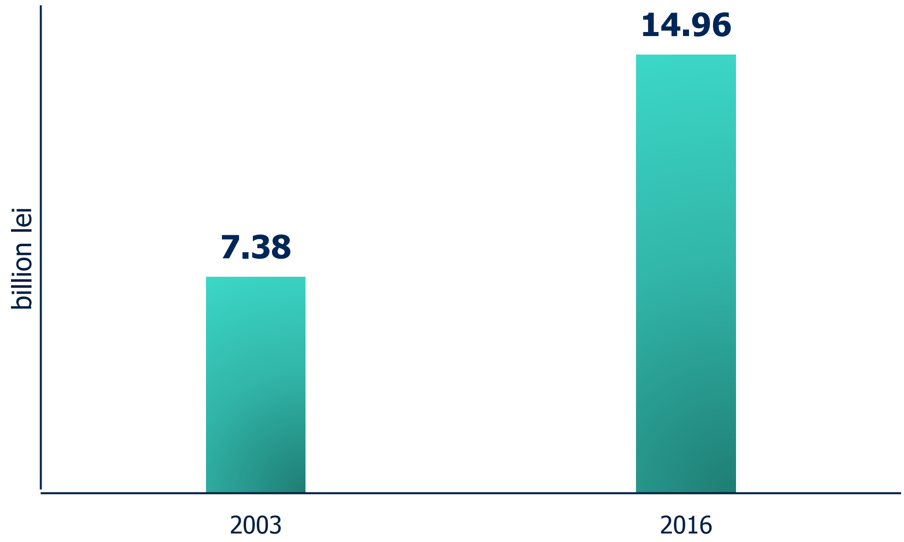
15 years of telecom regulation in Romania

The telecom market value has doubled

Despite the ups and downs of the Romanian economy, the value of the electronic communications services market has doubled in the past 15 years, from 7.38 billion lei in 2003 to 14.96 billion lei in 2016.

Exhibit 1. Value of the electronic communications services market in 2003-2016*



*the latest data available

While, for a considerable period of time, voice services have been the driver of the communications providers' revenue growth, in recent years revenue growth in the communications market is sustained by the fixed and mobile Internet, as revenue from voice services is on a downward trend.

Over the 15 years, the telecom sector has constantly had a significant contribution to Romania's GDP (3.9% in 2003 respectively and 2% in 2016).

A wide and diversified range of providers in the market, to the providers' benefit

In the 15 years since the liberalisation of the electronic communications sector, the structure of the mobile services market underwent important changes: there were 4 operators in the market in 2003 (Mobifon, Mobil Rom, Cosmorom, Telemobil), whereas three major international groups compete in the market at present – Vodafone, Orange and Deutsche Telekom (holding control, through OTE, over two telephony providers – Telekom RC and Telekom RMC) – alongside a local operator, RCS&RDS, and a mobile virtual operator, Lycamobile.

Following constant growth in the number of active providers, the fixed telephony, internet audio-visual programme retransmission and postal services segments witnessed a consolidation process in the recent years. Thus, the number of electronic communications and postal services providers active at the end of 2016 exceeded 1,100.

Competition to the users' benefit

In the telephony market, the Authority has ensured a level playing field for operators and healthy competition by regulating interconnection tariffs, a high level of which is a barrier to calls between different networks and to the development of new competitors. The interconnection tariffs were repeatedly and significantly reduced in 2009, 2012, 2014. On overall, after the 3 rounds of decreases, interconnection tariffs dropped by 80% for fixed telephony and by 90% for mobile telephony.

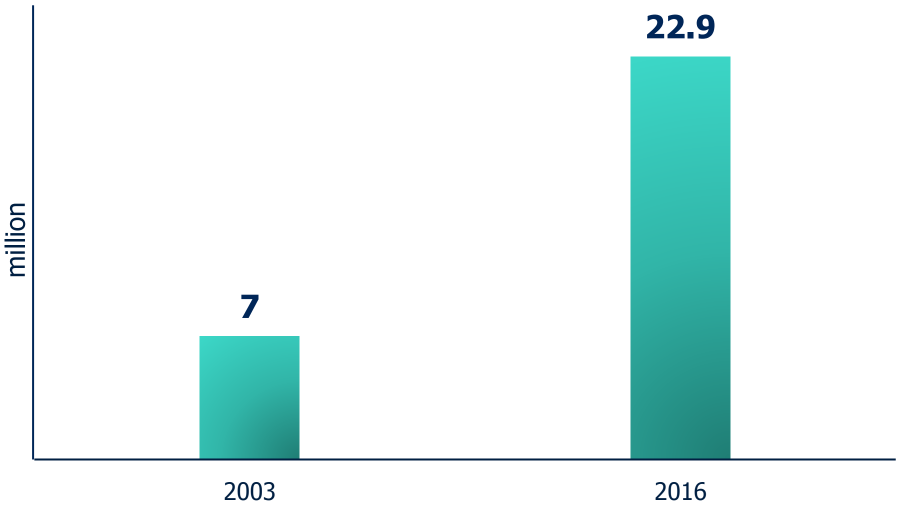
In its regulatory approach, the Authority has always used proportionate and appropriate measures. Therefore, when the market conditions required (Romania is one of the countries with the most vivid infrastructure-based competition), in early 2016, ANCOM completely de-regulated access to the local loop of the incumbent's fixed network - a premiere in Europe. Thus, Romania became the first country in the European Union to remove all regulatory measures regarding end-user access infrastructure for the provision of Internet access services in unguaranteed band, considering that the retail market is efficient through its own mechanisms.

