POSITION PAPER
ON THE REGULATORY STRATEGY FOR THE ROMANIAN ELECTRONIC COMMUNICATIONS SECTOR FOR 2007-2010

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1. FOREWORD

In 2007 the Romanian regulator, as well as the Romanian electronic communications sector, have faced multiple challenges. At the national level, we have taken important steps in the process of re-assessing the competition environment in the sector, by carrying out reviews of the interconnection and broadcasting markets, under Romania's obligations as a Member State of the European Union. As well, we took over the attributions regarding spectrum management, following the merger with the Inspectorate General for Communications and Information Technology. At the European level, in 2007, along with the other national regulators, we have participated in the debates surrounding the review process of the EU regulatory framework for electronic communications, which have created a unique context of reflection on the regulatory objectives and instruments, as well as on the impact of the regulatory process on investment and on the competitiveness of the European telecom industry.

The importance and the complexity of these endeavours revealed the need for another communication level with the regulated industry and with the consumers of electronic communications services. We are aware that it is not only our decisions that markedly influence the regulated market, but also the way in which we manage to explain our strategic thinking underlying these decisions. That is why we have decided to dedicate this year to scrutinizing and understanding the in-depth structure, mechanisms and deficiencies of the Romanian market, which should lead us to a system of strategic objectives guiding the regulatory approach in this market, as well as to a set of principles, policies and instruments allowing us to monitor the market evolutions and to ground our regulatory decisions. In brief, we wanted to comprehend in detail the Romanian communications market, in order to be able to impose the right amount of regulation. Now, it is time to present the results of this exercise of investigation, analysis and reflection, rounding up in the first Position Paper on the regulatory strategy for the Romanian electronic communications sector, applicable for 2007-2010.

ANRCTI aimed at elaborating a document that should be **relevant** (as to the information resulted from the diagnosis-analysis), **applicable** (with achievable strategic objectives) and **useful** (considering its expected impact in relation to the Authority's fundamental objectives). Furthermore, ANRCTI pursued to ensure consistency with the national and international strategies in the sector of electronic communications and in other correlated sectors.

I would like to emphasize what we **DO NOT** want to do regarding this strategy. We do not intend to devise a document with utopian aims, a paper that could not be applied in practice; we want to use this strategy in taking concrete regulatory measures. We do not want to produce a useless text; our target is to obtain a set of regulatory principles, policies and instruments that could endorse the pursuit of our fundamental objectives. We do not want to copy other states' models, if the reality in the Romanian market claims for a specific approach; we wish to achieve a strategic analysis that is pertinent and relevant for the diagnosis of the Romanian telecom sector.

I would like to reiterate that, according to the requirements of the European framework, ANRCTI has the obligation to conduct detailed analyses for each market segment, in order to be able to take *ex ante* regulatory measures. During the next three years, the Authority intends to take the utmost account of the conclusions of the diagnosis-analysis, the regulatory objectives, principles, policies and instruments identified hereby, and to apply them in the market review process, as well as in the implementation of remedies to the competition deficiencies identified.

In the end, I would like to thank the representatives of the telecom industry, of the consumers' associations and of the public authorities, who answered our call for collaboration, took an active part in this project, providing technical, financial and commercial data and sharing their problems, vision and solutions with us. Their involvement helped us to make an exact diagnosis of the sector status, to forecast its evolution, to identify and quantify its current and potential problems. I believe that this common effort of understanding the problems, of seeking solutions and of evaluating the perspectives of the Romanian communications sector offers us all – authorities, industry, consumers – the most important thing that we need in order to tackle successfully the challenges of the future: **a vision**.

The ANRCTI President

2. INTRODUCTION

The complexity and dynamicity of the electronic communications sector, the nature of the issues which ANRCTI must look into in order to accomplish its mission, as well as the intertwining character of the regulatory measures require important material and time resources, both from the Authority and from the operators, who are constrained to adjust their business plans and operation processes to the regulatory decisions. That is why the annual action plans cover a time horizon which is too short to provide a clear, comprehensive and coherent image on the long-term goal and objectives underpinning the evolution of the regulatory framework and the ANRCTI decisions.

Therefore, it is obvious that we need a multiannual instrument that should enable an increased coherence and effectiveness of regulatory decisions, while improving the transparency and predictability of the regulatory framework. On grounds of international best practices, ANRCTI proposes that this instrument takes the form of a *Position Paper on the Regulatory Strategy for the Romanian Electronic Communications Sector for 2007-2010*.

In 2006, the Authority published a consultation document on the regulatory strategy for the Romanian electronic communications sector, in order to shape a general framework for setting the objectives, the content and the expectations associated to the process of elaboration of the strategy.

ANRCTI launched the strategic analysis in March 2007, assisted by the consultancy company TASC Strategic Consulting Ltd. This project involved a complex activity structure, ranging from market studies among the end-users, specific information gathering from representative samples of operators and working meetings with the industry to investigation of the ANRCTI information system and checking hypotheses from the standpoint of practices adopted in other jurisdictions.

This document aims at setting out the ANRCTI position on the regulatory strategy for the Romanian electronic communications sector for the coming three years, based on the findings of the diagnosis-analysis and on the principles, policies and options for redefining the regulatory instruments required in view of achieving the strategic regulatory objectives, following the directions of evolution to the target market.

The Position Paper on the regulatory strategy includes the following:
- conclusions resulted from the diagnosis-analysis, containing a presentation of the homogeneous segments identified and of the main deficiencies at the level of the Romanian electronic communications sector (Chapter 3);
- identification of the set of strategic objectives that would lead to the achievement of the fundamental regulatory objectives (Chapter 4, section 4.2);
- elaboration of the regulatory principles and policies, as well as identification of the options for (re)defining the regulatory instruments whose application facilitates the achievement of the strategic regulatory objectives identified (Chapter 4, section 4.3);

- identification of the directions of evolution to the target-market, of the indicators for monitoring the evolutions of segments and the level of achievement of the strategic regulatory objectives (Chapter 5);
- identification of the needs for redefining the ANRCTI information system, in view of monitoring the sector developments, as well as of selecting the most adequate regulatory instruments (Chapter 5, section 5.3).

Most of the information in this report is provided by TASC Strategic Consulting Ltd. and is valid for end-2006. Certain data have been updated with the latest statistical data available, then mentioning the reference date, but part of the data included could not be brought up-to-date. Nevertheless, a preliminary analysis of the statistical data collected by ANRCTI for the year 2007 shows that there are no reasons to expect modifications of the trends estimated in this document.

The methodology used in elaborating this *Position Paper on the Regulatory Strategy for the Romanian Electronic Communications Sector for 2007-2010* is different from the methodology for defining and analysing the relevant markets in the electronic communications sector provided for in the Commission Recommendation 2007/879/EC on relevant product and services markets within the electronic communications sector susceptible for ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services, as well as in the European Commission's guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services (2002/C 165/03). The structural segmentation made in view of drawing up this document aims at providing a diagnosis-assessment of the Romanian market characteristics for the purpose of elaborating the general strategic guidelines; it does not pursue the application of the specific criteria for market reviews, which ANRCTI must observe according to the methodology imposed by the European Commission. The conclusions of the diagnosis-analysis do not interfere with the results of the market analyses conducted by the Authority under Chapter V of the Government Emergency Ordinance no.79/2002 on the regulatory framework for communications, approved, with amendments and completions, by Law no.591/2002, subsequently amended and completed.

This Position Paper does not deal with policy and strategy elements related to the implementation of the universal service in Romania, which will make the object of a distinct policy and strategy document, to be adopted by the Ministry of Communications and Information Technology in accordance with art.4 of the Law no.304/2003 on the universal service and users' rights relating to the electronic communications networks and services, with the subsequent amendments and completions.

3. CONCLUSIONS OF THE DIAGNOSIS-ANALYSIS OF THE ROMANIAN ELECTRONIC COMMUNICATIONS SECTOR

3.1. Current status of the Romanian electronic communications sector

Comparative analyses show that, on the one hand, the penetration of electronic communications services in Romania is lower than in most EU Member States, mainly due to broadband and fixed telephony substantially lagging behind, whereas the penetration of services for the (re)transmission of audio-visual programmes exceeds the European average (*Exhibit 1*).

Exhibit 1: Penetration level of various services vs. the EU25 average

Cellular-penetration rate (population) - Sep 2006		
3	ITALY	133.0%
8	CZECH REPUBLIC	115.4%
	AVERAGE EU25	103.2%
20	HUNGARY	95.5%
21	POLAND	88.7%
27	ROMANIA	74.4%

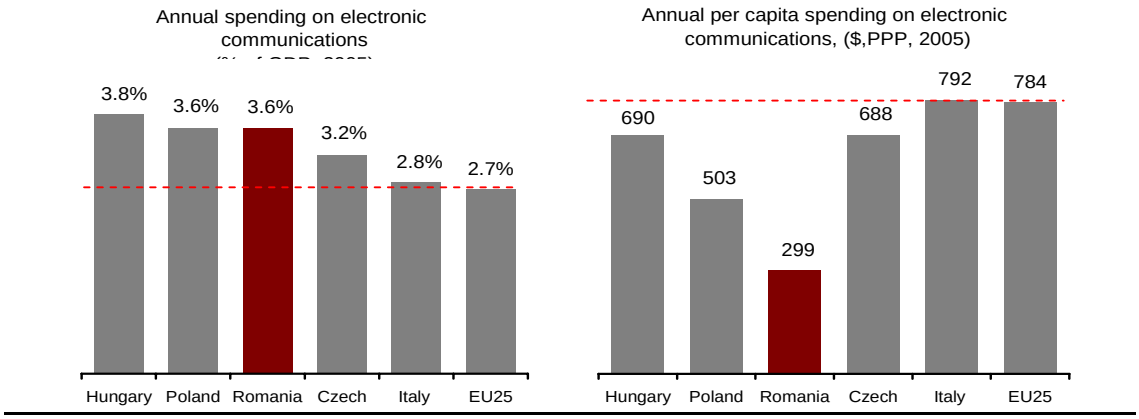
Broadband penetration rate (population) Sep 2006		
	AVERAGE EU25	15.7%
13	ITALY	13.6%
18	CZECH REPUBLIC	9.6%
21	HUNGARY	8.6%
23	ROMANIA	5.5%
24	POLAND	4.5%

Fixed-penetration rate (population) - Sep 2006		
	AVERAGE EU25	52.6%
13	ITALY	48.4%
19	CZECH REPUBLIC	36.0%
20	HUNGARY	34.9%
22	POLAND	31.9%
27	ROMANIA	20.4%

Subscription TV-penetration rate (HH) - 2005		
11	HUNGARY	64.0%
12	ROMANIA	63.5%
	AVERAGE EU25	55.1%
15	POLAND	53.3%
22	CZECH REPUBLIC	24.6%
23	ITALY	20.6%

On the other hand, despite the relatively low level of the *per capita* expenditure for electronic communications services, these have a relatively high share in Romania's GDP, which reflects the importance of this sector within the national economy and for the population (*Exhibit 2*).

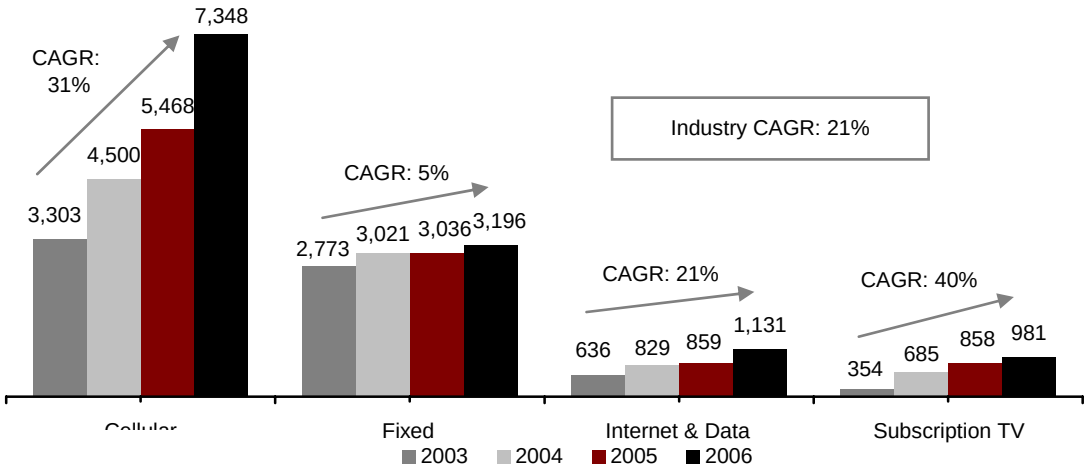
Exhibit 2 Relative spending on telecommunication services



Given the 21% annual average growth rate of the revenues from electronic communications during 2003 - 2006, the sector growth exceeded several times the GDP growth rate (8.1%). The electronic communications sector keeps growing at high pace, far higher than the growth rates of the national economy, and the potential for growth remains significant, especially due to the relatively low penetration compared to other Member States.

The main drivers of growth during this period were the mobile telephony services and the (re)transmission services of audio-visual programmes based on subscription (cable and DTH). If the (re)transmission of audio-visual programmes based on subscription (cable and DTH) registered the highest annual average growth rates (40%), mobile telephony became the most important source of revenue within the sector (56.7% of the total gross revenue), both segments having reached high penetration levels. By contrast, broadband penetration is still low, in spite of its rapid rise, whereas the fixed telephony seems to stick to the "zero growth" trend, as far as revenues and penetration are concerned (*Exhibit 3*).

Exhibit 3 Revenues of telecom services, by sector (Million RON, 2003-2006)



3.2. Challenges and trends

During 2006 and the first half of 2007, the Romanian electronic communications sector witnessed marked evolutions on multiple stages.

Romtelecom's market share diminished, mainly because of the aggressive competition of the cable operators, who launched integrated service bundles combining television, telephone and Internet access services. To counteract the competitors' two- or three-service bundles, Romtelecom launched the satellite TV services (DTH – *Direct to Home*), whose success was proven by the fast increase of the number of subscribers.

In the mobile sector, Cosmote significantly improved its position on the market by re-launching its brand and by promoting an aggressive price policy while extending its coverage, whereas RCS & RDS, after its first 3G operation tests in February 2007, has already launched mobile telephony services in one region in Romania and committed itself to developing the network to reach national coverage within the next 4 years, which will enable

this operator to integrate all the four main services (TV programmes, fixed telephony, mobile telephony and Internet access) within one offer.

Generally, the urban users benefit from a greater diversity of the service offer, as compared to the rural users, who face either the problem of limited choice, being able to choose from one or few providers as far as most of the services are concerned, or the problem of lacking access to the means of communications, as they live outside the coverage of the electronic communications networks. The regulatory measures adopted by the Authority, especially those concerning the reduction of the interconnection tariffs and the implementation of number portability, are expected to trigger more competition in the sector. The two largest mobile operators were granted blocks of fixed telephone numbers, and one of them has already launched its fixed telephony services, thus setting the premises for providing "*triple-play"* services to the corporate segment, as well as those for enhancing the position of these operators on the fixed telephony segment for residential users, with the potential to narrow the competitive gap between the rural and the urban areas.

Internet access connections at ever-higher rates are becoming increasingly popular. The alternative operators keep on investing in network upgrades – they even install fibre optic on their access network – and in enlarging their customer base, whereas Romtelecom is speeding up the expansion of its ADSL coverage. The mobile operators have begun promoting broadband Internet access services as they enlarge their 3G coverage. Moreover, the recent launch of fixed telephony offers by the mobile operators triggers new challenges, due to the high potential for success of such offers, interesting in particular for the rural areas. Vodafone was the first operator to announce the switch to a fully IP transport network in the first half of 2008.

A prospective analysis indicates a series of evolutions in the Romanian electronic communications sector up to 2010.

On the one hand, the continuing growth of mobile telephony and broadband Internet access will be accompanied by the rise of the usage levels, by higher network access speeds and by a booming demand for value-added services. On the other hand, since the transition to digital television is likely to accrue, the fixed telephony is expected to decline as a service provided individually.

Bundled offers including audio-visual programmes, broadband Internet access and fixed telephony ("*triple-play"*) will be the main driver for the growth of the residential segment, RCS & RDS currently being best positioned from this point of view. On the corporate segment, the demand for integrated services of mobile telephony, data transmissions and fixed telephony will gain importance, Vodafone and Orange benefiting from a prominent position. These trends will intensify convergence, by the development of common fixed-mobile, SIP/IMS, IPTV applications etc. Service bundles and their convergence will determine the loosening of clear-cut frontiers between services and sectors, which will lead to further consolidations, merger and acquisitions within the sector and to larger-size operators that integrate an ever-wider range of electronic communications services. Furthermore, on the European stage, it is expected that the accelerated technological developments, in the context of the high capacity of absorption of innovation and of reinforcing the single market for electronic communications, will lead to a more marked presence of pan-European operators.

Major changes regarding the use of new technologies in Romania are not foreseen in the short run. The 3G coverage will continue its growth, while the wireless broadband services,

such as those using WiMAX technology, will be used on a limited scale and are unlikely to become widely spread before 2010. Similarly, IPTV services are expected to remain marginal, since they are likely to boom once with the NGN.

Given the current status of the electronic communications sector, as well as its predictable evolutions, ANRCTI encounters a set of major regulatory challenges.

First, the need of advanced communications platforms is obvious, in order to ensure consumers' access to more innovation, quality and to a more diversified range of services. Fostering an environment that encourages investment depends on ensuring a predictable regulatory horizon and on safeguarding a reasonable rate of return on capital invested.

The second challenge ensues from the clear bias towards a certain competitive profile in the Romanian electronic communications market. Thus, the offers based on the operator's own access infrastructure were notably successful in Romania, provided the growing demand, fuelled by the increase of the buying power and by Romanians' more and more sophisticated consumer behaviour, a demand which could not be satisfied by the incumbent's underdeveloped network. By contrast, the services provided through another operator's access network (telephony services based on carrier pre-selection, Internet access services based on the unbundled access to the local loop) did not actually develop at all, despite the adoption of regulatory measures in line with the best European practices. In this context, notwithstanding the need to secure the ability to compete in the long run of the access seekers, the question of what priority should be given to promoting service-based competition in a market with a clear preference for developing alternative infrastructure is becoming acute. The problems faced by the providers who request access to Romtelecom's local loop, provided the deployment of the FttCab/ONU solutions in the most profitable areas, are already notorious, and the quest for effective regulatory solutions to these problems must take into account the realistic prospects of success of this business model under the given market conditions.

A third set of challenges stems from the accelerating convergence of the fixed and mobile services, which gives a stronger impetus to direct competition between the companies offering the two types of services, with the mobile operators taking over more and more of the fixed telephony segment. The regulator faces the increasingly stringent need to safeguard a competition environment with fair conditions for two categories of players who are competing in the same market segments.

Fourth, despite the positive trend of competition in the Romanian electronic communications sector, the same powerful players on various segments will dominate the market. Integrating multiple services on one platform, as the new generation networks ensure, will significantly contribute to strengthening the positions of these players in the market, therefore minimising anticompetitive practices in this development is a major regulatory challenge.

A fifth fundamental challenge regards the relatively limited possibilities of the regulator to directly increase user satisfaction, either from a price-, or from a usage value-related point of view. In this context, maximising the range of choice between providers, at the same time with maximising the level of benefits from the available services, at a certain price level, will become the basic instrument of promoting the users' rights and interests.

Sixth, the increasing complexity of the offers and of the tariff schemes available on the market raise the problem of the end-user's ability of making informed choices between the providers and the services available, as well as of managing consumption behaviour

depending on his/her actual needs. Information transparency and accessibility is an already acute challenge, waiting for an adequate solution.

3.3. Key analysis indicators

For the qualitative and quantitative assessment and definition of the characteristics and deficiencies, as well as of the future trends of the sector and of its segments, a set of analysis indicators has been identified and used in correlation with the ANRCTI fundamental regulatory objectives, emphasizing the features of the competitive and investment environment.

The establishment of the analysis indicators has attempted to account for all the characteristics of the electronic communications sector and of its segments, both at the static (at a given moment) and at the dynamic (evolution in time) level.

Quantitative indicators	Qualitative indicators
- **penetration levels** - **current market shares and trends** - **profitability levels** - **investment levels** - **churn levels** - **effective unit price**	- **innovation levels** - **market entry barriers** - **consumers' perception of the price level** - **service quality** - **advertising expenses**

3.4. Structural segmentation of the sector and diagnosis of the homogeneous segments

In order to account for the structural characteristics of the Romanian electronic communications sector and to establish the strategic objectives, the regulatory principles, policies and instruments, as well as the required information systems, in an effective manner, a delineation of the homogeneous segments within the sector and the in-depth understanding of its characteristics was needed.

The identification of the links and correlations between the infrastructures deployed, the services offered and the horizontal or vertical integration model used by the players in the electronic communications sector enabled the devising of the optimal solution for the structural segmentation of the sector. This was an iterative process, comprising several stages:

- conduct of a technical and economic analysis of the existing infrastructures and of the retail services provided in the sector, in parallel with the identification of the manifest trends;
- identification of the technical characteristics, conditionalities and restrictions affecting each service in the retail market;

- identification/definition of the wholesale inputs that enable the provision of the service in the retail market;
- identification/definition of the essential facilities from a technical and economic point of view, required for the provision of the service;
- identification of the technically optimal solution for the provision of the service based on the relevant circumstances;
- conceptual delineation of the homogeneous segments through an exhaustive segmentation process conducted following a *bottom-up* method, starting from the different characteristics of each service provided on the retail or on the wholesale market, analysed from the following standpoints:

    - **functionality** – assess the substitutability level, based on the individual service characteristics, affordability, availability, prices and consumer perceptions. Service substitutability has been analysed both from the demand and from the supply side.
    - **infrastructure** – comparative assessment of the functionality, prices and perception in respect of each service provided through various platforms and technologies;
    - **residential vs. business layer** – based on the consumer behaviour of the two categories, a comparative assessment was conducted on the availability of each service, on the levels of competition and on the prices of each service, for the purpose of identifying the extent to which such a consumer-related additional segmentation is required;
    - **geographic considerations –** assessment of the geographic homogeneity as regards service availability, competition levels, prices and consumer behaviour;
    - **intertwining conditions** between the segments and **interactions** with other sectors.

