, less than 10 Gigabyte at a higher cost.

In fact, statistics show that the main applications used by fixed as well as mobile broadband users are e-mailing and surfing the web and only a minority of broadband customers is currently interested in video-streaming application which needs higher performances of broadband connection in terms of capacity and reliability. As known, e-mailing and surfing do not require high or particularly stable bandwidths. Therefore, the difference in speed does not seem to have any impact on customers' choices and is counterbalanced by other factors such as lower prices.

LTE availability granting a much higher speed of data transmission than 3G will further enhance FMS.

Also interesting to note that "mobility" may not represent a key feature vouching for complementarity between fixed and mobile broadband. In fact, the peak of downstream mobile traffic is currently registered on TI network at 9 p.m. (i.e. when people are at home) while the peak of downstream fixed traffic is observed at 5 p.m. (i.e. during working hours).

Likewise, the "mobile coverage", at least in Italy, cannot be considered as a factor able to influence broadband choice towards fixed broadband services. As a matter of fact,

in Italy the gross HSDPA coverage is more than 95% of the population and is fairly close to the ADSL coverage (96%)[14].

Similarly, the inclusion of TV services in some fixed broadband bundles does not justify a substantial differentiation of fixed broadband offers from mobile ones in Countries like Italy where the IPTV platform has a negligible (less than 3% of the broadband lines) and declining penetration.

The strong competitive pressure put in place by entry level mobile broadband offers is confirmed by the significant price cuts occurred in last years.

As a consequence, in mid-2011, 14% of households with Internet access (3.2 Ml. out of 14.2 Ml households with broadband access[15]) only used mobile networks to access the Internet. This figure is definitely in line with the Austrian data represented in the market 5 notification to the European Commission (12% at the end of 2009) leading the NRA to recognize an actual FMS of data services for residential customers.

Figure 5 clearly highlights the boom of datacards and the contemporary slowed growth of fixed broadband lines occurred in the last years.

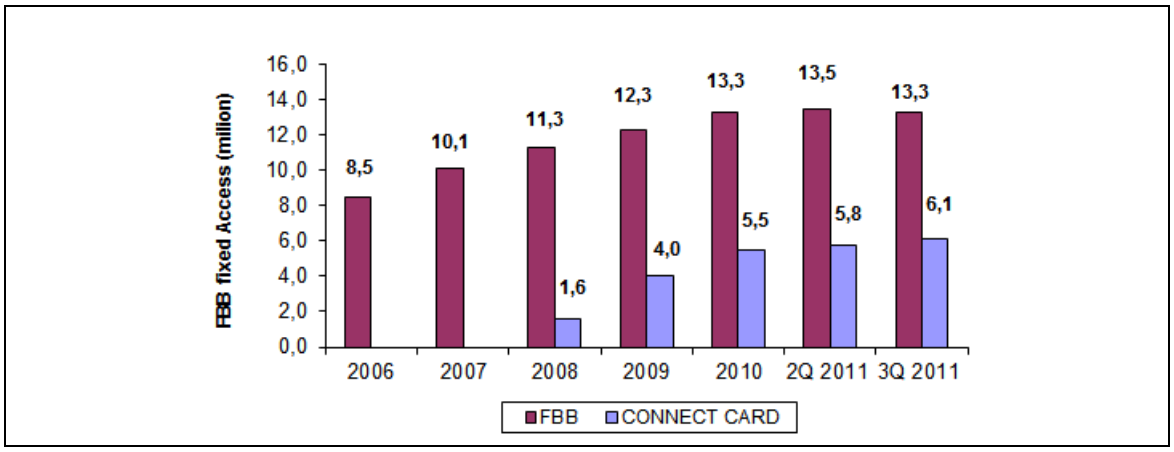

Figure 5: Fixed and mobile broadband access trends in Italy (source: AGCom)

[14] Source: Digital Agenda scoreboard 2011.

[15] Sources: Ofcom Consumer research, October 2011.