A growing number of users and connections, on almost all segments

In 2016, over 27 million access connections to fixed and mobile telephony services were reported in Romania, 137% more than the 11.4 million registered in 2003, due to mobile telephony.

Mobile telephony witnessed a rapid take-up in Romania, with spectacular increases in the number of users and of corresponding SIM cards during 2001-2008. Once the number of active SIM cards exceeded Romania's population, this number stagnated or even declined, while the use of subscription-based services intensified, in particular as a result of the removal of communication barriers between different networks (by lowering interconnection charges). Thus, the users no longer needed a telephone connected to each network. The number of mobile telephone users (active SIM cards) amounted to 22.9 million at the end of 2016, more than 3 times higher than in 2003, when 7 million users were registered.

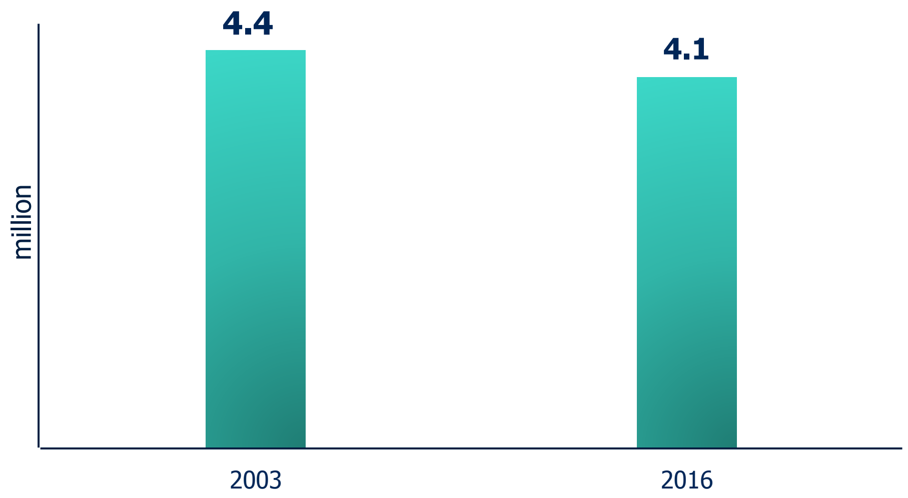
Exhibit 2. Dynamics of the number of active mobile telephony SIM cards at population level on 31 December 2003, respectively on 31 December 2016



Source: ANCOM, according to the data reported by the providers

Given the upward trend in the use of mobile telephony and of alternative services by means of Internet applications, the number of fixed line telephony services has fallen by 6% compared to 15 years ago, from 4.4 million access lines at the end of 2003, to 4.1 million lines at the end of 2016 - a natural progress, in view of the technological evolution.

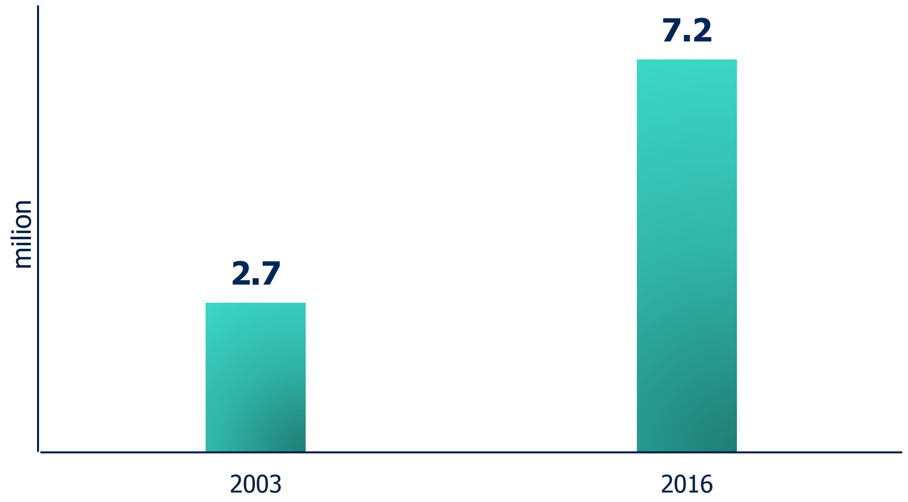
Exhibit 3. Dynamics of the number of fixed telephony access lines, as of 31 December 2003 and, respectively, 31 December 2016



Source: ANCOM, according to the data reported by the providers

Nevertheless, the number of subscribers to audio-visual retransmission services has increased considerably, reaching more than two and a half times this number in 15 years: from 2,7 million subscribers in 2003 to 7,2 million subscribers at the end of 2016, especially due to the emergence of DTH (which attracted 2,4 million subscribers by 31 December 2016, especially from rural areas, where cable roll-out is usually more expensive).