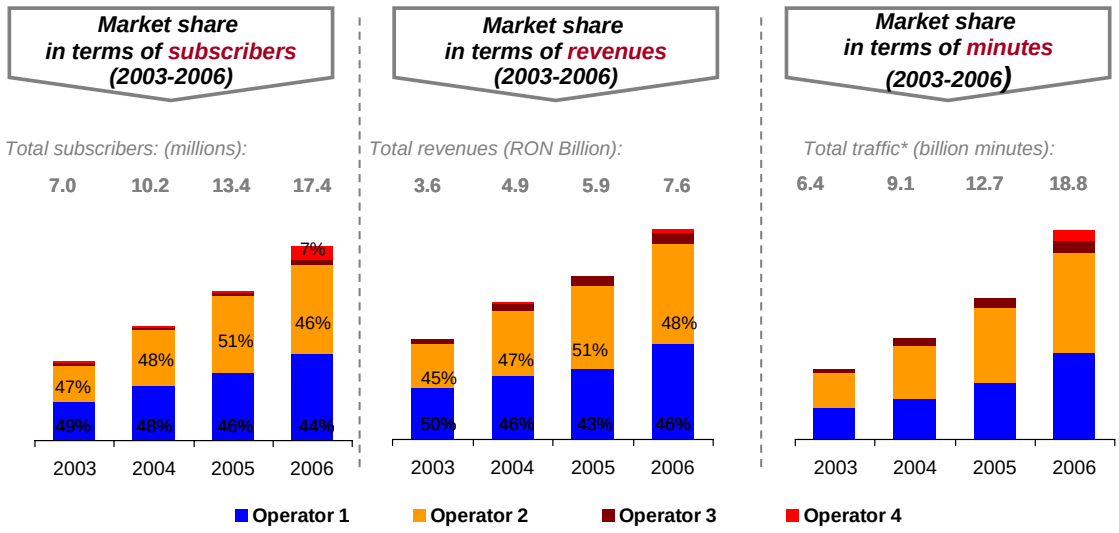
In order to obtain a diagnosis of the homogeneous segments identified, assess the competitive environment and identify the existence and scope of deficiencies, we employed the set of indicators for the qualitative and quantitative analysis of the sector, identified in section 3.3, starting from the technical and economic analysis of the services provided in the retail market, within each segment.

3.4.1. **Mobile telephony**

With over 19.5 million customers by mid-2007, mobile telephony generates the largest share of the revenues from electronic communications services in Romania, featuring annual average growth rates of 35.5% over the last 4 years.

Despite this spectacular growth, Romania has the one of the lowest mobile penetration rate in EU27. The operators' market shares were remarkably stable: during 2003 - 2006, two of the four operators in the market have been sharing more than 90% of the users, revenues and traffic volumes (*Exhibit 4*). A fifth operator, although being awarded a 3G licence at the end of 2006, could not manage the commercial launch of such services at the national level.

Exhibit 4 Market share evolution in the mobile sector



Trends

As for the technologies deployed, given the omnipresence of GPRS (2.5 G)[1] and the existence of four 3G licence holders, competition pressure is expected to stimulate the major operators to further differentiate their offers and to extend their HSPA (*High Speed Protocol Access*) coverage. On the other hand, the introduction on the market of convergent fixed-mobile solutions (such as BT Fusion or Orange Unique) is not expected within the timeframe subject to analysis.

Once with the slowing down of the penetration rate growth, the operators are expected to intensify their efforts of stimulating the migration of prepay users (currently, 65% of the active SIM cards) towards subscription schemes, so that to foster customer loyalty and to compensate the ARPU decrease for voice services by offering new services.

[1] Three mobile operators cover together more than 96% of the population with 2.5G services.

As for the consumer behaviour, the significance of service bundles will accrue following the launch of the fifth provider's services at the national level.

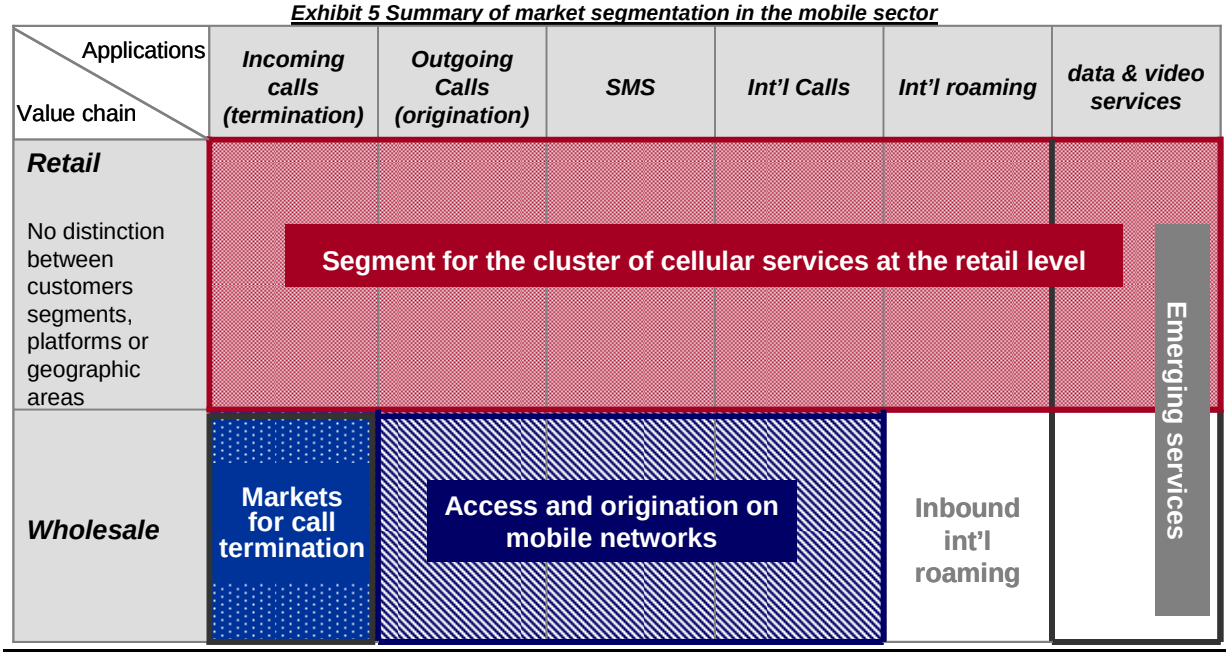
Segmentation

At the retail level, a *cluster* of mobile telephony services was identified, encompassing the whole range of services provided through the mobile networks, irrespective of the geographic criterion, of the technological generation used or of the consumer profile (business or residential).

At the wholesale level, the analysis yielded three segments: access and origination, termination and international roaming, having similar scope and content to the relevant markets identified in the Commission Recommendations on relevant product and services markets within the electronic communications sector susceptible for *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services.

The homogenous segments identified at the level of the mobile telephony sector are summarised in *Exhibit 5*.

Exhibit 5 Summary of market segmentation in the mobile sector



The cluster of mobile telephony services at the retail level

In order to conduct a diagnosis of the cluster of mobile telephony services at the retail level, a set of tests aimed at assessing the level of competition on the analysed segment were conducted. The tests revealed a high level of market concentration and a pronounced stability of the market shares in terms of number of users, traffic volumes and revenues. However, recent evolutions such as the improvement in the market position of the third GSM

operator, the commercial launch of a new 3G network operator (though on a limited area) and the perspectives of a new licence for mobile communication services have to be noted. Nevertheless, the segment continues to be characterised by high entry barriers, as regards the investments involved, spectrum availability, environment protection constraints at transmitter installation and the international support of the existing operators (power of their groups). Moreover, similarities were noticed in the behaviour of the first two largest operators on this segment, as well as the homogeneity of their offers, acting as a disincentive to the churn between providers. One can remark as well the significantly higher profitability levels that these operators enjoy in comparison to the other market players, and even to the mobile operators in other European countries..

The main deficiencies identified in the retail segment consist in the limited penetration of innovation, indicated by the level of availability and low usage of the advanced services, especially of the 3G-specific ones, the high retail prices and their reduced transparency, as well as the relatively low level of effective churn, notwithstanding the large number of prepay users.

The conclusions of the analysis suggest that given the existing indications regarding insufficient competition levels, the evolution of the cluster of mobile telephony services at retail level needs rigorous monitoring. Recent trends seem to suggest a positive evolution of the segment, but this needs to prove sustainable in order to counteract the potential risk of collective dominance of the two large operators.

Access and origination at mobile locations

Given the lack of mobile virtual network operators, this segment is characterised by the exclusively internal service provision, between the vertically integrated activities of the existing operators.

The conclusions of the analysis of the cluster of mobile telephony services at retail level suggest that a rigorous monitoring of the evolution of the segment for access and origination at mobile locations is needed, in order to evaluate the potential risk of collective dominance of the two large operators.

Termination on individual networks at mobile locations

Termination services are by definition provided in the monopoly markets, since the operator on whose network the respective call or SMS originates cannot choose the provider of the termination service. In such markets, under the *"calling party pays"* regime, there is high potential for abuse from the provider of the termination service. Thus, the mobile operators may use their monopoly power in this segment for negotiating excessive termination tariffs and even discriminate in respect of these tariffs between the contractual partners.

International roaming

The specificity of the inbound international roaming services, which stems mainly from the interdependence with the mobile networks in other countries, raises significant barriers as

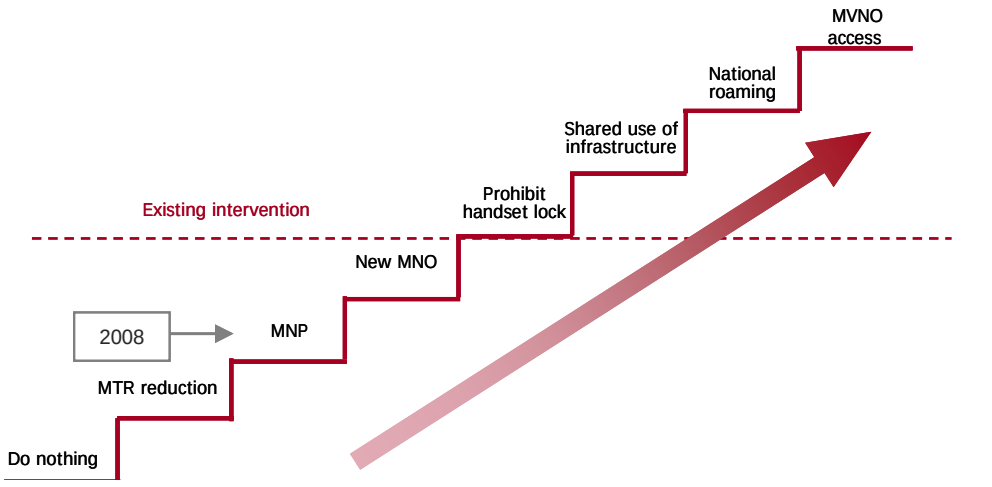
regards the regulation of this segment at the national level. In this regard, the adoption of the Regulation of the European Parliament and of the Council on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC, which has regulated maximum roaming tariffs in the wholesale and retail markets of all 27 Member States and has set measures to enhance the transparency of retail roaming tariffs as well as the user awareness level, has provided a remedy for the main deficiencies identified in this segment, i.e. the excessive tariffs charged and the lack of transparency regarding their level.

Options for the regulatory intervention

The development of competition and the improvement of the retail tariffs transparency were identified as main directions that should guide the regulatory intervention in the mobile sector.

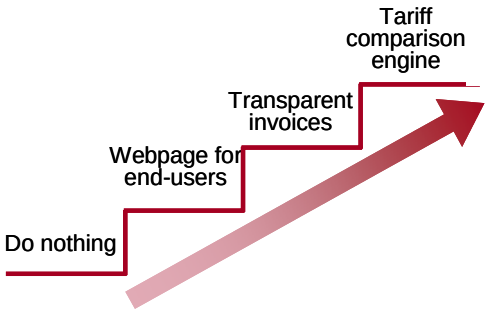
In view of **promoting competition** in the mobile telephony sector, the regulatory options identified are summarised in *Exhibit 6*. Their applicability must be investigated in relation with the competition problems detected and with the impact of the existing measures. These options are available under the current legal framework, representing either measures already adopted by ANRCTI (regulation of termination rates, number portability, award of the fifth mobile license) or obligations which may be imposed by the Authority in accordance with Chapter II of the Government Ordinance no.34/2002 on the access to the public electronic communications networks and to the associated infrastructure, as well as their interconnection, approved, with amendments and completions, by Law no.527/2002, with the subsequent amendments and completions.

Exhibit 6: Options for the regulatory intervention in order to increase competition in the mobile sector



In order to improve retail **tariff transparency** in the mobile sector, which could help the users understand the prices they are actually paying, the intervention options presented in *Exhibit 7* have been identified. These options are available under the current legal framework, representing obligations which may be imposed by ANRCTI in accordance with Art.20 of the Law no.304/2003 and, respectively, Art.6 of the Law no.506/2004 on the processing of personal data and the protection of privacy in the electronic communications sector, with the subsequent completions.

Exhibit 7 Options for the regulatory intervention in order to encourage price transparency in the mobile sector



3.4.2. **Fixed telephony, Internet access and data transmissions**

Fixed telephony – current status and trends

The Romanian fixed telephony sector is a stagnant one, marked by a slight decrease of the penetration rate: over the last 4 years, the residential users gave up more than 200,000 access lines, so that, at the end of 2006, less than 50% of the households still benefited from access to the fixed network[2] (*Exhibit 8*). On the other hand, fixed telephony continues to represent an essential service for the activity of the business users, whose number of connections to the fixed networks registered a slight increase: over 100,000 new lines were added between 2003 and 2006 (*Exhibit 9*).

Exhibit 8 Penetration rates population and households (2003-2006)

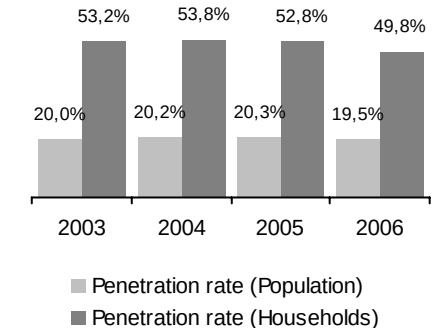
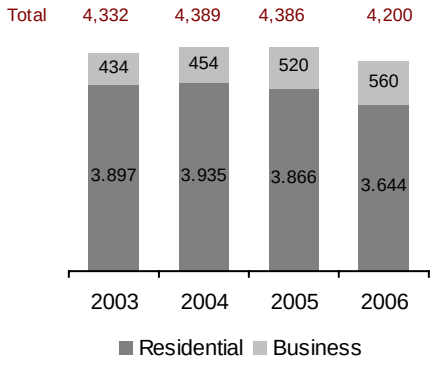


Exhibit 9 Number of fixed access lines



[2] Penetration rate calculated as number of access lines at a household figure of 7,320,202 (according to the National Institute of Statistics).

From a geographic perspective, the urban-rural gap remains open: if the rural users of fixed telephony services are served – almost exclusively – by one provider, most of the urban users may choose between several providers of such services.

The downward trend of the fixed telephony is reflected by further facts: the rate of the annual expenditure on fixed telephony services in the GDP dropped from 1.2%, in 2002 to 0.7% in 2006, whereas the traffic volumes decreased by almost 700 million minutes during 2003-2006.

Given the 15% annual decrease rate in the number of subscribers during 2006[3], Romtelecom's market position gradually erodes, but with 74% of the residential users access lines and 80% of the business users access lines, as reported in June 2007, Romtelecom's dominance in the fixed telephony sector is still a reality. Since liberalisation, RCS & RDS emerged as the second player in the fixed market, serving nearly 1,000,000 customers by mid-2007, mainly in the residential sector, whereas the third player, UPC, pursued a growth strategy based on intensive consumption.

Fixed telephony is expected to keep dwindling as far the number of connections and the usage within the investigated timeframe are concerned. On the other hand, service bundles, especially *" triple-play"*, become increasingly popular and could slow down the declining trend.

As for the technologies used, PSTN is still the most widely used platform the provision of fixed telephony services. However, the prospective analysis of the sector must take into account the possible influences generated by exploiting the potential of certain platforms or technologies:

- Cable: Operators of such platforms popularized the telephony services through IP technology, by including these services in their offers of audio-visual programmes and/or Internet access, both as part of bundles, and as individual services.
- Mobile telephony networks: Mobile operators have recently launched or are about to launch fixed telephony services at prices that are below the ones for mobile telephony services. The relatively low incremental investment required by the provision of such solutions, as well as the advantages associated with these services, suggest a high potential for success, particularly interesting for the rural areas, which could contribute to accelerating the fixed-mobile substitution.
- WiMAX is a technology that enables the provision of wireless fixed telephony and Internet access services by means of wireless IP platforms. The economical character of installing WiMAX networks, the wide coverage of the antennae (up to 30 km), together with the low penetration of fixed telephony networks in the rural area, make of WiMAX one of the most attractive and viable solutions for increasing the penetration rate of fixed telephony and Internet access in Romania. Nevertheless, the provision of these services through the WiMAX technology is not expected to flourish until 2010.

[3] Preliminary statistical data for the first six months of 2007 indicate an ongoing declining trend of approximately 9%.

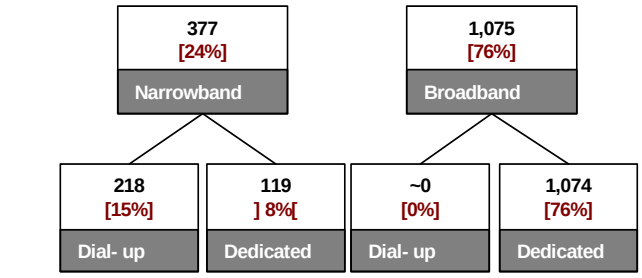
- Next generation networks (NGN) will definitely change the landscape of the whole electronic communications sector. Fibre optic coming closer to the consumer (in the FttCab scenario) will allow the provision of an effective bandwidth of 20-25 Mb/consumer, capable of yielding fixed telephony, broadband Internet access and digital television. However, the development of the NGN networks is not expected to produce major changes before 2010.

It is anticipated that the IP networks will become the main platform for the provision of fixed telephony, as a service additional to Internet access and data transmission. The development of competition will trigger more diversified service bundles. Fixed telephony sold at a fixed price, with unlimited credit at least within the network, may well become a general offer in 2010.

Internet access and data transmissions – current status and trends

The Internet access solutions may be characterised from two reference points: bandwidth (broadband or narrowband) and connection type (*dial-up* – common for voice and Internet access, as compared to dedicated connections – used exclusively for Internet access) (*Exhibit 10*).

Exhibit 10 Internet access subscribers' distribution (Thousands, 2006)

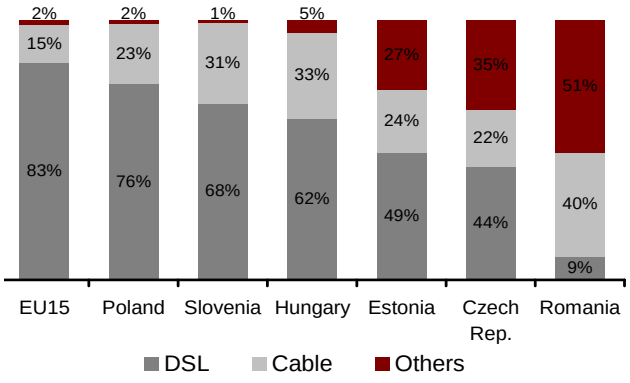


[% of total]

Although the penetration rate of broadband Internet access services in Romania is at one of the lowest levels among the EU27, the annual average growth rates exceed 100%.

Moreover, unlike in most of the EU27, DSL access is of minor importance (*Exhibit 11*), mainly due to the relatively late commercial launch of the product by the incumbent, Romtelecom. This company has nevertheless publicly announced massive investments in expanding the ADSL services in the next two years, and preliminary information indicates a rapid growth of the ADSL connections.

Exhibit 11 Broadband access technology distribution (% of subscribers, Sep. 2006)



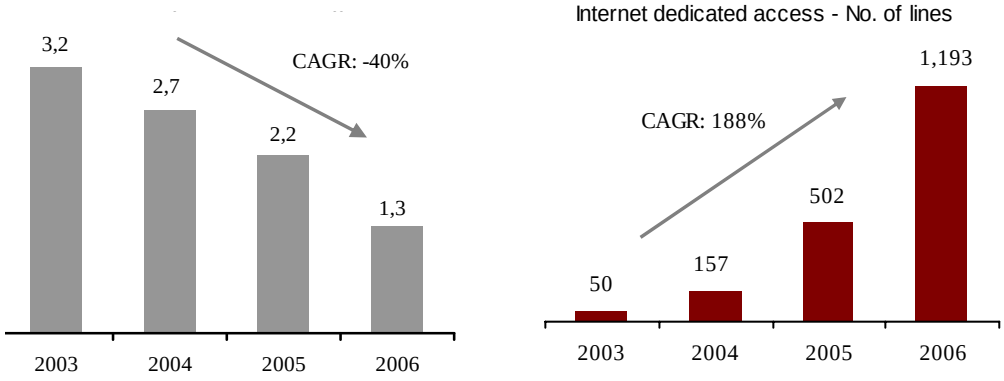
Broadband penetration:

EU15	Poland	Slovenia	Hungary	Estonia	Czech Rep.	Romania
18.1%	4.5%	12.6%	8.6%	17.2%	9.6%	5%

Unlike the steady growth of the dedicated Internet connections, the popularity of

the *dial-up* connections is dramatically falling: *dial-up* traffic dropped, on average, by 40% per year, throughout the last four years (*Exhibit 12*).

Exhibit 12 Comparison between dial-up and dedicated Internet usage (2003-2006)



The demand for broadband Internet access services will trigger the increase of the penetration rate and will be the engine of investment in the fixed electronic communications networks, whereas competition for attracting and keeping the customers will be favourable to lower prices, higher quality, more diversified offers and additional value-added services.

Data transmission services are provided mainly to business users. IP-VPN and Ethernet are the most widespread solutions, while the relatively high number of providers fosters competition in the market. As regards the demand, in addition to the Intranet solutions, Extranet and remote access solutions are expected to be increasingly deployed.

Segmentation

Starting from the characteristics of the electronic communications platforms at fixed locations, the segmentation has been performed by service categories, as follows: fixed telephony at the retail level, Internet access and data transmissions at the retail level, and, respectively, corresponding inputs at wholesale level.

Fixed telephony at the retail level

From the perspective of the functionality of the services provided on the retail market, the following segments have been identified:

- *access* **–** includes access to fixed telephony, calls and SMS received irrespective of their origin, access to value-added services;
- *national calls* **–** calls made within the country i.e. to local destinations (within one county), national calls, calls to mobile networks, to non-geographic destinations and national SMS sent;
- *international calls* – calls to international destinations.

Considering the functionality, the competition levels, the prices and the demand substitutability, an additional segmentation level has been identified for the *access* and *national calls* segments: single[4] and grouped lines[5].

The diagnosis analysis of the *access - grouped lines* segment seems to indicate that there are grounds for the evolution of this segment towards competition. Thus, there is information regarding the significant number of direct connections provided by mobile operators, although lack of relevant statistical data does not allow their distinct identification, which leads to overstating Romtelecom's market share to approximately 96% of the total number of multiple access lines (exchange trunks and ISDN PRA lines). Since detailed information is not available, the qualitative approach adopted started from the hypothesis that, given that the demand for these services comes from the most profitable customers of the electronic communications providers, this segment is expected to witness a satisfactory level of competition. Similarly, due to the fact that in most cases it would be unnatural to assume that the provider of *access - grouped lines* would not have the best offer of national calls on the grouped lines, the segment *national calls - grouped lines* seems to have the potential to become sufficiently competitive during the timeframe of the analysis.

All the platforms used for the provision of services at a fixed location have been taken into consideration, including the mobile communications networks which offer limited mobility solutions.

Competition in providing fixed telephony services in the retail market feature different characteristics in the rural and in the urban area. Nevertheless, from a prospective standpoint, the low barriers encountered by the mobile operators at the entry on the fixed telephony market and the attractiveness of the fixed telephony services offered by the mobile operators, and, respectively, the reduced usage of carrier selection and pre-selection for calls to national destinations, were the main arguments against an additional segmentation based on additional geographic criteria such as rural/urban, at the level of the *access - single lines* and, respectively, *distance calls - single lines* segments.

As regards the segment of *international calls,* Romtelecom's dominance is expected to erode fast, at a higher pace than that of the evolutions in the other sectors, in the context of the strengthened competition by the other providers of international calls, therefore this market segment has the best chances to become reasonably competitive.

Two homogeneous segments have been identified as relevant for the regulatory intervention: *access - single lines* and *national calls - single lines*. The diagnosis-analysis of these segments, in view of evaluating the competitive environment and the possible deficiencies, revealed the following:

[4] *Individual lines* refer to PSTN, cable, ISDN2 and to the fixed telephony solutions offered by the mobile operators.

[5] *Grouped lines* refer to PRI and the access solutions through direct connections that group more than 10 lines, provided by the fixed and mobile operators.

- Access - single lines

Since the decrease of Romtelecom's market share cannot be assessed to reach – from the current level of 75% – values under the significance threshold by 2010, and on the background of the low consumer countervailing buyer power, as well as of the high barriers to market entry, the main indications on the existence of deficiencies resulted from the low of consumer satisfaction and from the limited choice between providers (90% of the customers are served by the incumbent or by a single other alternative operator).

- National calls - single lines

The modest developments in the usage of carrier selection and pre-selection services for making national calls in the past 4 years, as well as the similarity of the market shares quantified in numbers of access lines and in volumes of national calls, seem to reveal the consumer predilection for one provider of access and national calls. The existing solutions of unbundled access to the local loop, as well as carrier selection and pre-selection, did not make the segment more appealing to the alternative operators, in spite of their contribution to loosening entry barriers and to diminishing the importance of the economies of scale.

The deficiency analysis revealed the narrow range of alternatives to the access provider, whereas, in respect of the incumbent's tariffs, it pointed out to the high levels of the average revenue/minute, as well as a relatively complicated structure of the tariff plans (8 different tariffs) and high mark-ups to the interconnection tariff for off-net calls, which could only reinforce the externality of Romtelecom's network. Though the recent changes in the retail offers – especially the introduction of the „zero" tariff policy as regards off-peak calls, either on-net and off-net – are likely to lead to diminishing the average revenue/minute, the impact of these offers on the Romtelecom's network effect cannot be clearly estimated.

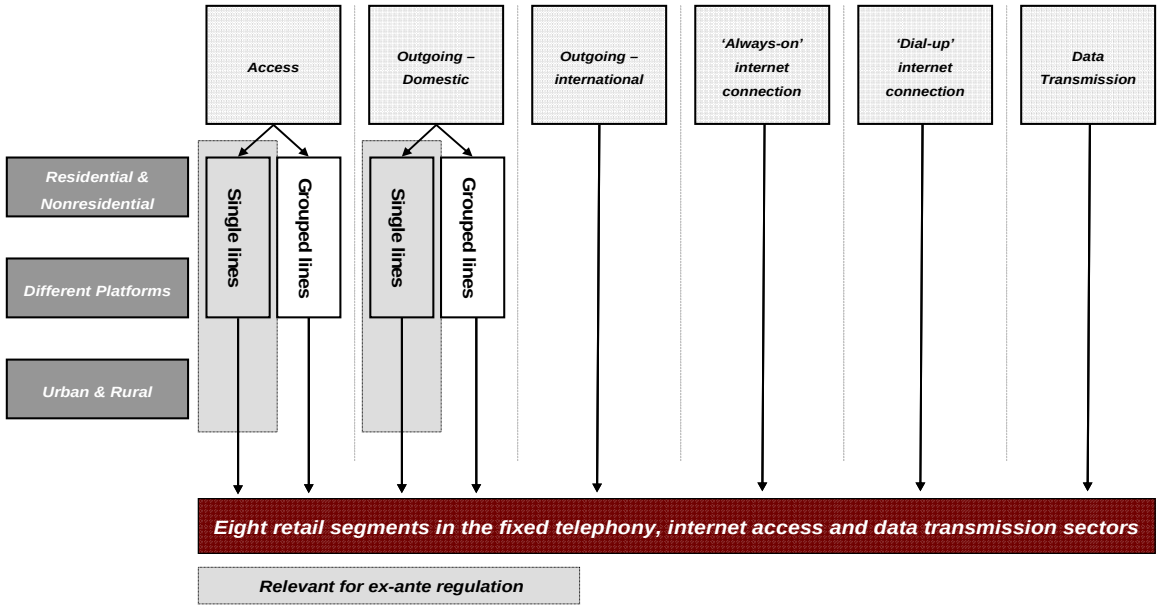
Internet access and data transmissions on the retail market

The segmentation process yielded three segments, but the diagnosis-analysis seems to indicate that none of them requires *ex ante* regulation.

- *dial-up internet access* – a segment in steep decline, characterised by a large number of small and very small providers, except for Vodafone and Romtelecom;
- *dedicated internet access* – developments over the last 12 months in the realm of prices and market shares seem to indicate that competition is becoming stronger in the provision of the dedicated internet access;
- *data transmission solutions* – a segment characterised by the provision of a wide array of products by a relatively high number of providers, so that there is no information to suggest dominance at the level of this segment.

The homogeneous segments identified at the retail level within the fixed telephony, Internet access and data transmissions is presented in *Exhibit 13*.

Exhibit 13 Summary of the retail segments identified in fixed telephony, internet access and data transmission sector



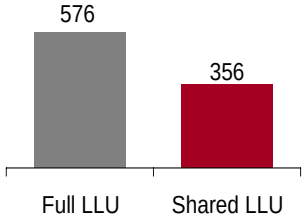
Corresponding services at the wholesale level

At the wholesale level, the structural segmentation process has led to identifying the following homogeneous service segments, whereas the diagnosis-analysis, whose conclusions are presented below, indicated a number of deficiencies that could require regulatory intervention in case of certain segments.

- Services of (full or shared) unbundled access to the local loop for the provision of broadband and voice services

The full or shared unbundled access to the local loop is a regulated product that ensures wholesale access to the fixed public telephone network. Technically speaking, an alternative to access should be the deployment of another network, but the significant investments involved reduce the economic substitutability of such a solution.

Exhibit 14 Numbers of LLU lines, July 2007



The diagnosis analysis suggests that, so far, the regulatory solution of local loop unbundling had actually no impact in the sector (*Exhibit 14*). Moreover, the expansion of the FttCab solutions, with its consequences as far as the redesign of the business model is concerned, in particular in the light of the investment required for serving a relatively low number of users, will discourage the development of services provided over incumbent's unbundled loops by alternative providers.

- Call origination at fixed locations

An alternative to the call origination service is the entry on the access market – either by purchasing local loop unbundling services, or by building one's own access infrastructure. But such entry on the access market is expensive and could not represent from an economic point of view an alternative that could substitute the purchase of call origination services.

Given the very small mark-up of which the carrier (pre)selection providers benefit, the small number of players providing calls via CS and CPS procedures and the insignificant share of these services were the main deficiencies identified by the diagnosis-analysis of this segment.

- Call termination at fixed locations

The provision of off-net calls on the retail market requires the purchase, at the wholesale level, of call termination services from the operator controlling access to the called party. The specifics of this segment derive from the fact that there is no alternative to call termination to a certain number.

Call termination services are, by definition, provided on monopolistic markets, since the operator originating the service on the retail market (call, SMS) cannot choose the provider of the termination service. On such markets, under the „*calling party pays*" regime, there is a high potential for abuse from the termination provider. Thus, the operators may use their monopoly position in this segment in order to negotiate excessive termination tariffs and even charge discriminatory tariffs or refuse to provide termination services.

- Transit services

The transit service is defined as the service for the transport of the signal on the network segment delimitated by the call origination and the call termination services.

Exhibit 15 Illustration of the transit service

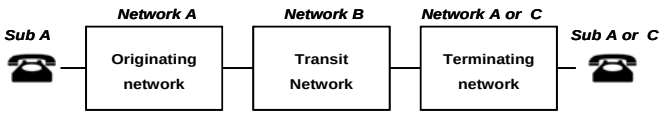


Exhibit 15 illustrates transit through a third network, other than the origination or the termination network.

Transit services may present different competitive conditions, depending on the either national or international character of the transport of the call, therefore an additional segmentation level has been added, differentiating between national and international transit.

The diagnosis analysis revealed the fact that, despite indications on the reasonableness of the entry barriers (there is a large number of providers), national transit remains a service featuring a low degree of attractiveness for operators (870 million minutes in 2006). Furthermore, Romtelecom preserves its dominance at the segment level, with a market share that witnessed a slightly growing trend over the past 4 years.

The diagnosis-analysis indicated the fact that the international transit segment is not relevant for regulatory intervention.

- Leased lines

In order to provide leased lines services and other electronic communications services on the retail market, an operator must develop its own infrastructure, or purchase leased line services at the wholesale level. Different segments of leased lines may be characterised by different competitive conditions, which is why an additional segmentation level has been introduced:

- *leased lines-terminal segments* – a leased line-total circuit segment delineated by a point of interconnection for leased lines and a network terminal point (end-user);
- *leased lines-trunk segments* – a leased line-total circuit segment delineated by two points of interconnection for leased lines.

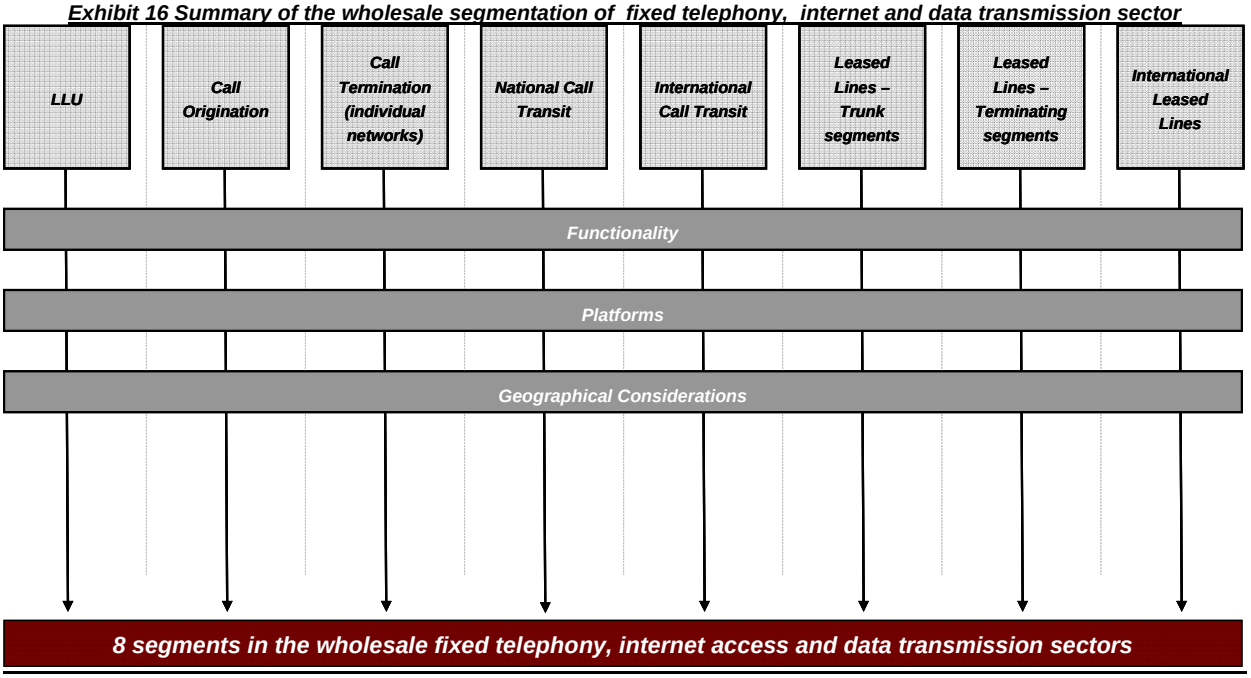
If trunk segments were found competitive, the high entry barriers affect the market for leased lines-terminal segments, hindering competition in the provision of these services.

Other deficiencies revealed by the diagnosis-analysis consist of Romtelecom's dominance, given in particular the ubiquity of its network, of the small number of providers in this sector and of the low countervailing power of the wholesale customers, which recommends that the regulatory intervention on this segment is maintained.

On the other hand, the diagnosis-analysis revealed that the leased lines connecting two clients in different countries feature different competitive conditions, therefore a distinct segment has been envisaged – *international leased lines*.

The homogenous segments at the wholesale level identified in the fixed telephony, Internet access and data transmissions sector is presented in *Exhibit 16.*

Exhibit 16 Summary of the wholesale segmentation of fixed telephony, internet and data transmission sector

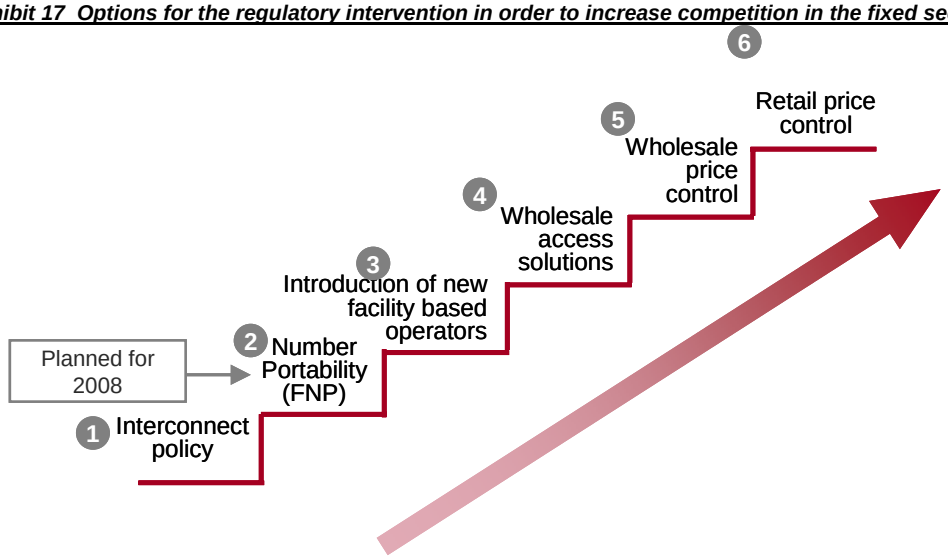


Options for regulatory intervention

The development of competition and the enhancement of tariff transparency were found to be the main directions that should guide the regulatory intervention in the fixed telephony segments.

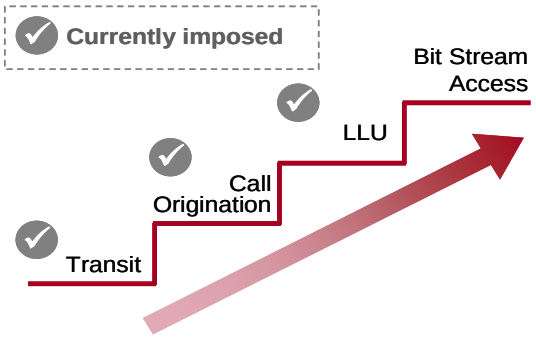
With a view to **stimulating competition**, the following options for regulatory intervention have been identified, at the wholesale, as well as at the retail level. Their application must be investigated in relation to the identified problems and deficiencies (*Exhibit 17*). These options are available under the current legal framework, representing either measures already adopted by ANRCTI (regulation of termination rates, number portability, promoting market entry by the low barriers related to authorisation and numbering resources) or obligations which may be imposed by the Authority in accordance with Chapter II of the Government Ordinance no.34/2002 or Chapter III of the Law no.304/2003.

Exhibit 17 Options for the regulatory intervention in order to increase competition in the fixed sector



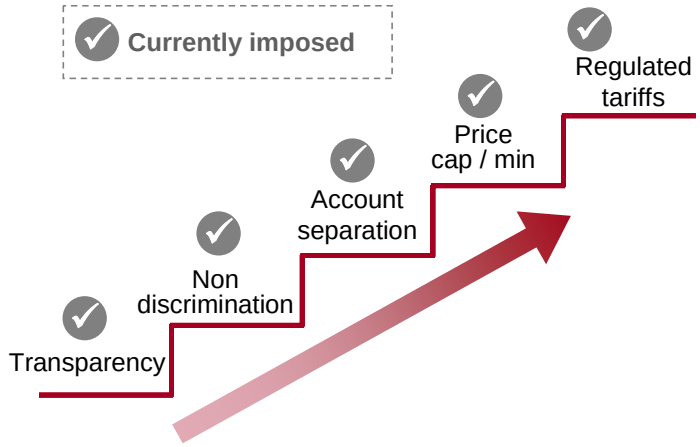
To foster competition by regulating the access services, the following options have been identified (*Exhibit 18*):

Exhibit 18 Options for the regulatory intervention in order to promote competition in the wholesale access market



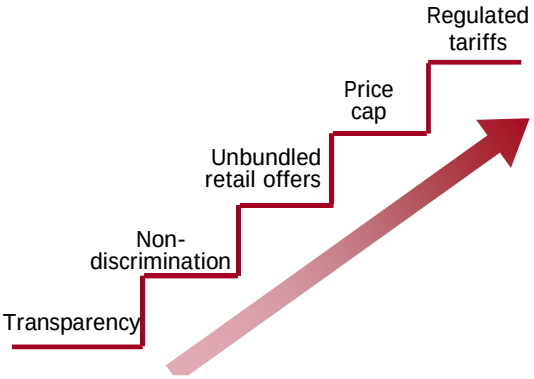
To promote competition by the regulation of interconnection services (call origination, call termination and transit services) the following options have been identified (*Exhibit 19*):

Exhibit 19 Options for the gradual regulatory intervention in the area of interconnection services



Stimulating competition through regulation of the retail tariffs for the fixed telephony services can be done gradually, by a series of options for intervention, as follows (*Exhibit 20*):

Exhibit 20 Options for the gradual regulatory intervention in the area of retail price control



In order to improve **transparency of tariffs** for fixed telephony services, which would stimulate rational consumption behaviour, three options for intervention have been identified, similar to those identified for the mobile telephony sector: create a dedicated user information website, measures to improve transparency of bills and introducing instruments that should allow tariff comparisons. These options are available under the current legal framework and may be imposed by ANRCTI in accordance with Art.20 of the Law no.304/2003 and, respectively, Art.6 of the Law no.506/2004 on the processing of personal data and the protection of privacy in the electronic communications sector.

3.4.3. **Transmission / retransmission of audio-visual programmes**

Current status

The Romanian market for audio-visual programmes features a diversity of technological solutions used by broadcasters to ensure transmission of programmes to the public (both for the transport of the signal and for the distribution to the public) and competition dynamics.

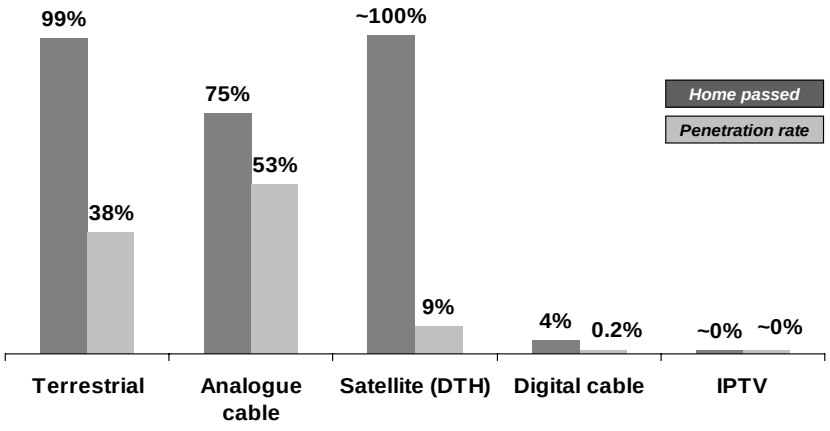
As far as television is concerned, there are two public programmes with national coverage broadcasting through terrestrial radio systems, TVR 1 and TVR 2, as well as over 300 public and private local stations[6]. As far as radio is concerned, there are 17 national and local public programmes and around 200 national and local private programmes. With a penetration rate of 62.4%[7], the retransmission services of audio-visual programmes based on subscription ("subscription TV"), via cable, DTH and IP, in Romania have one of the highest penetration rates in Europe.

As regards the content of the services provided, radio stations generally broadcast their own programmes, whereas TV stations, apart from their own productions, buy programmes from other TV stations or from various production houses and integrate them in their own programme grid.

Taking into account the limited availability of the spectrum resources, terrestrial broadcasting requires a broadcasting licence, which is generally granted to the broadcaster. An exception from this rule is the National Radiocommunications Company (SNR), which, although not being a broadcaster, holds the national and local broadcasting licences for the transmission of radio and TV public services.

Therefore, in Romania, the distribution of TV programme services to the public is performed either directly by the broadcasters or by third parties, via three main platforms: analogue **terrestrial radio**; analogue **coaxial cable** (within the network coverage areas); and digital **satellite** systems (including DTH), with national coverage (*Exhibit 21*).

Exhibit 21 Broadcasting platforms 'Home passed' vs. Penetration (households)



From the technological perspective characterising the transmission to the public, the differences between digital and analogue transmissions are worth mentioning. **Analogue transmissions** feature low quality, limited capacity and cannon be encoded; **digital transmissions** allow higher capacity and, therefore, ensure better quality and a wider

[6] At July 1st, 2007.
[7] At July 1st, 2007.

diversity of programmes, as well as the provision of advanced applications such as VOD (*Video on Demand)* or interactive TV.

The penetration rate of digital transmission services in Romania is relatively low (13.6% of the total number of subscribers to audio-visual programme services on July 1st, 2007), since digital transmission of TV programme services is 99% done via satellite. The cable networks intended for (re)transmission of audio-visual programmes service are digitalized only to a limited extent, whilst digitalisation of radio terrestrial transmissions ("digital terrestrial television") is in a testing phase, its implementation being expected within the next 5 years, given that the majority of the EU Member States committed to switchover from analogue to digital terrestrial TV in 2012.

As previously mentioned, in addition to the "traditional" platforms, the Romanian audio-visual programme services are also distributed, on a very narrow scale, through IP technology (*IPTV*) and mobile networks (*mobile TV*).

IPTV uses the IP protocol for the transmission of signal, allowing provision of audio/visual programmes together with Internet access services, data transmissions and telephony. The essential differences from the other solutions used for the reception of TV programmes reside in the interactivity of the system (the communication being bi-directional), the fact that the bandwidth required for ensuring the transmission quality and variety fits within the range 15-20 Mb/consumer, and the need to ensure IP services whose quality is managed. Thus, any IPTV user may configure its own programme, so that he/she can see the desired content at the desired time, may change or create out of many TV channels a personalised programme. In Romania, the service offered based on the IPTV technology has been launched at the end of 2005 by an alternative operator using its own network. The service is new and emerging, and still little known and used, its coverage area being currently limited to Bucharest and a nearby town.

Mobile TV services match the plans of using the additional bandwidth made available by the implementation of the HSPA networks of the mobile operators, allowing the provision of content upon request or in real time. One cannot expect that the reception of TV programmes via "advanced" platforms will become a mass consumption behaviour before 2010.

The consumer surveys show that at least one TV set is available in 97% of the households, 3.8 million households use coaxial (generally analogue) cable, while the remaining consumers receive the TV programmes via the radio terrestrial systems (antennae). Against this background, the recently launched DTH offers (i.e. in 2005) rapidly acquire popularity, reaching around 1 million customers by mid-2007.

As regards subscription TV offers, two providers (RCS & RDS and UPC) share more than 70% of the cable subscriptions and a similar percentage of the DTH subscriptions, whereas the Romtelecom DTH offer, although recently launched, register remarkably high growth rates, with more than 250,000 subscribers in the first 8 months since their launch (at the level of August 2007). There are 581[8] providers of audio-visual programme transmission services using exclusively the cable platform. They operate on narrow and very narrow scale,

[8] At July 1st, 2007.

generally having local coverage and small customer portfolios (in the large majority of cases, below 100 clients). According to the data provided by the cable operators, the degree of overlapping of the coaxial cable networks is limited, each provider having practically a 100% market share in the respective service provision area.

Trends

The main evolution trends identified in the sector are the following:

- the progressive digitalisation of the networks, due mainly to the increased significance of DTH adoption by the public and – to a low extent – to the digitalization of cable networks;
- the improvement of the competitive environment, as the usage of DTH platforms is widening, especially with the successful take up of Romtelecom's offer;
- higher consumption of bundles of TV programme transmission services and other electronic communications services.

Segmentation

Based on the technical and content characteristics, on the functionality and on the payment method for the access to the reception platforms, the segmentation process in the sector yielded, at the retail level, the following segments:

- The delivery of free-to-air local and national radio programme services to the public via analogue terrestrial platform at a national level;
- The delivery of free-to-air local and national television programme services to the public via analogue terrestrial platform at a national level;
- The delivery of subscription radio and television programme services to the public via cable and satellite (DTH), at a national level.

It must be mentioned that an additional segmentation at the level of the subscription radio and television programme services according to the digital vs. analogue transmission mode was not considered relevant for the time horizon of the strategic analysis due to the very low development of the digital transmissions via cable and to the limited expansion predictions of the value-added services such as VOD (*Video on Demand)*, PVR (*Personal Video Recorder*) or PPV (*Pay Per View)*.

As well, no further segmentation was made for the subscription TV services based on the platform nature (cable or DTH), mostly due to the indications related to consumer perception of the demand-side substitution and of the similarity of functional and price characteristics. Nevertheless, a series of arguments, such as the complementarity and not full substitutability between the two platforms, in particular as far as the availability of services in rural vs. urban areas is concerned, the barriers to the usage of DTH services and the relatively recent launch of the DTH offers recommend a thorough assessment of this level of segmentation when applying the delineation criteria specific to market identification and analysis in view of imposing *ex ante* regulation.

The diagnosis-analysis revealed that the retail segments of free-to-air local and national radio and TV programme services via analogue terrestrial platform at a national level do not

warrant regulatory intervention, since the usage tariff is established by law and is not directly connected with the services provided; moreover, none of the broadcasters is dominant at the level of these segments.

As far as the retail provision of subscription radio and television programme services to the public via cable and satellite (DTH) is concerned, the diagnosis-analysis identified a series of deficiencies. Thus, at the national level, the market shares of the two main providers (RCS & RDS and UPC) are relatively similar, but at a superior level of granularity, in determined urban areas (e.g. neighbourhoods), most of the consumers use the services of the same provider, so that, against the background of the limited overlapping between the two operators' networks, there is high potential for geographic dominance. Nevertheless, the development of DTH services is expected to become the main driver of competition, which should significantly improve the competitive environment within the national territory and erode the geographic dominance potential of the cable operators. Other deficiencies relate to the high entry barriers, augmented by the heterogeneous rights of way policies of the local public administrations, by the existence of legal barriers („*must carry*" obligations), as well as by the low innovation levels associated with the low rate of network digitalization. Nevertheless, the diagnosis-analysis does not indicate the need to adopt regulatory measures for this segment.

At wholesale level, the application of the segmentation criteria yielded the following service structure:

- Free-to-air broadcasting transmission of the public (local and national) radio programmes by terrestrial analogue platform, at a national level;
- Free-to-air broadcasting transmission of the private radio programmes by terrestrial analogue platform, at the national level;
- Free-to-air broadcasting transmission of the public (local and national) television programmes by terrestrial analogue platform, at a national level;
- Free-to-air broadcasting transmission of the private television programmes by terrestrial analogue platform, at a national level;
- Subscription broadcasting transmission of television and radio programmes by cable, in individual network coverage areas;
- Subscription broadcasting transmission of television and radio programmes by satellite (including DTH), at a trans-national level.

The diagnostic analysis showed that the segments of free-to-air broadcasting transmission of the public (local and national, radio and television) programmes by terrestrial analogue platform, at a national level, warrant *ex ante* intervention, mainly due to the interdependence – provided by law – between broadcasters (SRR and SRTV) and the owner of the transmission infrastructure (SNR)[9]. Thus, the public radio and TV stations do not have a broadcasting licence and they are obliged by law to buy transmission services and/or access to infrastructure elements from the operator of a countrywide network, SNR being the

[9] The particularities of the legal framework suggest the opportunity to investigate a further segmentation layer according to the criterion of who is the holder of the broadcasting licence – the broadcaster or the owner of the transmission infrastructure.

only company that meets this requirement. On the other hand, SNR holds the licences that compel it to transmit the public programme services of SRR and SRTV, therefore, as the only provider of such services, this company may set the tariffs and provision terms independently of the demand, being incentivised to abuse its market position.

In this context, the diagnosis-analysis revealed a high potential of excessive pricing on the side of SNR, given the public stations' obligation to buy services only from this provider, SNR's relatively large number of employees in relation to the number of operated sites and the high share of expenditure with transmission of programme services in the total revenues of the public stations.

At the level of the free-to-air broadcasting transmission of the private radio and television programmes by terrestrial analogue platform, at the local level, the diagnosis-analysis showed that, despite a reasonable level of competition, a number of private broadcasters who were awarded broadcasting licenses for using high-power radio frequencies with regional coverage to broadcast television programme services do not own the infrastructure elements necessary for the installation of the transmission equipment, being obliged, in order to ensure the coverage provided for in the licence under efficiency conditions, to get access to the locations of the SNR transmission sites.

The other deficiencies identified on the segments of free-to-air broadcasting transmission services consist of the relatively low number of national television programme services and of the lack of innovation, as digitalisation is inexistent.

On the segment of the broadcasting transmission of television and radio programmes by cable, the diagnosis-analysis revealed that, theoretically, any network operator may abuse of its market position by imposing excessive or discriminatory pricing in their dealings with the broadcasters (content providers) who need their services to ensure broadcasting of programme services at the highest possible number of end-users. However, the actual market mechanisms – the interdependence between demand and offer on this market, supported by the reversed financial flows between the two parties (the seller is the one who pays the buyer) – prove the fact that the broadcasters hold countervailing power such as to prevent potential abuses from the cable operators.

On the other hand, the diagnosis-analysis has highlighted as an important deficiency at the level of the sector the fact that the development of the communications networks, especially cable networks, is affected by the lack of a harmonised policy at a national level in respect of the rights of way on the public properties. Thus, the heterogeneous and not in rare cases abusive practices of the local administrations create major obstacles to the planning of network development and significantly raise the market entry barriers[10]. In many instances, the local administrations refuse to grant construction authorisations for the installation of networks, grant those authorisations in a discriminatory manner or even subject to the

[10] This deficiency is also manifest at the level of other segments (mobile telephony, fixed telephony, Internet access and data transmissions), to the extent to which the development of networks over which these services are provided is affected. The diagnosis analysis showed that the cable networks, which can also support the provision of fixed telephony or Internet access services, are the most affected by the problem of access on properties, as well as by the difficulties related to the shared use of the infrastructure elements.

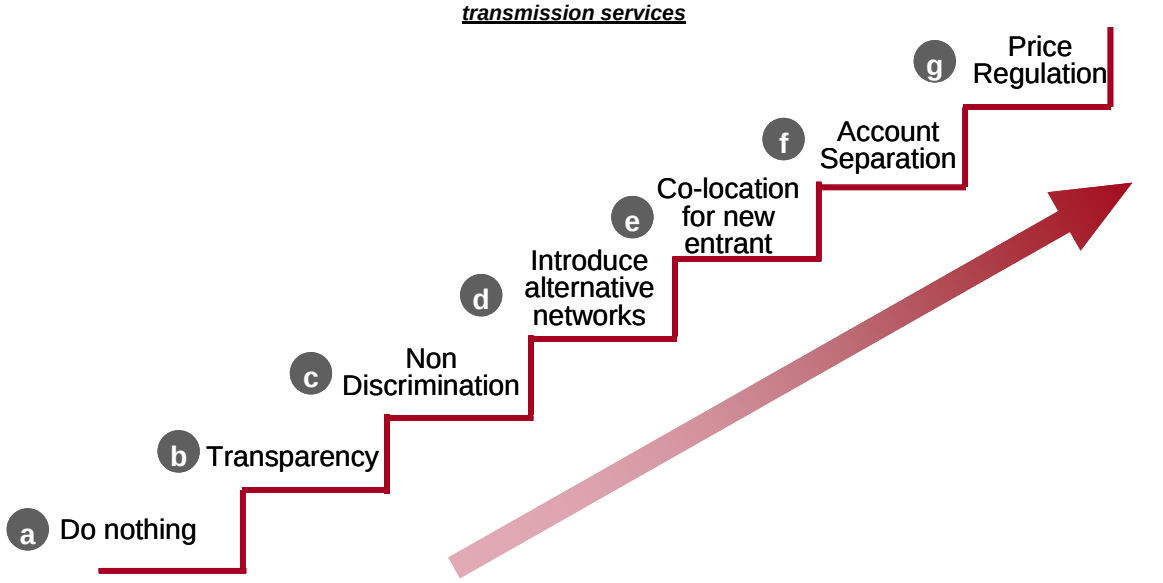
agreement of the incumbent or impose excessive local taxes for access on the public property. These practices occur in spite of the current legal provisions laid down in Chapter IV of the Government Emergency Ordinance no.79/2002, which stipulates that access on public property for installing electronic communications networks must be governed by non-discriminatory, transparent and proportionate terms, including in respect of the applicable tariffs. The legal provisions establish these principles in general terms, the disputes between operators and the local administrations being resolved in courts, without the involvement of the ANRCTI.

The problems that the cable operators face with respect to the rights of way are complemented by those concerning the shared use of certain infrastructure elements (poles, ducts, masts) belonging to Electrica (the electricity company), Romtelecom and the local urban transportation services. A significant number of cable operators are confronted with the denial of access to poles by these infrastructure owners or must pay excessive or discriminatory rents, a situation which must be assessed in the light of the fact that the poles represent the only economically viable alternative to reach the users, the underground installation of networks being a costly solution, appropriate only for the very profitable urban areas. It must be mentioned that, at present, the shared use of the infrastructure associated to the electronic communications networks can be imposed by ANRCTI in accordance with Art.25 of the Government Emergency Ordinance no.79/2002 only in those cases where the infrastructure belongs to a provider of electronic communications networks.

Options for regulatory intervention

With respect to the competitive deficiencies identified at the level of the free-to-air broadcasting transmission of the private radio and television programmes by terrestrial analogue platform, a series of options for regulatory intervention have been identified, aiming at **preventing excessive pricing by SNR** and at **facilitating access by other operators to the infrastructure held by SNR**. These options are available under the current legal framework, representing almost exclusively obligations that may be imposed by ANRCTI in accordance with the provisions of Chapter II of the Government Ordinance no.34/2002[11] (*Exhibit 22*):

Exhibit 22 Options for the regulatory intervention to improve competition in the wholesale terrestrial broadcasting transmission services



Further, in order to remedy the deficiencies related to the low level of innovation, the **speeding up of the procedures for introducing the digital terrestrial television** services has been identified as an appropriate option for intervention.

At the same time, in order to remedy the deficiencies related to **rights of way** and **infrastructure sharing**, which affect in principal the development of cable networks, the identification of the options for intervention must take into account the fact that, on the one hand, the setting of terms and conditions for rights of way on the public property fall within the scope of competences of the local administrations, and, on the other hand, the powers of ANRCTI to intervene in the area of shared use of the infrastructure is established by the Government Emergency Ordinance no.79/2002. For these reasons, any limitations to the prerogatives of the local administrations to set out the rights of way terms and conditions, and, respectively, any potential extension of the ANRCTI competence to cases where the

[11] Except for facilitating the entry on the market of alternative networks to challenge SNR's position („Introduce alternative networks" in *Exhibit 22*), which requires different implementation mechanisms.

infrastructure holder does not have the quality of provider of electronic communications networks entail changes to the primary legislation. Thus, the changes to the legal framework may envisage the following options for intervention:

- Establishing a clear, transparent, and non-discriminatory procedure for the conclusion of contracts for rights of way on the public property, which may include the following elements:
  - publication of the terms and conditions for rights of way including tariffs, which must observe the principles of proportionality, objectivity and non-discrimination between providers and technologies (possibly under the form of a „reference offer" for access on the public property);
  - interdiction to establish local taxes/duties for access on the public property (the access seeker would owe only the contractual tariffs);
  - mechanisms for the coordination of public works (in particular for the underground installation of networks) which may include rules for apportioning the costs.

- Extending the ANRCTI powers to mandate infrastructure sharing to encompass the following gradual options for intervention:
  - resolution of disputes related to the shared use of the infrastructure, in all cases where an understanding cannot be reached between a provider of electronic communications networks and any entity that holds or controls infrastructure elements (not necessarily provider of networks, as the law currently requires);
  - imposing the obligation to publish the terms and conditions for shared use of the infrastructure held by certain entities (large infrastructure owners such as Electrica, Romtelecom, urban transportation services), including tariffs, which must observe the principles of proportionality, objectivity and non-discrimination between providers and technologies (possibly under the form of a „reference offer" for shared use of the infrastructure);
  - regulating the terms and conditions for shared use of the infrastructure held by the entities mentioned above, including tariffs.

3.4.4. **Intertwining conditions between the identified segments**

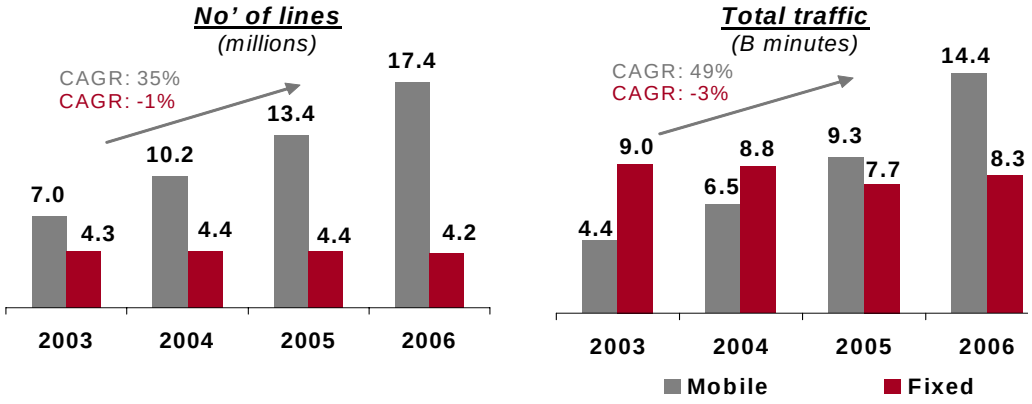
The diagnosis-analysis has identified and investigated the intertwining conditions between the segments delineated within the electronic communications sector.

The conclusions of the diagnosis-analysis revealed that the magnitude of the intertwining conditions that exist between the homogeneous segments does not justify, for the timeframe ending in 2010, a review of the segmentation results, or, as the case may be, of the diagnosis for each identified segment.

Fixed-mobile substitution

The analyses reveal a certain level of substitution between the fixed and the mobile telephony services on the Romanian communications market, illustrated by the evolution of the traffic and user figures (*Exhibit 23*).

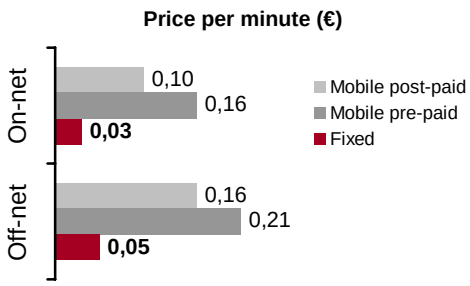
Exhibit 23 Comparative evolution of fixed and mobile lines and traffic



However, significant differences between the two services subsist. From a functionality point of view, substitution is asymmetrical, mainly because the symmetry of the fixed-mobile substitution is possible only at the level of fixed locations.

Second, the significant differences between the prices of calls in the fixed, and, respectively, in the mobile telephony (*Exhibit 24*), further illustrate the asymmetrical substitutability, even when the comparative value of subscriptions to the two types of services affect the assessment of substitution. The market surveys conducted on residential users between April and May 2007 confirm the highly asymmetrical character of substitution: an increase by 5-10% of the subscription prices would determine 3% of the consumers to give up mobile

Exhibit 24 Price comparison between mobile and fixed telephony



telephony, whereas the churn off rate for fixed telephony would be five times higher, with similar behaviour identified in the business segment.

Moreover, due to the relatively low penetration of fixed telephony, mobile services do not always substitute the fixed ones, as the mobile telephony services come to fill up a gap created by the unavailability of the fixed telephony services.

The diagnosis-analysis indicated that the fixed-mobile substitutability levels do not justify the inclusion of the two service categories into one homogeneous segment.

Fixed-mobile convergence

From a technological point of view, the fixed-mobile convergence requires two layers: the terminal equipment layer (an equipments which works both in the fixed and in the mobile network) and the network layer (shared IP based network for fixed and mobile applications based on SIP/IMS technology). The FMC solutions require broadband connections and the use of the WiFi technology.

In general, the fixed-mobile substitution is catalyzed by the development of the FMC solutions. Currently, there are no genuine FMC solutions in Romania, although the mobile operators have recently launched fixed telephony services on their own mobile networks. The solutions deployed in the Romanian market differ according to the customer type – business or residential. The fixed-mobile solutions for residential customers use the classic mobile telephony network elements, but restrict mobility by various means, either at call origination or termination, or during the calls. As far as the business customers are concerned, there are various solutions available, ranging from *premicell* interfaces, which aim at replacing the fixed-mobile traffic by on-net traffic, to direct connections provided through non-geographic numbers, by means of grouped lines, which have similar functionality with the traditional fixed lines.

The low penetration of broadband connections in Romania represents an important obstacle to the development of convergent solutions, upheld by the relative inertia of the main communications service providers, from a variety of reasons: the perception of a cannibalization risk for the traffic initiated inside buildings (in case of the mobile operators), the technological restrictions and the low ADSL penetration (in case of integrated operators such as Romtelecom and Cosmote), the complexity of the technical solutions to be implemented (in case of the cable operators).

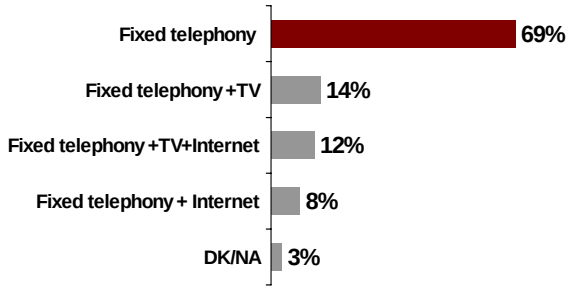
Service bundles

There are several approaches to what should an offer contain or what criteria should such an offer fulfill in order to be deemed as a bundle of services, starting from restrictive interpretations (one provider, one price, one bill) to more exhaustive and flexible views, which primarily envisage the content and not the format of an offer.

The specific of the Romanian market apparently recommend a comprehensive interpretation of this notion, which should allow a more accurate description of a phenomenon manifested in various forms, from tied offers to „pure" bundles, based on a single technological platform or created by the marketing policy.

Bundles of communications services have become increasingly popular and notorious in the last years and are expected to have a significant impact on the market dynamics up to 2010 (*Exhibit 25*). Service bundles have implications both from the consumers' and from the providers' point of view, with a positive influence on the increasing demand for services, but also featuring a shrinking potential on user migration to other providers. From a regulator's point of view, bundles increase the difficulty of monitoring the prices charged by operators active on several market segments.

Exhibit 25 Distribution of fixed telephony bundles



There are two types of *service bundles for the residential users*: bundles based on the use of the same platform or marketing bundles. One example of marketing bundle is offered by Romtelecom (telephony, Internet access and DTH), while another example is provided by „*quadruple-play*" bundles, recently launched by RCS & RDS. According to the market survey conducted on consumers between April and May 2007, 34% of the fixed telephony subscribers benefit from at least one type of bundle. Due to the relatively low penetration rate of the bundle offers, to consumer perception and to the availability of individually provided electronic communications services, the diagnosis showed that bundles would not constitute a distinct homogeneous segment within the analysis timeframe. So far, there are four bundle options, none of which holds a significant market share. Once with the launch of *"quadruple-play"* offers, there will be 11 different bundle combinations in the market; therefore no bundle type is expected to acquire a significant share.

The service bundles offered to business customers also register an upward trend, resulting in „*double-play*" and „*triple-play*" offers. The mobile telephone companies, especially the major operators, are now in the best position for aggressively promoting their bundles, mostly due to the advantages they have over the fixed operators, given their possibility to charge low tariffs for on-net calls.

Given the current take up of bundles and lack of dominance of a certain type, revisiting the segmentation already carried out does not appear justified. However, the development of bundle offers should be monitored in the future, and, should dominant options emerge, the opportunity of adjusting the current segmentation should be investigated.

Other types of intertwining conditions

The diagnosis-analysis revealed the existence other types of intertwining conditions, as follows:

- Broadband Internet access services and data transmissions at fixed and mobile locations – Substitutability of the two categories of services is due to the low penetration rate of the broadband services provided by the fixed telephony operators. *No implications are foreseen on the analysis of competition at the fixed or at the mobile telephony level over the timeframe of the strategy.*

- IPTV and broadband services – The proliferation of broadband services and the development of NGN, in particular by Romtelecom, will be followed by the development of IPTV. The increase of bandwidth will result in users' migration from cable or satellite TV to IPTV. *No significant IPTV share or major impact of this technology on the subscription-based broadcasting transmission segments are foreseen before 2010.*

- Broadband connections and voice services – The growth of the penetration rate of broadband Internet access will boost voice over IP (unmanaged quality VoIP). *This is not foreseen to have a significant impact on the market sooner than 2010, the segment of international calls being the most affected by this development.*

- *Mobile TV* services are currently provided by Vodafone and Orange, with moderate success, due to the low number of 3G terminals. *No significant impact is foreseen on the subscription-based broadcasting transmission segments.*

3.5. Inter-sectorial influences

The sector diagnosis also considered the correlations and inter-sectorial influences with significant impact on the evolution of the markets for electronic communications services, such as the correlation between markets for electronic communications services and the markets for communications equipments, the IT systems markets (*hardware* and *software*), the digital content markets etc. The macroeconomic correlations between the evolution of the electronic communications sector and the development of the business environment at the level of national economy as a whole have been analysed, too.

- Macro-economy

Economic growth has a strong impact on the growth of the electronic communications sector. The introduction of the Euro currency will also influence the price levels and the purchasing power, but no sooner than 2010.

Implications for analysis: No influence on the diagnostic-analysis is foreseen within the relevant timeframe.

- The manufacturing industry of terminals and equipments for mobile networks

The development of the mobile telephony sector directly depends on the manufacturing industry of handsets and equipments for mobile networks, which sets the costs of network upgrading and of new market entry. As prominent operators in the global market, Orange and Vodafone enjoy significant bargaining power in concluding agreements with the players in the manufacturing industry, higher than that of Cosmote and Telemobil, who will also have to face the challenges of maintaining a network based on a technology which will be gradually fading away (GPRS) and, respectively, the relatively limited offer of CDMA handsets.

Implications for analysis: Consolidation of the positions of Orange and Vodafone.

- The manufacturing industry of TV receivers and equipments for cable networks

The prices of TV sets able to receive digital signals in Romania will have an impact on the analogue switch-off process. Furthermore, the industry manufacturing equipments for (analogue and digital) cable networks will influence the network development and the digitalisation level in the market.

Implications for analysis: These issues may influence the business plans and the investment levels of the market players.

- Content

As Internet access, data transmission services and content applications increase their share in the operators' revenues, the content providers, including websites, portals and audio-

visual programme services (especially *„premium"* content) will have a significant impact on the market dynamics. In turn, the development of local content will boost the growth of broadband penetration.

Implications for analysis: No significant influence is foreseen on the diagnosis-analysis within the relevant timeframe.

- PC penetration rate

There is a close interdependence between the PC penetration rate and the penetration rate of broadband Internet access services. Price reductions and the increasing availability of PCs may increase the broadband penetration rate, whereas the ever higher number of laptops may stimulate the development of broadband services through WiFi connections in urban centres.

Implications for analysis: Macro-economic growth is capable of influencing the PC penetration rate and to determine the increase of the broadband penetration rate.

4. IDENTIFICATION OF THE STRATEGIC OPTIONS FOR ACHIEVING THE FUNDAMENTAL REGULATORY OBJECTIVES

The diagnosis of the Romanian electronic communications sector and regulatory framework, in parallel with the coherent interpretation of the fundamental regulatory objectives, led to the elaboration of a unitary operational system of strategic objectives, as well as of a set of regulatory principles, policies and instruments based on the definition, update and use of a comprehensive information system. The information system should allow the Authority to monitor the evolution of segments, get the necessary warning signals when such is the case and extract the necessary information for grounding the regulatory decisions.

4.1. Fundamental regulatory objectives

The 2006 consultation document on the regulatory strategy provided that "*the objectives and actions of the Authority are subsumed to the end goal of the regulatory policies, namely protect end-users' interests as regards electronic communications services availability, variety, quality and price".*

Art.45 of the Government Emergency Ordinance no.79/2002 outlines three objectives for ANRCTI: promote competition, contribute to the development of the European Community's internal market and promote the interests of the end-users of the European Union.

The Ordinance establishes several directions that the Authority shall pursue in order to achieve each of the abovementioned objectives. Thus, in order to promote competition in the electronic communications sector, ANRCTI acts particularly in the following directions:
a) take all the necessary measures so that users, including those with disabilities or with special social needs, obtain maximum benefits under the condition of a competitive market, as regards offer diversity, tariffs and quality of services;
b) prevent actions which have as an object or may have as effect the distortion or restriction of competition;
c) encourage efficient investments in infrastructure and promote innovation;
d) encourage the efficient use and ensure the effective management of numbering resources.

ANRCTI contributes to the development of the internal market for electronic communications of the European Community, acting in principal in the following directions:
a) remove the barriers to the provision at a European level of the electronic communications networks and services and of the associated infrastructure;
b) encourage the establishment and development of trans-European networks, the interoperability of pan-European services and end-to-end connectivity;
c) observe the non-discrimination principle as regards the treatment applied to the providers of electronic communications networks and services found in similar situations;
d) cooperate in a transparent manner with the national regulatory authorities with similar attributions from abroad, as well as with the European Commission, with a view to develop a consistent regulatory practice and consistently enforce the national legislation harmonised with the norms adopted at the European Union level.

ANRCTI promotes the interests of the end-users of the European Union in particular by the following lines of action:
a) ensuring the conditions for the exercise of the right of access to the universal service, as provided by Law no.304/2003 on the universal service and users' rights relating to the electronic communications networks and services, with the subsequent amendments and completions;
b) ensuring a high level of protection of the end-users in their dealings with the providers;
c) involvement in ensuring a high level of protection of individuals' rights, in particular of their privacy, as regards the processing of personal data;
d) promoting the provision of clear information, especially as regards the transparency of tariffs and the conditions of use of the publicly available electronic communications services;
e) promoting the specific interests of users with disabilities and special social needs;
f) ensuring the protection of integrity and security of the public electronic communications networks.

On the basis of legal objectives reproduced above, three are the fundamental regulatory objectives that should underpin the Authority's intervention in the sector:

- **Promote competition;**
- **Encouraging efficient investment in infrastructure and promote innovation;**
- **Promote end-users interests.**

4.2. ANRCTI strategic objectives for the next 3 years

In order to define the strategic objectives, both theoretical models of economic thinking on the effective regulation of the electronic communications sector and the practices of regulatory authorities representative on the international stage were used as reference. At the same time, the achievement of wider, trans-sectorial objectives, such as the objectives of the i2010 initiative – *"A European Information Society for growth and employment*[12] and the provisions under the Lisbon strategy on the development of the Information Society.

The essential criteria used for devising the strategic objectives were, on the one hand, the current structure of the Romanian electronic communications sector, and on the other hand, its foreseen evolutions, materialized in the characteristics of the target market for 2010. The application of these criteria aimed to ensure the relevance of the strategic objectives proposed for the anticipated evolution of the electronic communications sector and its transition towards the target market.

The diagnosis-analysis of the Romanian electronic communications sector indicated the existence of a number of deficiencies that widen the gap between the realitz of the present and the ideal conditions under which this sector should operate. The following deficiencies were identified as having the greatest impact on the sector as a whole:

[12] Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, COM(2005) 229 final.

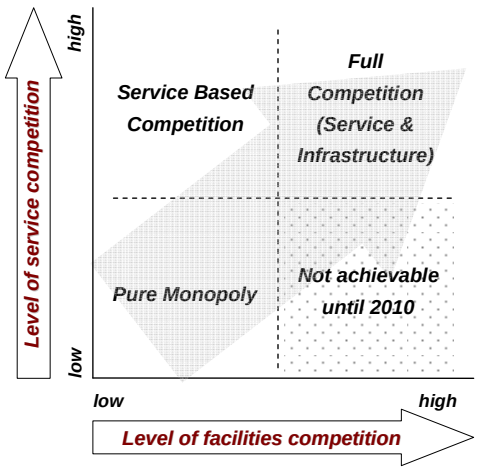
- Level of competition: In spite of the significant positive evolutions from the liberalisation of the sector, competition, especially on the telephony segments, is far from the optimum levels, and self-regulation is almost non-existent.
- Level of innovation: Under the conditions of an overall accelerated dynamics of the sector, the limited availability and use of advanced services suggest that innovation has unsatisfactory penetration levels. Therefore, Romania lags behind the majority of Member States in terms of development of the broadband Internet, mobile telephony and digital broadcasting transmissions.
- Consumer awareness: The studies undertaken among end-users show that, in general, their level of awareness is low. Thus, the users give incorrect answers to the simplest questions regarding tariff levels and have an erroneous perception of how expensive or inexpensive certain services are in comparison to others, which shows their impossibility to make rational choices between the providers and the offers available on the market.

4.2.1. Infrastructure vs. services-based competition

There are two fundamental competition models in the electronic communications sector: services-based competition (competitors use another operator's network) and infrastructure-based competition (each competitor uses his own network). On a given market, there may be various combinations between the two models.

The principle of minimum regulatory intervention suggests the fact that the type of competition needing the slightest regulatory intervention has the greatest chances to deliver results closest to the "perfect competition", so that infrastructure-based competition is preferable to services-based competition (*Exhibit 26*).

Exhibit 26 Competition Matrix



Moreover, the international experience reveals the existence of stronger correlations between innovation and competition in the jurisdictions where there are independent platforms for services provision, as compared to the jurisdictions where competition is more significant at the services level.

Analyses undertaken in the Romanian electronic communications sector show that, on certain segments, the competitive environment has considerably improved since liberalisation. However, several indicators of competition level, such as market shares, concentration degree and a series of quantitative and qualitative analyses indicate the existence of significant gaps between the actual and the optimum level.

It is worth remarking that, in spite of the introduction of a regulatory framework at the level of European best practices meant to stimulate the development of both types of competition, the

results achieved have been radically different. Hence, infrastructure-based competition registered the most notable progress in this sector:

- There are two access platforms at fixed location competing against each other, which enable the provision of multiple services: Operators offering audiovisual programme services, telephony and Internet access via cable networks are in a permanent consolidation, becoming the main alternative to the incumbent's (i.e. Romtelecom) network which, within the process of expanding its service portfolio, introduces DSL and extends the fibre optic network up to the level of street cabinets;
- There are four (soon to be five) mobile telephony platforms, of which four hold 3G licences, three of them being partially upgraded for 3G coverage;
- There are three main platforms for the provision of audiovisual programme services, terrestrial, cable and satellite;
- WiMAX technology, at an early stage of implementation on the Romanian market, holds the potential to become an additional platform for the provision of electronic communications services on a large scale.

In contrast, services-based competition has not been very successful in Romania. Carrier selection and pre-selection, as well as the access to the local loop reached insignificant levels. There are opinions according to which these services shall become less and less attractive in the future.

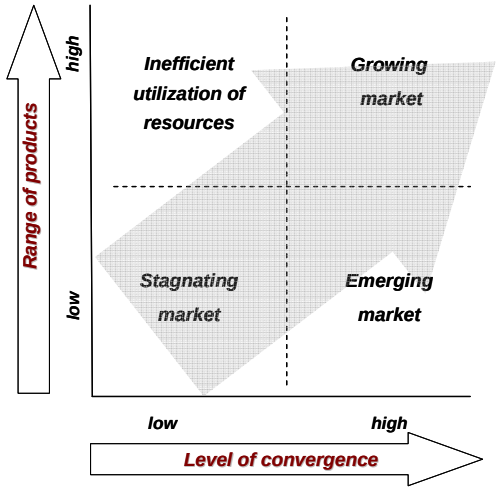
Notwithstanding these facts and opinions, the availability of access solutions for the alternative operators should be ensured (maintained or created, as the case may be) in those cases where the development of an infrastructure able to deliver the same services as the dominant operator's infrastructure is not feasible, limiting end-users' choice. The design of access solutions must be chosen so that, on the one hand, the development of service-based competition is maximised, and, on the other hand, the new entrants' incentives to invest in the development of alternative infrastructures are not reduced, whilst ensuring that the dominant operator has enough incentives to invest in the maintenance and upgrade of its own network. The international experiences have proven the fact that the introduction on the market of the alternative offers based on access to the network of the former monopolist, even in those cases where penetration of cable was relatively high, had a significant positive impact on the level of competition and led to the increase of broadband penetration.

For all these reasons, ANRCTI proposes that the first strategic objective for the next three years should be to ***"create conditions for sustainable infrastructure-based competition, while facilitating, when efficient, services-based competition"***.

4.2.2. **Access to broadband Internet**

In general, the growing markets present high levels of investment. However, the investment levels, taken in isolation, are not sufficient for promoting the fundamental regulatory objectives. The efficient investments which should be promoted by the regulatory activity are characterized by the optimization of the range of services provided with the use of minimum resources (*Exhibit 27*).

Exhibit 27 Innovation Matrix



Consequently, the provision of a large number of services via a single platform (for instance, broadcasting transmissions, broadband Internet and voice – VoB), by using the IP technology, represents the expression of efficient investments.

In addition, since they integrate multiple services, the multi-product platforms enhance the value of the services provided, to the consumer's benefit. From this perspective, a market with an optimum level of innovation presents high levels of efficient investments.

Specifically, in Romania, the broadband Internet segment is in an early stage of development, with booming growth rates over the last months. Even so, Romania lags behind the EU average as regards the penetration of broadband Internet, even though the minimum speed taken into account for broadband statistics in Romania is 128 kbps. Furthermore, the copper and the coaxial cable networks are mainly used for the provision of a single range of services[13], indicating sub-optimal levels of use of the resources.

Given these considerations, ANRCTI proposes that the second strategic objective for the next three years should be to ***"promote the development of broadband Internet access services, in particular via multi-product platforms such as IP, and strive to reach the largest possible customer basis"***.

4.2.3. **Best value for money**

The promotion of end-users' interests, as a fundamental regulatory objective, requires a multi-sided approach. For example, it would be inappropriate to assume that any action taken in order to reduce retail tariffs would maximize consumer interests, because the level of innovation and the quality of services may be jeopardised as a consequence of such an action.

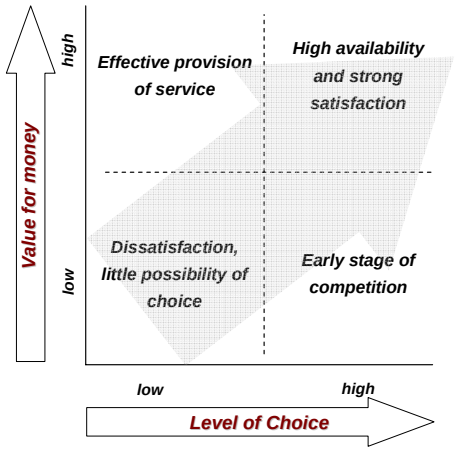
Since the direct measurement of consumer interests is a difficult – if not impossible – endeavour, indirect measurement units may be used. Thus, the utilization value may be

[13] E.g. in most cases, the platform enabling the provision of fixed telephony is different from the platform enabling the transmission of audiovisual programmes, the most spread natural service bundle.

considered a reasonably fair estimate of consumer interest. In context, the economic theories define the utilization value of products or services in relation to a mix of variables, such as the level of innovation, quality, variety and price of these products or services.

Besides the regulation of retail prices, the need for which is decreasing with the improvement of competition in the market, the impact of the regulatory interventions associated with the fulfilment of the objective of *"promoting end-users' interests"* must be reflected in enlarging of consumers' possibilities to choose, measured in terms of availability of services via multiple players.

Exhibit 28 Consumer Interests Matrix



In *Exhibit 28*, *value for money* is a qualitative indicator for assessing the extent to which the consumer obtains sufficient benefits from the products and services available, at a certain price level. The *possibility of choice* indicates the level of alternatives available for a given service.

On grounds of these considerations, ANRCTI proposes that the third strategic objective for the next three years should be to ***"ensure that different profiles of users (residential and business, urban and rural), get the «best value for money» for electronic communications services"***.

4.2.4. Transparency, simplicity and availability of information

In time, the tariff packages and schemes offered to end-users have become more and more complex: multiple tariff plans, tariffs for different on-net / off-net calls, calls to mobile / fixed networks, during peak / off-peak hours, depending on destination, towards favourite numbers, and much more.

For example, a fixed telephony operator offers voice calls in Romania at 8 different prices, depending on distance, destination and time of the day. Another example: a mobile telephony operator offers voice services for prepaid cards in 7 tariff plans, each of these plans containing between 4 and 6 tariffs for national calls. In terms of subscriptions, the same operator provides national voice services in 26 tariff plans, and combinations of one to four of the 12 extra-options available may be associated to most of these plans. Moreover, some of the extra-options are offered at different prices depending on the value of the subscription, others are linked in different combinations, whereas within each of the 26 tariff plans, there are at least 2 different tariffs for national calls.

Such a complexity practically prevents the end-user from controlling the level of expenditure with communications services and makes it more and more difficult for him to adopt rational decisions regarding the choice of the provider or even his consumption behaviour.

ANRCTI considers that improving users' awareness and diminishing the complexity of tariffs at the retail level will empower consumers, enabling them to better protect their interests. As well, the increased transparency as regards the comparative levels of tariffs, depending on the type of offer or on the traffic profile, will encourage rational consumption behaviour.

In the light of these considerations, ANRCTI proposes that the fourth strategic objective for the next three years should be to ***"create an environment where information on service availability, supply conditions and pricing is transparent, non-complex and available to all citizens"***.

4.2.5. **Non-interference with service bundles**

It is widely recognised that the contribution of service bundles to the evolution of the electronic communications sector has its advantages and disadvantages.

On the one hand, bundled services enhance consumers' possibilities to choose, and, from operators' viewpoint, reflect a more efficient use of resources. The Romanian experience has proven that bundled services enable new-entrants to launch more attractive offers, enabling them to seriously challenge the position of dominant operators. Moreover, bundles allowed the existing operators to identify alternative sources and horizontally integrate new services, in order to develop their business, compensate the erosion of the market share or even as a response to the challenges raised by competitors.

On the other hand, the large scale use of bundled services presents a series of disadvantages for the competitive environment. First of all, with bundles becoming a general practice, the barriers to market entry increase, by virtue of the fact that the investments necessary for the provision on a large scale of bundled services augment considerably the value of the initial investment. Secondly, the operators may be tempted to discourage the consumption of individual services, by artificially increasing the price for the service individually consumed, up to the point where it loses its attractiveness compared to its utilization value. Furthermore, bundled services increase the switching costs discouraging user migration from one provider to another, thus having a negative impact on competition.

The weighting of advantages and disadvantages of bundled services revealed that, in the context of the Romanian market, the benefits of this phenomenon overcome the shortcomings, due to the strong incentivising effect on consumption, which is essential in this stage of sector's development. At the same time, the Authority will monitor the impact of bundles on competition, intervening where necessary.

Considering all the arguments, ANRCTI proposes that the fifth strategic objective for the next three years should be ***"not to interfere in the emergence of bundled services, as long as they do not adversely impact competition"***.

4.3. Identification of the options for (re)defining the regulatory principles, policies and instruments

In view of the achievement of the strategic objectives, the options for defining or, as the case may be, redefining the regulatory principles, policies and instruments were identified in order to facilitate the transition towards the target-market. These options consider the European and international best practices, as well as Romanian market's distinctive features, as identified during the diagnosis-analysis.

4.3.1. Regulatory principles

The Authority devised and published[14], at the beginning of its regulatory activity, its own "code of conduct", consisting of a set of guiding principles with practical applicability meant to ensure that the regulatory framework is implemented in Romania in an effective way. Some of these principles are provided by the law, others are recommended by the regulatory experience and international best practices. The regulatory principles announced in 2003 keep their relevance and pertinence within the time horizon covered by this position paper, their content being enriched and updated.

(1) TRANSPARENCY

ANRCTI acts transparently, both in its relation with the providers present on the market and with the users, ensuring comprehensive information of the interested parties, by means of certain instruments specific to communication – **public consultation, website, public relations** activities, **press releases** etc.

The regulatory actions and instruments must be transparent, enabling providers to make their business decisions on the basis of comprehensive and verifiable information. In this regard, whenever ANRCTI intends to adopt a measure with significant impact on the market, it must subject the draft measure to a public consultation procedure. Any interested person can submit comments and proposals during the public consultation and ANRCTI is bound to answer both in writing, by presenting a summary of the feedback received along with its position, and during the debates in the Consultative Council.

(2) PROPORTIONALITY

ANRCTI's intervention on the electronic communications markets must be, in the same time, **flexible and proportionate**, adapted to the objectives pursued, so that a **minimum amount of regulation is imposed in order to ensure the functioning of market mechanisms**.

In this regard, **ANRCTI shall strive to adopt the least intrusive regulatory instruments that would remedy the identified deficiencies, in accordance with the announced regulatory objectives, policies and principles, in such a manner as to promote the level of competition that would maximize the social welfare.**

[14] Authority's Activity Report for 2003.

(3) OPPORTUNITY

The regulatory decisions shall be taken in accordance with the principle of **opportunity**. This requires that the measures are adapted to the actual conditions in the marketplace, are enforced or, as the case may be, withdrawn in a step-by-step manner and at the right time, taking into account the level of development and the dynamics of the market.

ANRCTI decisions have to be adopted by taking into consideration the fact that any delay or inconsistency may entail consequences on the market players' business plans.

(4) MANDATORY DECISIONS

The decisions issued by ANRCTI are **mandatory** for the providers concerned. The situations of non-compliance must be promptly and resolutely identified and disciplined, to ensure that the regulatory measures are effectively applied in practice and fulfill their purpose, thus contributing to the achievement of the regulatory objectives.

(5) TECHNOLOGICAL NEUTRALITY (NON-DISCRIMINATION BETWEEN TECHNOLOGIES)

Acting in accordance with the technological neutrality principle means that the regulatory decisions must be **neutral as regards the technologies used or foreseen**, in order not to affect competition between providers, stimulate innovation and foster development of the most effective technologies, to the benefit of users.

Since 2002, the European regulatory framework for the telecom sector abandoned the old approach focusing on specific types of services, platforms and technologies, in favour of an approach which requires that the regulatory measures are grounded on economic considerations – with the application of competition rules – or, as the case may be, social considerations, as far as protection of end-users and universal service mechanisms are concerned.

(6) PREDICTABILITY AND STABILITY

The regulatory framework must be transparent, **stable** in the long run and with **predictable dynamics**, so that market players have the chance to make informed decisions in respect of their business plans, investments and commercial strategies. Thus, the decisions adopted by ANRCTI must be publicly announced with sufficient time in advance and explained in accordance with the regulatory objectives, policies and principles, not only via the annual activity plan and the explanatory notes that accompany the draft measures subject to public consultation, but also via multi-annual instruments such as this position paper on the regulatory strategy for 2007-2010, which should offer a clear, comprehensive and coherent view on the goal and medium- and long-term objectives that underpin the evolution of the regulatory framework.

(7) EFFICIENT USE OF RESOURCES

The way in which the ANRCTI resources are used must be established following a cost-benefit analysis, as ANRCTI is financed by the electronic communications providers and, implicitly, by end-users, who have to obtain maximum benefits from the regulatory activity. This principle must be taken into account when establishing the opportunity, priority, complexity and length of the regulatory activities.

Besides the seven principles listed above, the desideratum of achieving the strategic regulatory objectives identified in Chapter 4, section 4.2., in order to facilitate the transition towards the target market, in the context of an improving competitive environment, needs the development of a new regulatory principle :

(8) NECESSITY PRINCIPLE

ANRCTI shall intervene exclusively in the areas under its competence, with a view to achieve a regulatory objective that has an economic or social justification, and which cannot be achieved by the market forces alone.

The economic justification of regulation is given by the promotion of a public interest (expressed either in the increase of the social welfare, as a sum of consumers' and providers' welfare, or in the promotion of innovation and development) or the promotion of economic efficiency (productive or allocative efficiency from a dynamic perspective).

As regards the social reasons which justify the regulatory intervention, these reside in the need to ensure the fair treatment of consumers in their dealings with the incumbents, balanced distribution of power and, not least, the impact of the revenue transfer from consumers to investors on the balance of social welfare.

ANRCTI deems that the application of the extended set of eight regulatory principles is essential in achieving the strategic regulatory objectives.

4.3.2. Regulatory policies

The regulatory policies are conceptual models that guide ANRCTI decisions and activities, with the purpose to make operational the strategic regulatory objectives.

The regulatory policies are intermingled, as regards both the strategic regulatory objectives they aim to achieve and the regulatory instruments they involve.

4.3.2.1. Interconnection policy

Since the liberalisation of the electronic communications market, the regulatory authority considered that the desideratum of infrastructure-based competition turns interconnection into *"the key to competition"* and made strong efforts to ensure a coherent, transparent and well-grounded interconnection regime for all interconnection services.

At present, the provision of interconnection services to other operators for call *origination* is limited, since no operator offers such services voluntarily, and the obligation to provide interconnection services for call origination was imposed on Romtelecom due to its position on the retail market. Furthermore, dominance in the *national transit* segment recommends the regulation of interconnection services for call transit, including under the pricing aspect.

A special attention must be paid to the interconnection services for the purpose of call *termination*. The regulatory practice revealed that the interconnection services for the purpose of call termination are, by definition, provided on monopoly markets, which, under the tariff system *"calling party pays"*, do not have the potential to become competitive. A series of elements characterize the regulatory policies of these services.

First of all, the enforcement of the principles of non-discrimination, opportunity and proportionality requires the use of symmetrical instruments in order to regulate call termination, at the level of all homogenous segments identified (fixed networks and, respectively, mobile networks). Therefore, similar competitive problems will be addressed via similar instruments, irrespective of the segments where they occur.

Second, given the importance of interconnection for ensuring end-to-end connectivity and the natural monopoly character of termination, it is necessary that all operators of electronic communications networks controlling access to end-users provide termination services to the other operators, on grounds of the commercial negotiations or based on the Authority's intervention.

Third, the natural monopoly character of termination services raise the issue of their tariffs, as regards both their level and the differences existing between the negotiated levels from one operator to another.

The obligation to provide the service, as a standalone regulatory instrument, risks being exploited by all operators to charge excessive tariffs for call termination on their own network. Also, the interconnection practice in Romania seems to suggest the positive or negative discrimination, on preferential criteria, of certain operators, in parallel with the tendency of the major clients of termination services – the large operators – to abuse of their own negotiation power, forcing the reduction of the acquisition price for such services.

Consequently, there are objective arguments for the regulation of a maximum level of tariffs charged when providing termination services, for all the operators obliged to provide termination services.

Fourth, in order to prevent the tendency to discriminate that would exist between the operators found in competition, non-discrimination in the provision of services is recommended as an obligation applicable to all. Moreover, the economics of interconnection suggest that the tendency to maximize the network effect, by the positive discrimination of the termination services offered internally, to the operator's own retail activities, to the detriment of the termination services offered externally, to the interconnected providers, is becoming greater as the operator controls access to a larger number of clients.

Fifth, if the asymmetry of termination tariffs is deemed necessary for the promotion of infrastructure-based competition, since it stimulates market entry and protects smaller operators, the prevailing opinion at an European level is that, on the one hand, the level of asymmetry must be controlled and established on non-discriminatory grounds, and, on the other hand, any asymmetry of termination tariffs provided at the level of a homogeneous segment represents a temporary solution, which must be eventually phased out.

Therefore, new-entrants' right to recover their costs must be reconciled with the objective of maximizing efficiency in the provision of services at regulated tariffs, so that asymmetric tariffs must not be valid for too long. The time horizon to reach symmetry must be calibrated with a series of objective criteria: time horizon for achieving the efficient cost level (tariff regulation at symmetric levels, which however exceed the efficient costs, significantly reduce the benefits of symmetry, possibly generating losses of social welfare); dynamicity, maturity and churn of the corresponding retail segment; difference between the initial tariff and the symmetric tariff at the level of the homogenous segments; timeframe since market liberalisation.

As regards the establishment the reference symmetric level of the termination tariff within a homogenous segment, one may notice that the benefits associated to symmetry depend on the measure in which the reference level is cost-oriented. Also, under the circumstances that the inclusion of inefficiencies in the regulated rates cannot be accepted, the economic theories recommend that the reference symmetric level is based on the costs of a hypothetic efficient operator, which should take normative form within the segment. Under such terms, since it would not depend anymore on the operators' actual costs or on their market shares, the efficient termination tariff will provide the right economic signals and will stimulate the productive efficiency from a dynamic perspective. Under symmetry conditions, the increases of productive efficiency will put a pressure on the retail pricing and will contribute to the increase of consumers' welfare.

4.3.2.2. **Access policy**

The promotion of strategic objectives regarding the promotion of infrastructure-based competition, the access to broadband Internet and the "best value for money" recommend an integrated and coherent access policy, whose defining elements must be calibrated with the interconnection policy, as regards the conceptual boundaries between the *access network* and the *transport network*, as well as of the regulatory approach with respect to the tariffs for the wholesale services necessary for the provision of services on the retail markets.

First of all, it must be stressed that the entry barriers in the electronic communications sector are becoming higher and higher, as the communications network become more sophisticated (NGN, 3G, etc.) and as the characteristics of the services provided to consumers require more bandwidth. In addition, the proliferation of "marketing bundles", whose provision may involve the use of different platforms, augment even more the entry barriers.

Secondly, it can be considered that the end-user access link actually ceases to represent *"the last mile"* of an electronic communications network. The technological, competitive and consumption habits turn the access link into *" the first mile"* in terms of its importance.

Thus, the increase of the bandwidth available for consumers triggers a reconfiguration of the access networks, by the installation of FttCab ("street cabinets") / FttB / FttH in the fixed networks or "*femtocells"* in the mobile networks. Consequently, investigating the effect of the evolutions of the electronic communications networks architecture over the access networks definition, as well as over the methods to recover the costs of access networks, appears as an objectively justified necessity.

Thirdly, under ideal competition conditions on the retail market, the vertically integrated operators with a dominant position at the wholesale level should voluntarily provide access to their own electronic communications networks, on commercial basis, in order to maximize the productive efficiency associated to the use of more and more expensive networks. This would allow them to extract the profits from the retail market through the access tariffs paid by their downstream competitors which would mean, in theory, that they would not have an incentive to leverage their upstream dominance to foreclose competition in the retail market. The experience has shown that this never happens in practice, the vertically integrated operators tending to abuse their dominant position at the wholesale level to foreclose competition in the retail market through anti-competitive practices including refusal to supply, excessive or discriminatory supply terms and tariffs, predatory pricing/*margin squeeze*, tying, quality degrading. Under these circumstances, promoting dynamic allocative efficiency from the perspective of achieving the regulatory objectives recommends that access to non-replicable infrastructures of the dominant operators is regulated on a non-discriminatory and transparent basis and at tariffs set so as to provide the right economic signals (*„build-or-buy"*) to the new entrants. At the same time, care should be taken to ensure that the dominant operator has sufficient incentives to invest in maintaining and upgrading its network where replication is unlikely.

Thus, in accordance with the objective of promoting infrastructure-based competition, in parallel with facilitating where effective the services-based competition, and with the "best value for money" objective, maintaining or, as the case may be, imposing regulated access solutions to the benefit of alternative operators, in those cases where replication of this infrastructure (development of an infrastructure capable of delivering the same services, irrespective of the technology) is not feasible. These access solutions must include making available the relevant wholesale inputs under regulated terms, as well as the establishment of an appropriate level of the access tariffs. The access solutions should be devised and implemented such as, on the one hand, to maximise the development of infrastructure/based competition, preventing the anti/competitive practices of the dominant operator, and, on the other hand, to ensure an efficient level of the incentives to invest of the new-entrant and of the dominant operator.

In this sense, the access policy must respond to the risks associated to the potential anti-competitive practices of the dominant operator, by mandating access under transparent and non-discriminatory conditions and at a regulated tariff. In addition, it is recommended to dynamically adjust the regulatory intervention to deal with anti-competitive practices that were not envisaged at the outset.

A special attention must be paid to the setting of access tariffs, which must provide the right signals to the new entrants in order to allow them to correctly ground their investment decisions. On the one hand, this must take into account the fact that access tariffs which are too high might inhibit investment, given the level of risk associated to the investment with a large share of "sunk" costs, being more probable that new entrants will prefer to invest in a step-by-step manner, as their customer basis grow and their brand consolidate, up to the level where they would develop their own access infrastructure, enabling competition to be self sustainable[15]. On the other hand, a level of the access tariff which is too low might trigger inefficient market entry phenomena, which are based on business models that are not viable in the long run and which, in addition, would curb the incentives to invest of the dominant operator to inefficiently low levels.

At the same time, the success of the access policy depends to a large extent on the availability of a range of access products and conditions that should allow the choice of a product or mix of products that would enable the new entrant to build that business plan which would make commercial sense and which tend to maximise the extent of the economically efficient competing infrastructure. From this point of view, the access policy must promote competition at the deepest level in the network where this could be effective and sustainable. At the same time, it is necessary to ensure consistence between different access obligations, so that new entrants' investment decisions are triggered by economic efficiency reasons, not regulatory arbitrage opportunities.

Fourthly, in the context of evaluating the impact of promoting access solutions over the investment and innovation incentives of the dominant operator, one must remark that, although the analysis of the Romanian market seems to indicate that the investments made in the development of next generation networks are stimulated by the competition based on infrastructures which may be used for the provision of a wide range of services, with advanced features as compared to the existing ones, the current stage of implementation of such networks does not offer enough information as to the novelty or superiority of the features of services to be provided via such networks or as to the extent to which the development of these services would contribute to satisfying users' interest within the timeline of the strategic analysis.

Fifthly, since the business models based on the unbundled access to the local loop had a poor development in practice, and the evolution towards next generation access networks reduces the economic viability of such a solution even more, it is opportune to analyse the possibilities to frame a regulatory regime enabling the introduction of *bitstream* access solutions, in parallel with exploring the possibilities to adapt the local loop access solutions to the new technological reality.

Sixthly, the regulatory policy must consider co-location as an essential facility for the access to the electronic communications infrastructures, irrespective of the platform used and of the type of network (fixed, mobile or for terrestrial audiovisual transmissions), with an essential role in reducing the market entry barriers. Therefore, the co-location regime must be

[15] This concept is known in the theory of regulation as the "ladder of investment".

established in a clear and detailed manner, and the conditions under which the beneficiaries have access to such services must be non-discriminatory and transparent.

Seventhly, the difficulties associated to building a mobile telephony network, since the commercial success depends on the existence of a large coverage area, make it hard and could even postpone the entry of the fifth mobile operator. This suggests the necessity of investigating the opportunity and the possibility to introduce national roaming services in the mobile networks.

4.3.2.3. **Policy on bundles**

A regulatory environment allowing the development of bundles is favourable to the stimulation of innovation and of the effective investments in infrastructures, contributing to the achievement of the objective of promoting infrastructure-based competition.

Bundles lead to a more effective use of resources, but they cannot represent a justification neither for refraining from the individual provision of services nor for selling the individual services at pricing which would make them unattractive. Non-interference with the ability of the dominant providers to promote bundles must be cumulatively accompanied by the obligation to individually provide the services for which dominance has been identified and by the restriction of *unfair bundling*.

The dominant provider is deemed to offer an "*unfair bundle"* when competitors are in the impossibility to replicate the bundle at the price of the dominant provider, either because of the predatory pricing of the bundle or because of the fact that services included in the bundle may not be bought separately at prices whose sum would give the price of the bundle, less the costs saved through the provision of services as a bundle.

Bundling of several services and their commercialization at a price per bundle significantly inferior to the sum of individual services' prices represent a classical example of practice by which the attractiveness of individual services' consumption is artificially diminished therefore distorting consumer behaviour.

4.3.2.4. **Policy on the management of limited resources – spectrum and numbers**

The radio frequency spectrum and the numbers are limited resources, under public property, and their management is carried out based on the principles of objectivity, transparency, non-discrimination and proportionality. The most important aspects that must be taken into account by the specific management policies for each of these two categories of resources are presented below.

Management of the radio frequency spectrum

The ANRCTI attributions related to the management of the radio frequency spectrum contributes to the fulfilment of the objectives of promoting infrastructure-based competition and ensuring that consumers get the “best value for money”. These attributions are exerted in accordance with the National Frequency Bands Table, adopted by the Ministry of Communications and Information Technology, as well as with the international agreements to which Romania is a party.

As a rule, on the basis of the current legal framework, the use of radio frequencies is allowed only upon the award of a licence, under conditions meant to ensure their efficient exploitation and to avoid the harmful interferences. The use of certain frequencies based on general authorisation is possible only as an exception. The conditions of use provided in the licence must be objectively justified in relation with the type pf network or service for which use is permitted, non-discriminatory, proportionate and transparent.

The procedures for granting the licences for the use of radio frequencies must be open, transparent and non-discriminatory, within the deadlines determined by the law, and must not lead to the restriction, prevention or distortion of competition. The principle of maximising the efficient use of spectrum may require that for certain frequencies competitive or comparative procedures are applied.

The efficient use of spectrum might require in some cases that the number of licences to be granted is limited. Such limitation might only be imposed if the need to maximise users’ benefit and facilitate the development of competition is considered, after consultation of all interested parties, industry and consumers. The licences whose number was limited may be awarded only on the basis of objective, transparent, non-discriminatory and proportionate criteria.

At present, the management policy of the radio frequency spectrum is going through a stage of profound transformations at a European level, centred on the need for a more flexible allocation and use of this resource, in the perspective of the opportunity to maximise the benefits of its exploitation for the industry and consumers.

The need for reform is generated by the particulars of the current spectrum management model. At present, the radio frequency spectrum is in its largest part allocated in an inflexible manner to specific technologies and services, and its use is generally based on individual rights granted under strict conditions, which might be transferred to other potential users only with the agreement of the authority who manages spectrum. Some users hold large amounts of spectrum with significant economic value that they do not use to its full capacity, while for new entrants it can be very difficult to acquire suitable spectrum for their business. Because of the conservative character and inflexibility of the current spectrum allocations, access to spectrum for new and innovative services and technologies is limited, being usually available only in higher frequencies, less attractive due to their worse propagation characteristics. The inefficiencies in the allocation and use of spectrum lead to higher costs, reduced investment in new and innovative applications and services, wasted opportunities for operators, equipment manufacturers and consumers.

The institutional integration of the responsibilities related to the management of spectrum use with those related to the promotion of competition and the end-users' interests may be regarded as an acknowledgement of the need for a gradual evolution of the "public interest" concept in this field, in the light of the evolutions at a European level. Thus, the practices of the Member States, the consultations launched and decisions adopted by the European Commission in the last years, based on the opinions of the RSPG (*Radio Spectrum Policy Group*) show that we are assisting at a shift of paradigm. The purely administrative approach, focused on the assignment of the rights of use and avoidance of harmful interference, is fading away, being replaced with a new approach, which sees spectrum as an essential instrument for promoting competition, along with the other regulatory instruments, due to its potential to stimulate investment and innovation and bring more diversified services in the market, to the direct benefit of consumers.

The spectrum policy must exploit the potential for efficiency and innovation brought by the ever-increasing diversity of wireless access platforms to contribute to the achievement of the objectives of promoting infrastructure-based competition and fostering the development of broadband Internet. The fulfilment of these objectives would be encouraged by the introduction of a greater flexibility in the management of spectrum for wireless communications, while safeguarding the necessary degree of harmonisation in keeping with the internal market objective. The significant steps made in this direction confirm the strong political will in support of an increased flexibility in the use of spectrum bands, drawing together the decision-making factors and the industry. The WAPECS approach (*Wireless Access Policy for Electronic Communications Services*) presented by RSPG in its opinion of 23.11.2005, defines the **technology and service neutrality** as policy objectives to achieve a more flexible and efficient use of spectrum. In a medium-term perspective, in accordance with this approach, the review of the regulatory framework creates the occasion to suppress the restrictions to spectrum use, so that any type of radio network, wireless access technology or electronic communications service would be used in any frequency band available for electronic communications services, while ensuring that the necessary mechanisms to avoid harmful interference and safeguard the functioning of services that pursue an objective of general interest are in place. An extremely efficient complementary instrument could be the **liberalisation of the transfer of spectrum's rights of use on the secondary market** (*„secondary trading"*) in certain frequency bands, established at a European level.

The prospects for putting into place the new approach are getting closer and could become a reality in the timeframe envisaged by this document. In its communication on *"Rapid access to spectrum for wireless electronic communications services through more flexibility"*[16], the European Commission insisted on the need to find urgent solutions for introducing more flexibility in the use of spectrum in the bands of 470-862 MHz, 880-915 MHz / 925-960 MHz and 1710-1785 MHz / 1805-1880 MHz (GSM bands), 1900-1980 MHz / 2010-2025 MHz / 2110-2170 MHz, 2500-2690 MHz (2.6 GHz bands), as well as 3.4-3.8 GHz. The Commission envisages with priority the liberalisation of the use of the 900 MHz and 1800 MHz spectrum, in

[16] COM(2007)50.

order to allow the provision of other electronic communications services, including the provision of third generation mobile communications services (UMTS)[17].

This approach has the potential to offer solutions to the problems identified in the Romanian communications market. An example could be the mobile sector, where the deficiencies identified and especially the indications of unsatisfactory competition levels, suggest the need to ensure the conditions for the long-term development of the smaller operators. In this context, it could be noted that the impossibility of a mobile network operator to provide 3G services is affecting its competitive position and development prospects in the long-run, given that – although technically possible –, the regulatory framework in force, in accordance with the current European rules, restricts spectrum use to the provision of 2G (GSM) services. Other relevant examples can be identified on a number of other market segments.

The objectives related to the promotion of infrastructure-based competition and stimulating the development of broadband Internet access command that, in the light of the necessity and opportunity principles, the spectrum management policy delivers solutions to such issues as unsatisfactory competition levels in certain segments, as well as to connectivity problems that are particularly acute in the rural areas of Romania. Such solutions can for example aim to the re-organisation of usage in some frequency bands, in order to free spectrum for the introductions of new networks and services. At the same time, the magnitude of the urban vs. rural gap in respect of the availability of fixed telephony and Internet access services, the size of the rural segment and the social and economic conditions characterizing it, recommend that wireless technologies are used to promote the development of access networks. The relatively small costs and the quick installation recommend the wireless technologies such as WiMAX as an adequate solution as far as the viability and attractiveness for the rural areas are concerned. Consequently, it would be opportune to consider – in the context of the future spectrum licensing procedures allowing for the provision of wireless broadband services, including via WiMAX – giving priority to network and service rollout in the rural areas with limited connectivity.

As regards the broadcasting transmission sector, in the light of the objective of maximising the value that consumers get for their money, as well as in the application of the principles of necessity and opportunity, the spectrum management policy must focus on accelerating the introduction of digital terrestrial television. This would act towards remedying the deficiencies identified at the level of the sector, related in particular to the low level of innovation and competition. To this end, all responsible institutions ought to deploy concerted efforts, within the limits of their legal competences, with a view to speed up the process of granting the radio frequencies for digital terrestrial transmission in an objective, transparent and non-discriminatory manner.

There are multiple benefits associated with the shift to digital transmission and they influence the whole of the electronic communications sector in Romania in the short but particularly in

[17] Council Directive 87/372/EEC on the frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community („GSM Directive") requires Member States to reserve the entire bands of 890-915 MHz and 935-960 MHz for GSM. In this context, the Commission presented in July 2007 a proposal for a Directive of the European Parliament and of the Council to repeal the Council Directive 87/372/EEC (COM(2007) 367 final).

the medium to long run. Thus, the analogue switch-off and digital switch-over will lead not only to a more efficient use of spectrum for new or enhanced broadcasting services (through increasing the number of channels and improving the quality of reception, at the same time with reducing the transmission costs), but will also lead to making available valuable spectrum (the so called "*digital dividend*") for wireless LAN/MAN communications services or even converged innovative services combining mobile telephony with digital TV. From this perspective, the benefits of moving to digital transmissions outweigh the costs and, moreover, the welfare gains thus obtained could have a spillover effect among other sectors.

Management of the numbering resources

The ANRCTI attributions in respect of the management of numbering resources contribute to the promotion of competition, by making available to the providers of publicly available electronic communications services of the numbering resources needed for the provision of services to end-users.

The policy for the management of numbering resources must ensure that the use of these resources is effective, rational and efficient. Thus, ANRCTI must allow the development of new services, but also to ensure that there are sufficient numbering resources for the existing electronic communications services. Also, ANRCTI must ensure a balance between providers' needs for numbering resources and the fact that these resources are limited.

The effective management of the numbering resources requires, in the first place, that the rights of use are granted upon proper justification, taking into consideration the type of service for which the numbering resources are requested, the necessity of obtaining the requested resources, applicant's position on the market and the need to ensure the efficient use of the resources to be allocated.

Secondly, the principle of maximising the efficient use might require that the allocation of some categories of numbers with special economic value, for which there is a significant level of demand, be made through competitive or comparative selection procedures, organised after consultation of all interested parties. It should be noted that, in order to ensure non-discriminatory access of service providers, the opening for allocation of new categories of numbers (in particular short numbers) would be made, at least in the first stage, according to „lottery"-type allocation procedures, which should be transparent and published in advance.

Thirdly, the establishment of fees for the use of numbering resources promote effective allocation and efficient use, at the level of both the allocation of resources to providers (the providers are incentivised to limit their requests to what is strictly necessary) and the assignment of resources to end-users (encourages the increase of the level of usage of the allocated resources). These tariffs must be objectively justified, transparent, non-discriminatory and proportionate with their intended purpose.

Fourthly, monitoring the way in which the numbering resources are used by the providers is an essential requisite for ensuring the effective management and efficient use of these resources. Thus, in order to allocate additional resources, it is necessary to analyse the

manner of use and the level of usage of the numbering resources previously allocated to the applicant.

At the same time, the policy for the management of the numbering resources must ensure the implementation at a national level of the harmonised numbers for services harmonised at a European level, as well as of other numbers for which harmonised procedures for allocation and use are established at a European or international level.

4.3.2.5. **Policy on stimulating fluidity and transparency in the retail markets**

The diagnosis-analysis at the level of retail segments within the electronic communications sector revealed different type of dominance, as well as a number of deficiencies. To remedy those, a series of options for regulatory intervention at the wholesale segments' level were identified.

Nonetheless, it is worth noting that, as the penetration of mobile telephony getting closer to the saturation level and as the fixed telephony segment is stagnating, most of the potential consumers benefit already from electronic communications services and attracting new clients could be primarily done on behalf of competitors' portfolios. Under these circumstances, the low churn at the level of the retail market on a given segment means that the scale of effective competition is low at the level of the segment as a whole i.e. competition appears mainly at the level of consumers who may change the service provider due to the fact that they have contractual engagements that allow them to churn without difficulty.

Moreover, the strategic objective related to promoting the transparency of information on availability, conditions of the offer and service pricing may not be addressed by the "classical" regulatory instruments at the wholesale level.

According to the economic theories, perfect competition is characterized by a series of cumulative features: participants' atomicity, mobility of the production factors, churn[18] and market transparency[19], products homogeneity. Where pure and perfect competition does not correspond to the real functioning of economies and markets, the promotion of this model of competition cannot represent a regulatory desideratum. The application of the minimum intervention principle requires that regulation promotes the level of competition that maximizes the social welfare.

Thus, it can be considered that the extension of the scope of competition between providers by improving the fluidity of the retail segments, as well as the promotion of a rational,

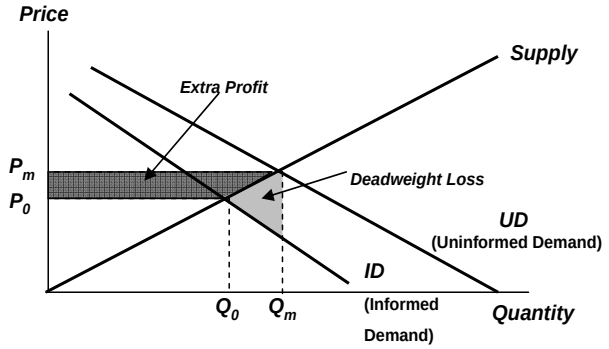
[18] *Churn* defines market *fluidity* i.e. when buyers may freely choose their providers, and producers may freely enter or leave a certain market. In such a case, there are no legal or institutional barriers to the entry of new competitors on the market of a certain product.

[19] *Market transparency* defines the situation where that all the players on a given market, either providers or consumers, are perfectly informed on the structure and functioning of the market and can anticipate the changes which may intervene.

informed consumption behaviour represent regulatory options meant to maximize the social welfare.

First of all, as regards the actions aiming to improve competition on the retail markets by stimulating their fluidity, the dynamics of the segments indicate the necessity to complement the *asymmetric* interventions at the wholesale level, which are aimed primarily at stimulating the offer (introducing carrier selection and pre-selection) by creating the necessary conditions so that the alternative operators are able to compete, with *symmetric* interventions applicable to all active operators on the retail market, at the level of corresponding homogenous segments (number portability).

Exhibit 29. Effects of information asymmetry



Second, the regulatory theory and practice in various sectors indicated that the asymmetry of consumer information as compared to providers, regarding the services offered and their pricing, distort the consumption behaviour by artificially increasing demand on grounds of pricing complexity.

Consumers should be helped to adopt a rational behaviour, according to their needs, both when choosing a service provider and when opting for a given offer. Rising the demand by exploiting the asymmetry of consumer information would not increase social welfare (*Exhibit 29*).

The policy for stimulating fluidity and transparency does not envisage neither the direct intervention on the retail markets nor the limitation of the value-creating imagination specific to the marketing policies, but aim at ensuring that providers' actions in the market are not detrimental to consumers. This policy must take into account the extent to which, on the one hand, the information that consumers need in order to make their consumption choices are available at a reasonable level of transparency and accessibility, and, on the other hand, the end-users may change the service provider without having to deal with excessive obstacles.

The elements of the policy for stimulating fluidity and transparency in the retail market intertwine with the elements of the access policy (as regards the access to networks, carrier selection and pre-selection solutions), with the interconnection policy etc.

4.3.3. Options for redefining the regulatory instruments

The regulatory instruments take various forms. They may be decisions with normative and individual character, of the functional, operational and financial procedures that enable the enforcement of laws and regulations in the sector, of the procedures for monitoring and controlling compliance etc. The regulatory instruments include all the remedies defined and used by ANRCTI in order to achieve the regulatory objectives.

Based on the deficiencies found at the level of homogenous segments in the sector, the diagnosis-analysis proceeded to the identification of the possible options regarding the regulatory instruments.

The identification and formulation of options regarding the regulatory instruments have taken into account the following set of principles:

I. the regulatory instruments proposed have a prospective character and shall be correlated with the strategic regulatory objectives;
II. the regulatory instruments proposed refer mainly to the wholesale segments, so that segments comprising retail services suffer minimal levels of regulatory intervention;
III. the level of intervention is correlated with the magnitude of the deficiency identified at the level of the segment;
IV. the formulation of the regulatory instruments is realised at a minimal level, so that each instrument considers the evolution trends observed and correct the deficiencies;
V. where possible, similar regulatory policies and instruments are adopted in order to treat similar deficiencies appearing within similar segments;
VI. the interdependences between homogenous segments of the sector are also found at the level of regulatory instruments, so an instrument proposed at the level of a segment has a potential impact at the level of other segments or even on the entire sector; such effects must be analyzed;
VII. compliance with the EU and ERG harmonization recommendations on the formulation and implementation of remedies is ensured.

The **options for (re)defining** the regulatory instruments resulted from the diagnosis-analysis are presented below. The regulatory instruments that will be effectively used in practice will be established on the basis of the market analyses undertaken in accordance with the provisions of Chapter V of the Government Emergency Ordinance no.79/2002.

4.3.3.1. **Options for (re)defining the regulatory instruments associated to the interconnection policy**

As regards the interconnection policy, it is necessary to examine the opportunity and possibilit to use the following regulatory instruments:

The interconnection obligation – Options:

- Extend the interconnection obligation for the purpose of call termination to all the operators controlling access to end-users, irrespective of the type of network (fixed or mobile network) or the technology used;
- Maintain on the dominant operators the obligation to provide interconnection services for the purpose of call origination and transit.

The transparency obligation – Option: Extend this obligation to all the operators controlling access to end-users, irrespective of the type of network (fixed or mobile network) or the technology used, three levels of intervention being identified:

- **Minimum level** – publish the interconnection tariffs charged;
- **Medium level** – in addition to the minimum level, publish information related to the access points (number and addresses of all switches where interconnection can be achieved), as well as the tariffs for all services and facilities associated to interconnection;
- **Maximum level** – in addition to the medium level, publish a reference interconnection offer and prove compliance with the non-discrimination obligation by submitting annually a set of audited separate financial accounts.

The non-discrimination obligation – Option: Extend this obligation to all the operators controlling the access to end-users, irrespective of the type of network (fixed or mobile network) or the technology used, being identified two levels of intervention:

- **Minimum level** – impose the obligation to apply equivalent interconnection conditions under equivalent circumstances to all actual or potential beneficiaries of interconnection services;
- **Maximum level** – in addition to the minimum level, impose the obligation to make available to third parties all services and information necessary for interconnection under the same conditions, including as regards quality, with those offered for own services or for services provided to the members of the same group.

The obligation to keep separate accounts – Option: Extend this obligation to all operators which were imposed the maximum level of the non-discrimination obligation.

The obligation of price control – Option: Eliminate, in the long-run, any asymmetry of termination tariffs within a homogenous segment; the reference symmetric tariff for the segment shall be cost-oriented, at the level of the costs of a hypothetic efficient operator, normative at the level of a homogenous segment. For call origination and transit services, it is envisaged to maintain the price control obligation through cost-orientation, based on a regulatory instrument that should be consistent with the one used for the regulation of termination tariffs.

4.3.3.2. **Options for redefining the regulatory instruments associated to the policy of access to networks**

As regards the policy of access to networks, it is necessary to examine the opportunity and possibility to use the following regulatory instruments:

The obligation to provide access services – Options:

- Maintain the obligation to provide unbundled access to the local loop: Different options for the configuration of the unbundled access solutions shall be investigated in the context of the transition to the Next Generation Access networks (NGA). Thus, a first option would be the shared use of the street cabinets between the incumbent and alternative operators to facilitate access to the local sub-loop. In this context, the dominant operator could be obliged to reserve space and ancillary facilities in the street cabinet for the alternative operators in the planning phase of the NGA. Also, taking into account that ensuring backhaul services to the street cabinets could prove difficult for the alternative operators, the dominant operator could be obliged to offer backhaul services to the street cabinets (dark fibre or transmission capacities) and/or duct sharing;
- Impose the obligation to provide *"bitstream"* access;
- Impose the obligation to provide national roaming services;
- Impose the obligation to provide access to the fixed telephone network at the wholesale level (WLR – *Wholesale Line Rental*);
- Maintain/impose the obligation to provide co-location services, as an ancillary service to the access services;
- Impose the shared use of the infrastructure elements which are difficult to replicate (i.e. impose the obligation to co-locate the antennae for emission-reception at the level of the base stations).

The non-discrimination obligation – Option: Maintain/impose on the dominant operators (who are also imposed the obligation to provide access services) the obligation to apply equivalent conditions under equivalent circumstances for all specific elements to the network, associated infrastructure, as well as for the services and information necessary for access, between the internal provision (i.e. to its own vertically integrated activities) and external provision (i.e. to the other operators).

The transparency obligation – Option: Maintain/impose on the dominant operators (who are also imposed the obligation to provide access services) the obligation to publish a reference offer for the access services provided, which should be detailed enough in order to ensure that the applicants will not have to pay for resources unnecessary for the service they have requested. Transparency may envisage other aspects too, such as the publication of certain accounting information or the periodical publication of a set of indicators in order to prove compliance with the non-discrimination obligation.

The obligation to keep separate accounts – Option: Maintain/impose on the dominant operators the obligation to keep separate accounts.

The obligation of price control – Option: Maintain/impose the obligation to charge cost-oriented tariffs, with the possibility to redefine the instrument for the estimation of the efficient cost level, by developing a cost calculation model.

4.3.3.3. Options for (re)defining the regulatory instruments in the field of (re)transmission of audiovisual programme services

As regards the (re)transmission of audiovisual programme services, it is necessary to examine the opportunity and possibility to use the following regulatory instruments:

The obligation to provide access services – Option: Regulate the access to the non-replicable infrastructure of SNR under transparent, non-discriminatory conditions, and at cost-oriented tariffs that take into account the efficient costs.

Promote the digitalization of terrestrial networks – Option: Organise the legal procedures with a view to award with no undue delay the radio frequencies for digital terrestrial transmissions, in an objective, transparent and non-discriminatory manner.

4.3.3.4. Options for (re)defining the regulatory instruments in order to stimulate fluidity of the retail market

Given that other countries' experiences seem to indicate that the mere introduction of number portability is not sufficient to improve competition on the retail market, the opportunity of the measures for (re)defining the regulatory instruments aimed at stimulating the fluidity of the retail market shall be assessed by monitoring the churn indicators at the level of homogenous segments, by periodical market researches among consumers and by monitoring the effects of introducing number portability (i.e., ported numbers, decrease the gap between the tariffs for on-net and off-net calls etc.). The following regulatory instruments may be used:

Number portability – The international practices in the field indicate the existence of a series of success factors for number portability:

- transparency of tariffs for calls towards ported numbers;
- reduced levels of costs when changing the provider;
- minimized bureaucratic effort.

The imposition of certain obligations which would ensure the transparency of tariffs for calls towards ported numbers, as well as the imposition of maximum tariffs for changing the provider represent regulatory instruments to ensure the success of number portability.

4.3.3.5. Options for (re)defining the regulatory instruments to enhance the transparency of retail tariffs

Development of a website meant for end-users' information needs – Such an instrument would aim to make available to citizens a friendly interface, in a non-technical language, offering relevant information and answers to questions related to the main aspects of interest in the

dealings with the providers of electronic communications services, as well as to reduce the information asymmetry between the demand and the supply side in respect of electronic communication services

Itemised bills – Establish the information which must be presented within the itemised bills issued by the providers of telephony services represents a regulatory instrument that would provide end-users with a minimum set of information which would increase their awareness on tariffs and facilitate their knowledge of the billing systems for the services they use, as well as to enable them to check the content of the bills, while ensuring the protection of privacy of the calling and called parties.

Tariff comparison engine - In this context, it is worth investigating the opportunity to make available (via a website) an instrument which would allow the comparison of information on tariffs and conditions offered by various providers, in view of ensuring the possibility of end-users to make independent evaluations. Such an instrument could be a "search engine" available online, promptly updated, which would generate the best offers available on the market at a given moment, given a certain consumption profile. A supplementary facility could consist of making a classification of the existing offers depending on certain pre-defined criteria (i.e. *"the best offers for calls towards fixed networks"*).

5. DIRECTIONS OF EVOLUTION, PERFORMANCE INDICATORS AND INFORMATION SYSTEM

ANRCTI identified the directions of evolution of the Romanian electronic communications sector for 2007-2010 and proposes that a set of performance indicators are used in order to monitor the evolution of this sector and evaluate the achievement of the strategic regulatory objectives.

5.1. Directions of evolution to the target market

The implementation of the recommended strategic plan and of the proposed regulatory intervention is meant to encourage the development of a more effective competitive environment that would lead to a higher penetration rate of the electronic communications services, an increased offer diversity, service quality and innovation, more transparent and affordable. The forecasts regarding the Romanian electronic communications sector in the relevant period are based on the achievement of these goals.

Furthermore, the forecasts are based on the following hypotheses:

- Macroeconomic evolution – the impact on the macroeconomic conditions, such as the accession to the European Union and the economic growth;
- Technologic evolution – the impact of new technologies and services, including the development of 3G, digitalization, NGN etc.;
- Market evolution – the impact on the actual market structure and on the competition environment as well as consumer preferences for bundled services;
- The actual and the proposed regulatory environment – the current regulatory framework, including the impact of interconnection tariffs reduction and of number portability, and the impact of the intervention according to the options for (re)defining the regulatory instruments.

5.1.1. Forecasts for the mobile telephony sector

In the next years, the mobile telephony sector is expected to witness some major evolutions, under various aspects, as follows:

- Technological evolution – complete the HSPA rollout and gradually migrate towards fixed-to-mobile convergent solutions at the end of the relevant period;
- Market evolution – considering the ever-increasing penetration rate of telephony services, the players will change the marketing strategies for the growth of their market share, turning to maintaining their client portfolios, which would trigger the increase of the number of subscription-based clients;
- Consumer behaviour – increase of the penetration rate of mobile telephony and of the traffic per user, and a growing demand for the bundles of mobile services and other electronic communications services;
- Regulatory evolutions – Non-transparent tariffs and the consumption behaviour will have an unfavourable impact on the forecasted market churn, despite of the introduction of number portability.

Indicators for the characterisation of the forecasted evolutions

Subscribers and penetration rate

Assuming that the new regulatory policies will be implemented, the positive effects may be felt in the sector until 2010.

The penetration rate of the mobile telephony is estimated to exceed 100% in 2008. It is assumed that the determining factor of this increase will be given by the competition stimulated by the fifth player that will enter the market and provide nationwide coverage, a scenario that may be facilitated by imposing the obligations of collocation and national roaming. Furthermore, it is estimated that number portability in the mobile telephony sector will reduce barriers to changing the provider and will facilitate the increase of the competition level on the market.

Traffic

The increased penetration rate will represent the most important driver for traffic growth, together with the estimated decrease in prices due to the increasing competition, reduction of the interconnection tariffs and the fixed-to-mobile substitution.

It is forecasted that the traffic volume per user will experience a moderate increase, because, although the price decrease trend will trigger an increase the minutes of usage, the penetration rate will increase by attracting the marginal clients. (*Exhibits 30 and 31*).

Exhibit 30 Mobile MOU forecast (monthly)

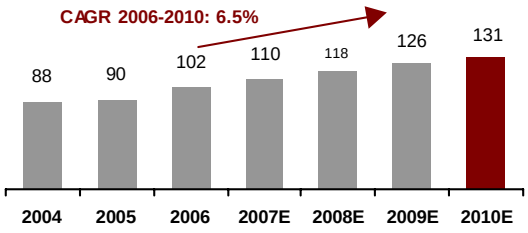
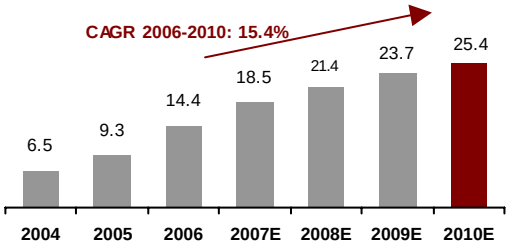


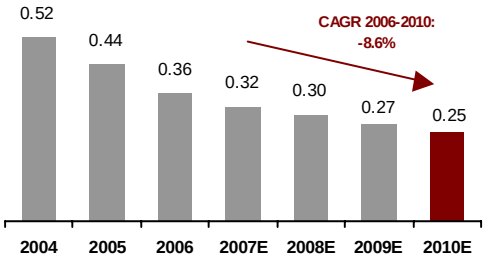
Exhibit 31 total mobile traffic forecast (b minutes)



Tariff per minute

The increased competition will decrease the average retail tariff per minute (*Exhibit 32*).

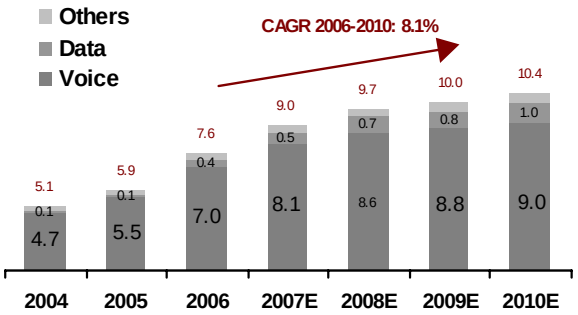
Exhibit 32 Expected price per outgoing mobile minute RON



Total revenues and average revenue per user

The average revenue per user is expected to slightly decrease due to the increasing of the penetration rate with attracting the marginal clients and reducing the tariffs. The decrease in the average revenue per user for voice services can be compensated by increasing the penetration and usage of 3G services. The revenues from data services will increase from less than 5% in 2006 to more than 8% in 2010. This is the forecasted effect of the 3G data offers and of the decrease in voice tariffs. The increasing penetration and services use will sustain the total revenue growth in the mobile sector (*Exhibit 33*).

Exhibit 33 Mobile sector revenue forecast, billion RON



5.1.2. **Forecasts for the fixed telephony sector**

The fixed telephony is expected to undergo several important evolutions in the next years, as follows:

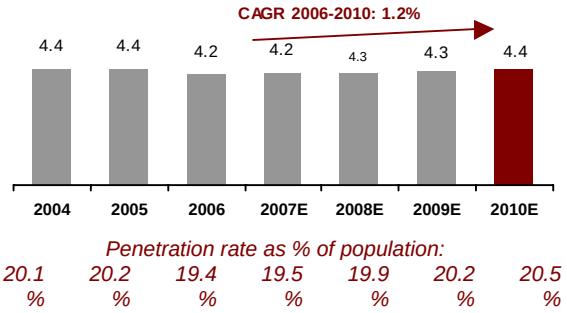
- Technological evolution – given the evolution of broadband services, VoIP technology is expected to have a high penetration rate. This trend will stimulate the convergence between data and voice services, as well as an increased uptake of the fixed telephony solutions implementated by the mobile operators;
- Market evolution – the agressive competition from cable operators at the single lines level and mainly from the mobile operators at the grouped lines level will trigger loss of market share for Romtelecom, both in number of lines and traffic. In addition, the bundle trend will continue and the *„triple-play"* offers will become more widespread both for residential and the business sector. The prices for fixed telephony services will continue to drop due to competition and to the increase of VoIP services' share;
- Consumer behaviour – the increase of the fixed-to-mobile substitution will determine a relatively constant decrease of the number of lines and of the fixed telephony traffic, especially in the residential sector;
- Regulatory evolutions – it is forecasted that the implementation of the interconnection policy will lead to the simplification of the retail tariffs and to the reduction of the network effect.

Indicators for the characterisation of the forecasted evolutions

Number of lines and penetration

The number of access lines at fixed locations are expected to stagnate within the relevant timeframe due to a mix of opposite trends (*Exhibit 34*). Thus, fixed-to-mobile substitution will trigger to a certain extent the abandon of the fixed lines especially by the residential users, whereas the fixed telephony offers of the mobile operators will increase their uptake in the rural areas. In the residential sector, fixed telephony will be purchased more and more as part of a bundle.

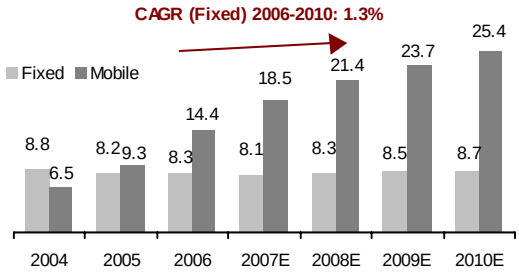
Exhibit 34 Fixed telephony lines forecast (m)



Traffic

The increasing trend of fixed-to-mobile substitution will be reflected in the reduction of the minutes of usage per line and in a slight increase of the total traffic, due to the small rise in the number of access lines in the business sector (*Exhibit 35*).

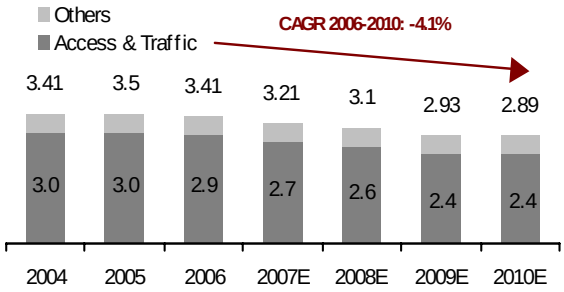
Exhibit 35 Fixed vs. Mobile expected traffic (b minutes)



Total revenues and average revenue per user

The competition at the grouped lines' level, mainly from the mobile operators, and also at the single lines' level, from the cable operators, as well as the partial substitution with mobile telephony services, will lead to a decline in prices for access and also for traffic. The price decrease, even if it comes along with a slight increase in the number of lines, will lead to a continuous decline in the revenues of this sector (*Exhibit 36*).

Exhibit 36 Fixed telephony sector revenue forecast , (BillionRON)



5.1.3. Forecasts for the broadband services

The broadband services will witness a significant development in the coming years, as the necessary infrastructure will become available by an increased coverage and bandwidth, as follows:

- Technological evolution – broadband drives innovation in the electronic communications sector and becomes the essential platform to provide more applications (voice and video). Romtelecom develops a fiber optic network (as part of its plans for the development of a next generation network) in order to have a single platform for the provision of multiple services, while other operators develop *„fibre to the home"*. Additionally, wireless platforms such as WiMAX could provide alternative solutions for broadband services, especially in the rural areas.

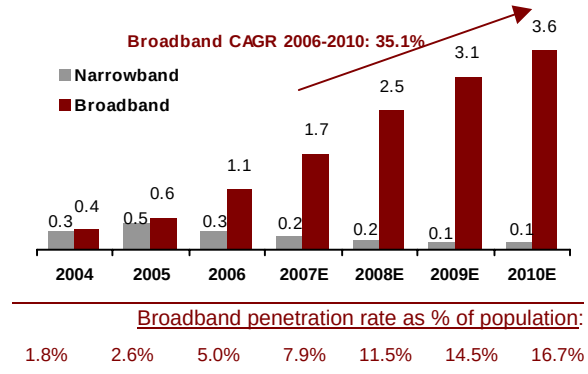
  Given the broadband penetration rate, it is estimated that the IP technology will reach a significant penetration driving convergence between data and telephony services.
- Market evolution – the decrease in prices in order to win market share is fueling sector's growth. Also, consolidation is expected in the market because economies of scale are crucial for broadband services.
- Consumption behaviour – both residential and business users are using broadband as part of a bundle, along with the increasing demand for higher bandwidth.
- Regulatory evolutions – the unbundled access to the local loop does not create a significant impact due to uncertainty related to the next generation networks and the problematic payback horizon. In the long term, if the market conditions allow, *bitstream* could become a viable solution for promoting competition.

Indicators for the characterisation of the forecasted evolutions

Number of lines and penetration

Broadband penetration is estimated to grow from approx. 1 million lines to more than 3.5 million (*Exhibit 37*). The bandwidth will grow and will exceed 0.5MB by 2010 (effective download speed). The *dial-up* connections will disappear over time and will become an insignificant solution in the medium and long run. It is estimated that Romtelecom will become an important player because of the aggressive development of the DSL services.

Exhibit 37 Broadband and Narrowband lines forecast (m)

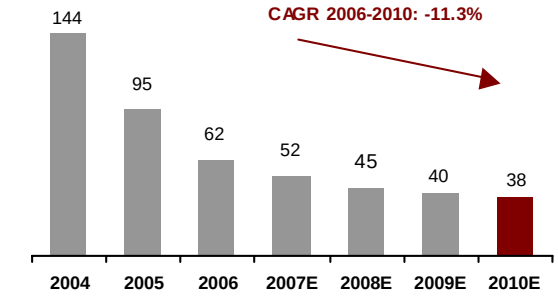


Broadband penetration rate as % of population:						
1.8%	2.6%	5.0%	7.9%	11.5%	14.5%	16.7%

Total revenues and average revenue per user

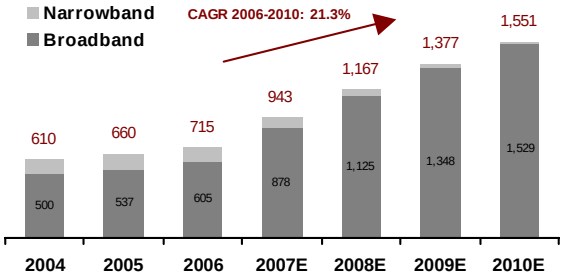
In the short run, the increasing competition will lead to prices going down, whereas in the medium run the offers will differentiate more by bandwidth and added value services rather than price level, which will stabilize the average revenue per user (*Exhibit 38*).

Exhibit 38 Broadband ARPU forecast , RON per month



The expected significant increase in revenues in the sector will be mainly driven by the increase in penetration (*Exhibit 39*).

Exhibit 39 Internet access revenue forecast, Million RON



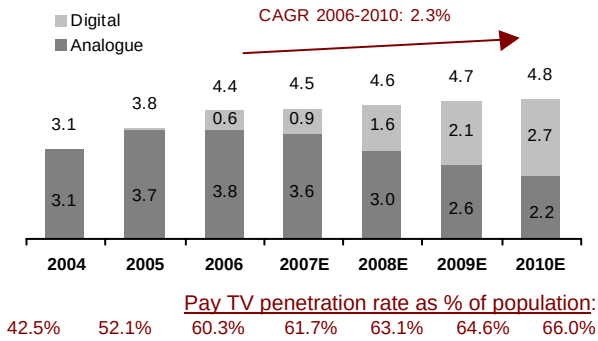
5.1.4. **Forecasts for the subscription TV sector**

The suscription TV sector will witness a reasonable level of competition, as *"triple-play"* bundles become more widespread.

- Technological evolutions - digitalization of the subscription TV market becomes gradually more widespread, mainly because of the development of the DTH services. The cable network digitalization is very low because of the relatively low prices. The technological evolution is not expected to make a significant impact in this sector before 2010.
- Market evolution – the market for cable services will consolidate into 2-3 players because of the need for large scale investments.
- Consumption behaviour – a continous increase in the number of *„triple-play"* bundles' users is expected, driven by the presence of TV programmes in the bundles offered to residential users (which continues to be the core element in the bundles) and to the introduction of advanced aplications (VoD, time-shifted programmes) towards 2010.

Indicators for the characterisation of the forecasted evolutions

Exhibit 40 Subscription TV subscribers forecast (million)



Pay TV penetration rate as % of population:

42.5%	52.1%	60.3%	61.7%	63.1%	64.6%	66.0%

Subscribers and penetration rate

Increasing competition, especially with the entry of Romtelecom on this segment, determines the increase of the penetration rate and stimulates the digitalisation process at the level of the sector (*Exhibit 40*).

Total revenues and average revenue per user will grow due to the increasing share of the subscriber to digital television and to the introduction of ”time shifting” applications and of other tariff plans.

5.2. Performance indicators

The performance indicators assess the sector development in accordance with the identified directions of evolution, as well as the impact of regulatory activities, estimating the effectiveness of the regulatory instruments in the achievement of the strategic objectives.

5.2.1. Quantification of the sector development

The identification and definition of the performance indicators has focused on the measurement, in qualitative and quantitative terms, of the development of the electronic communications sector towards the target-market. This has enabled the devising of a warning mechanism on the deviation from the identified directions of evolution, as well as for the evaluation of the impact of the regulatory interventions.

In order to monitor the fulfilment of the objective of encouraging efficient investments in infrastructure and promoting innovation, the establishment of certain financial performance indicators of the electronic communications sector, as well as the assessment of the impact of certain regulatory policies and instruments on the financial performance of the electronic communications sector are also considered.

The following performance indicators are not exhaustive but they represent the most important indicators to be taken into account in the evaluation of the competitive environment, of the performance and of the level of innovation on different segments of the sector.

(a) Mobile telephony

Competitive environment	Innovation	Performance of the sector
- number of providers - market concentration (HHI) - market shares (in terms of the number of active users of prepaid services/subscription-based services, traffic, revenues on types of services etc. - market churn - ported numbers, porting requests, average porting duration - average prices on types of services/evolution - EBITDA resulted from mobile telephone services	- types of technologies available - coverage area of mobile networks, expressed as % of population, on different types of technologies (2G, 2.5G, 3G, 3.5G) - number of active 3G/3.5G users - revenues from Internet access services and data transmission services - levels of total investments and of the investments in networks and equipments (excluding terminal equipments) - number of new services annually introduced by providers	- ARPU (average revenue per user) - MOU (minutes of usage per user) - traffic volumes and revenues on types of services (access, voice, Internet access, data transmissions, roaming etc.) - number of active users - users' awareness of the tariffs, type of services - users' awareness of new services introduced by providers

(b) Fixed telephony

Competitive environment at the retail level	Competitive environment at the wholesale level	Performance of the sector
- number of providers on types of services - market concentration (HHI) - market shares (in terms of number of access lines, traffic, revenues on types of services etc.) - market churn - ported numbers, porting requests, average porting duration - average tariffs - evolution of tariffs on types of services - EBITDA resulted from fixed telephone services	- number of providers on types of services - market concentration (HHI) - market shares in terms of wholesale traffic/revenues - level of tariffs and their evolution in time	- ARPU (average revenues per unit) - MOU (minutes of usage per user) - levels of investments made in voice networks and equipments (excluding terminal equipments) - traffic volumes and revenues per types of services (access, voice, Internet access, data transmissions etc.) - number of total/rural/urban access lines installed - users' awareness of tariffs - users' awareness of the types of services available

(c) Access to broadband Internet and data transmissions

Competitive environment	Coverage and capacity	Performance of the sector
- number of providers on types of services / technologies available - market concentration (HHI) - market shares (in terms of number of users, revenues on types of services etc.) - market churn of Internet access services - average prices and their evolution in time, on types of services - EBITDA resulted from broadband Internet access services and data transmissions	- investments in networks and equipments for access to Internet and data transmissions - download and upload total capacity - number of covered households	- technologies available - penetration rate of the broadband Internet access, on types of technologies and bandwidth - usage rate of Internet services - coverage area of broadband Internet access services, on types of technologies and bandwidth (availability of service in terms of covered households) - information on effective download bandwidth - information on effective upload bandwidth - users' awareness of tariffs - users' awareness of types of services available

(d) Audiovisual programmes broadcasting

Competitive environment	Innovation	Performance of the sector
- market concentration (HHI) - market shares (in terms of number of subscribers) - market churn; - levels of prices and their evolution in time - EBITDA resulted from services of audiovisual broadcasting	- coverage area (in terms of households) of digital and analogical networks of audiovisual broadcasting (households covered) - investments in equipments for audiovisual broadcasting - number of new services annually offered by providers	- number of rural/urban, digital/analogical, DTH/IPTV cable/satellite subscribers - revenues from the providing such services - average revenues per user - digitalization rate of audiovisual programmes broadcasting - availability of service / access to services - users' awareness of tariffs - users' awareness of types of services available

Not least, the development of bundles requires the monitoring of their evolution, mainly of the number of users for each combination of bundled services, from *"double-play"* to "*quadruple-play"*, via specific indicators.

The identified performance indicators should not be analyzed in isolation, but as a part of a mix of clues, where the possible correlations with the qualitative indicators obtained following market researches among consumers are to be investigated, with a view to characterise a segment or service.

5.2.2. **Evaluating the achievement of the strategic objectives**

During the process of identifying performance indicators, the features and structure of the target-market have been considered, and specific performance indicators have been proposed for monitoring the achievement of each strategic objective and for averting on deviations, as follows:

The strategic objective no.1 concerning the creation of conditions for sustainable infrastructure based competition, whilst facilitate, when effective, services based competition may be assessed by using indicators such as:

- the level of market churn and the evolution of the churn indicators;
- the number of new service providers and new network operators;
- the number of operators and providers that ceased their activity;
- the number of operators and providers that cumulatively reach 90% of the market, at the level of the homogenous segments;
- market concentration (HHI) calculated on the basis of the market shares of the providers of services at the level of the segment, as well as on the basis of the shares of the infrastructures competing on the segment;
- EBITDA as a share of revenues.

The strategic objective no.2 which refers to promoting the development of broadband Internet access services, in particular via multi-product platforms such as IP, and striving to reach the largest possible consumer basis may be evaluated using indicators as:

- Penetration rate of broadband Internet on population categories: rural/urban, natural/legal persons;
- Households covered by broadband access networks;
- Medium revenue on broadband access line;
- The total download and upload capacity available;
- The share of the wireless access links within the total dedicated connections;
- The levels of investment in networks and broadband internet access equipment, as a share of the relevant revenues;
- EBITDA as a share of revenues.

The strategic objective no.3, that is to ensure that different profiles of users (residential and business, urban and rural), get the "best value for money" for electronic communications services, may be evaluated by using qualitative and quantitative indicators such as:

- Evolution of the diversity of the available products;
- Evolution of comparable products' prices ;
- Evolution of service quality indicators;
- Rate of launching a new product;
- Market churn;
- Medium costs when changing the provider;
- Intensity of service consumption (voice minutes, Mbit traffic, etc.);
- Penetration rate of services, including bundles penetration rate, on types of consumers;
- Consumer satisfaction level.

The strategic objective no.4, related to creating an environment where information on service availability, supply conditions and pricing, is transparent, non-complex and available to all Romanian consumers, may be evaluated by using qualitative indicators such as:

- consumer perception and awareness as to the level of tariffs;
- simplicity of tariffs expressed in the number of tariff plans and possible combinations;
- availability of information concerning the effective level of tariffs, including on bills;
- the number of accesses and interrogations of the web page dedicated to end-users' information.

The strategic objective no.5, related to the non-interference in the emergence of bundles as long as they do not adversely impact competition may be evaluated by using qualitative indicators such as:

- Evolution of bundles penetration rates in comparison with the evolution of individual services consumption that compose the bundles, on types of such bundles;
- Availability of bundles evaluated through market research among consumers;
- Consumer perception as to the reasons that determine them to choose bundles instead of the individual services;
- Consumer perception as to the prices of bundles and quality of the bundled services;
- Evolution of prices for bundles in comparison with the prices for individual services and the medium discount per bundle;

- Assessment of the correlation between the penetration rate of bundles and the market churn;
- Number of providers of bundles.

5.3. Redefining the information system

The regulatory information system comprises the instruments and information systems used to understand the particularities and monitor the evolution of the electronic communications sector, to define the relevant markets and analyze their level of competition, as well as to select and make operational the most suitable regulatory instruments with a view to achieve the regulatory objectives. The regulatory information system includes all sources of information found at ANRCTI's disposal (such as statistical data, market analyses and researches, statutory and regulatory financial statements, costing information and cost calculation models, instruments/models for the assessment of the "margin squeeze" practices undertaken by the providers with significant market power, technical/economic models enabling the evaluation of the competitive conditions and of the incentives to invest etc.), together with the procedures for the collection, processing, interpretation and use of such sources.

As regards the statistical data, a re-assessment of the list of collected quantitative indicators shall be carried out, in order to ensure that the deficit of statistical data at the ANRCTI disposal is being coped with, in parallel with ensuring that the information collected is consistent with that needed for an effective monitoring of the sector evolutions. In this regard, the definitions of certain statistical indicators will be reviewed, the collection of certain indicators will cease, and the shortage of statistical information will be dealt with by new indicators, such as EBITDA, indicators associated to number portability (porting requests, ported numbers, average effective duration for the porting of a number), 3G coverage, 3G handsets sold, indicators for monitoring the penetration rate of bundled services sold etc. As regards the statistical indicators for monitoring the quality of services, the extension of the reporting obligation to the mobile operators shall be taken into consideration. The information system shall be also complemented by data resulted from the ad-hoc studies carried out on the occasion of market reviews undertaken with a view to apply *ex ante* regulation.

The Authority must have at its disposal all relevant information needed to identify with rigour the competition problems and the deficiencies existing in the sector, taking into account the current and forecasted evolution of the market indicators, in parallel with the adoption of the optimum set of regulatory instruments and the monitoring of their implementation. These processes will result in a periodical update of the support information systems found at ANRCTI's disposal.

In this sense, a series of cost calculation models, including LRIC-type models, will continue to inform the decision-making processes of the Authority with regard to the efficient level of tariffs for the services, which are regulated through the imposition of the cost-orientation obligation.

The "margin squeeze" potential shall be assessed on the basis of specific calculations, while the impact of the various options for regulatory intervention shall be evaluated via technical-economic models for the investigation of the incentives to invest in the development of networks or in the provision of services.

Regulatory financial statements, based on the principle of separate accounting of the activities for which dominance has been identified, will continue to represent the key instrument to verify compliance with the non-discrimination obligation.

Re-defining the information system should be regarded as a dynamic process, whose particularities change along communications sector's evolution towards the target market, in relation with the trends of the performance indicators. Thus, information instruments should include such tools to allow dynamic adjustment and adaptation to the actual situation of the electronic communications sector, in response to its evolution.

6. TABLE OF CORRESPONDENCE BETWEEN SEGMENTS – OBJECTIVES – REGULATORY OPTIONS

The table below presents a synthesis of the correspondence between the homogeny segments resulted from the diagnostic analysis, the strategic objectives and the redefining regulations intervention options

Homogeneous segment identified	Competition deficiencies	Effects	Dominance	Intervention options	Corresponding strategic objectives	Complementary intervention
MOBILE TELEPHONY						
Retail mobile telephony services segment	Indications regarding insufficient competition levels in the context of segment specificities which induce a potential risk of joint dominance High retail tariffs Highly complex and non-transparent tariff structure Low churn Limited penetration of innovation Lack of a coherent policy regarding rights of way	Competitor's difficulties in attracting new customers, respectively in increasing their market share Captive customers Social welfare deficit Inefficient resource allocation Distorted consumer behaviour	Potential risk of collective dominance	Intervention at wholesale level (regulate access and origination at mobile locations, regulate mobile termination) Mobile number portability (MNP) Create conditions for new market entries Prohibit handset locking Website dedicated to end-users More transparent bills Tariff comparison engine	Strategic Objective #1 Strategic Objective #3 Strategic Objective #4 Strategic Objective #5	Competition Council Local authorities (rights of way)

Homogeneous segment identified	Competition deficiencies	Effects	Dominance	Intervention options	Corresponding strategic objectives	Complementary intervention
Access and call origination at mobile locations segment	Indications regarding insufficient competition levels in the context of segment specificities which induce a potential risk of joint dominance	Block market entry of new players Social welfare deficit Inefficient resource allocation Distortions on other segments	Potential risk of collective dominance	Shared use of infrastructure National roaming Regulate MVNO access	Strategic Objective #1 Strategic Objective #3	Competition Council
Call termination at mobile locations on individual telephone networks	**Absent regulation:** High termination rates Discriminatory treatment in the provision of termination services Refusal to supply termination services to third parties	Increase competitors' costs Reduce competitors' profitability Social welfare deficit Inefficient resource allocation Distortions on other segments	Individual dominance at the level of each operator	Service provision to third parties Transparency Non-discrimination Accounting separation Cost recovery and price control	Strategic Objective #1 Strategic Objective #3 Strategic Objective #4	

Homogeneous segment identified	Competition deficiencies	Effects	Dominance	Intervention options	Corresponding strategic objectives	Complementary intervention
FIXED TELEPHONY, INTERNET ACCESS AND DATA TRANSMISSION						
Access to the public telephone network at a fixed location - single lines	Indications regarding insufficient competition levels Low consumer satisfaction levels Low availability of choices Lack of a coherent policy regarding rights of way	Social welfare deficit Inefficient resource allocation Distortions on other segments	Possible continuation of dominance by the incumbent operator	Wholesale regulation (fixed termination) Fixed number portability (FNP) Create conditions for market entry by new network operators Retail regulation/ retail price control	Strategic Objective #1 Strategic Objective #3 Strategic Objective #5	Competition Council Local authorities (rights of way)
National calls origination at fixed locations – single lines	Low number of alternatives to the access provider High tariff levels Complex tariff plans, reduced transparency	Low competition levels Social welfare deficit Inefficient resource allocation Distorted consumer behaviour	Possible continuation of dominance by the incumbent operator	Wholesale regulation (fixed call origination) Create conditions for new market entries Fixed number portability (FNP) Retail regulation/ retail price control Website dedicated to end-users More transparent	Strategic Objective #1 Strategic Objective #3 Strategic Objective #4	

Homogeneous segment identified	Competition deficiencies	Effects	Dominance	Intervention options	Corresponding strategic objectives	Complementary intervention
				bills Tariff comparison engine		
Unbundled access to the local loop (including shared access) for the provision of voice and broadband services	No impact of access solutions Decreasing attractiveness of the access-based business models due to the expansion of the FttCab-type solutions **Absent regulation:** High access tariffs Discriminatory terms and conditions in the provision of access services Refusal to supply services to third parties	Increase competitors' costs Reduce competitors' sales Social welfare deficit Distortions on other segments	Possible continuation of dominance by the incumbent operator	Maintain regulations in force and investigate other access options in the NGA context Cost-orientation of tariffs based on a costing model Investigate the opportunity and the possibility of introducing „*bitstream*" access	Strategic Objective #1 Strategic Objective #2 Strategic Objective #3 Strategic Objective #5	

Homogeneous segment identified	Competition deficiencies	Effects	Dominance	Intervention options	Corresponding strategic objectives	Complementary intervention
Call origination at fixed locations	Reduced number of CS/CPS service providers, insignificant share of CS/CPS services **Absent regulation:** High origination tariffs Discriminatory conditions in the provision of origination services Refusal to supply origination services to third parties	Increase competitors' costs Reduce competitors' sales Social welfare deficit Distortions on other segments	Possible continuation of dominance by the incumbent operator	Maintain regulations in force	Strategic Objective #1 Strategic Objective #3	
Call termination at fixed locations on single telephone networks	**Absent regulation:** High termination rates Discriminatory conditions in the provision of termination services Refusal to supply termination services to third parties	Increase competitors' costs Reduce competitors' profitability Social welfare deficit Inefficient resource allocation Distortions on other segments	Individual dominance of each provider of termination services	Provide services to third parties Transparency Non-discrimination Accounting separation Cost recovery and price control	Strategic objective #1 Strategic objective #3 Strategic objective #4	

Homogeneous segment identified	Competition deficiencies	Effects	Dominance	Intervention options	Corresponding strategic objectives	Complementary intervention
National transit services	**Absent regulation:** High tariffs Discriminatory terms and conditions in the provision of transit services Refusal to supply transit services to third parties	Increase competitors' costs Reduce competitors' profitability Social welfare deficit Distortions on other segments	Possible continuation of dominance by the incumbent operator	Maintain regulations in force	Strategic objective #1	
Leased lines – terminating segments	**Absent regulation:** High tariff levels Discriminatory terms and conditions in the provision of services Refusal to supply services to third parties	Increase competitors' costs Reduce competitors' profitability Social welfare deficit Distortions on other segments	Possible continuation of dominance by the incumbent operator	Maintain regulations in force	Strategic objective #1 Strategic objective #2	

Homogeneous segment identified	Competition deficiencies	Effects	Dominance	Intervention options	Corresponding strategic objectives	Complementary intervention
TRANSMISSION/RE-TRANSMISSION OF AUDIO-VISUAL PROGRAMMES						
Broadcasting transmission programmes by terrestrial platform, at a national level	Premises of abusive market behaviour on the side of the operator of the nationwide network, in particular potential for excessive pricing Low number of available national TV programmes Low innovation levels (no digital transmissions) Lack of a coherent policy regarding rights of way	Social welfare deficit Major difficulties in planning development of networks Significant increase of barriers to market entry	Possible dominance of nationwide network operator	Transparency Non-discrimination Introduce alternative networks Collocation at existing locations Accounting separation Cost recovery and price control Establishment of a clear, transparent and non-discriminatory procedure for concluding the contracts for rights of way Extend ANRCTI competences in the area of shared use of the infrastructure	Strategic objective #1 Strategic objective #2 Strategic objective #3	MCTI Competition Council Local authorities (rights of way)

ANNEX – STRATEGIC ANALYSIS DIAGRAM