Exhibit 4. Number of subscribers to audio-visual programme retransmission services, as of 31 December 2003 and, respectively, 31 December 2016

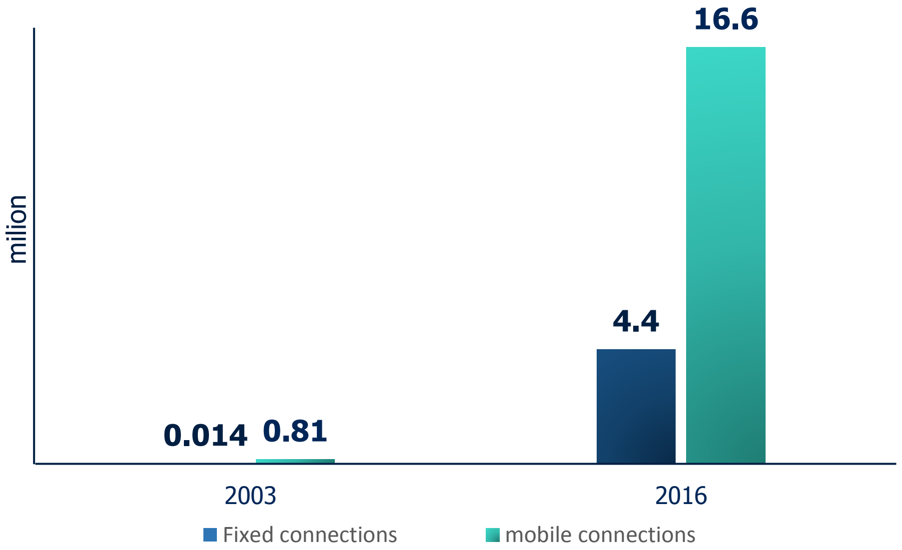


Source: ANCOM, according to the data reported by the providers

An important evolution was registered as regards the internet provided at fixed locations. The number of fixed broadband Internet access connections increased from 14,000, as reported at the end of 2003, to 4.4 million at the end of 2016. The structure of the number of connections by the technology used witnessed massive change in the past 15 years: coaxial cable held the highest share in the total number of fixed broadband connections (36%) at the end of 2003, while at the end of 2016, 94% of the connections were achieved by FTTx.

Furthermore, with the introduction of new mobile technologies, the structure of active Internet access connections provided at mobile locations has changed significantly, so that - compared to 2003, when all mobile Internet access connections (181 thousand connections) were achieved by means of HCSD and GPRS technologies -, in 2016, most of the total of 20.5 million mobile connections were provided through 3G, 3G + (15.9 million) technologies.

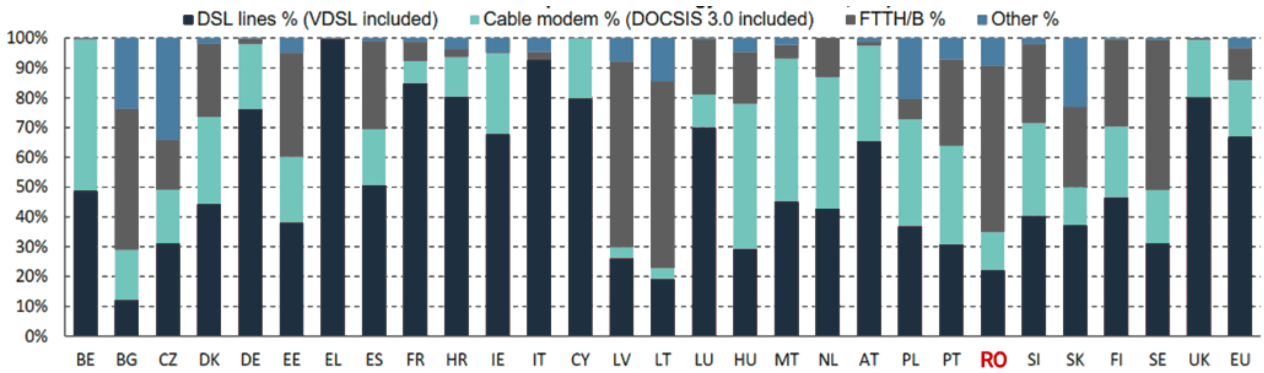
Exhibit 5. Number of fixed and mobile internet access connections as of 31 December 2003, respectively 31 December 2016



Source: ANCOM, according to the data reported by the providers

At the end of 2016, fixed broadband Internet connections in Romania featured high and very high transfer rates, using state-of-the-art infrastructure that allowed more than half of the fixed connections (55%) to reach best-effort speeds of at least 100Mbps, 34% best-effort speeds between 10Mbps and 100Mbps, only 11% being connections that allow speeds of 10Mbps or lower. In this context, mid-2016 European statistics showed that Romania ranks first in the EU in terms of the number of high-speed connections.

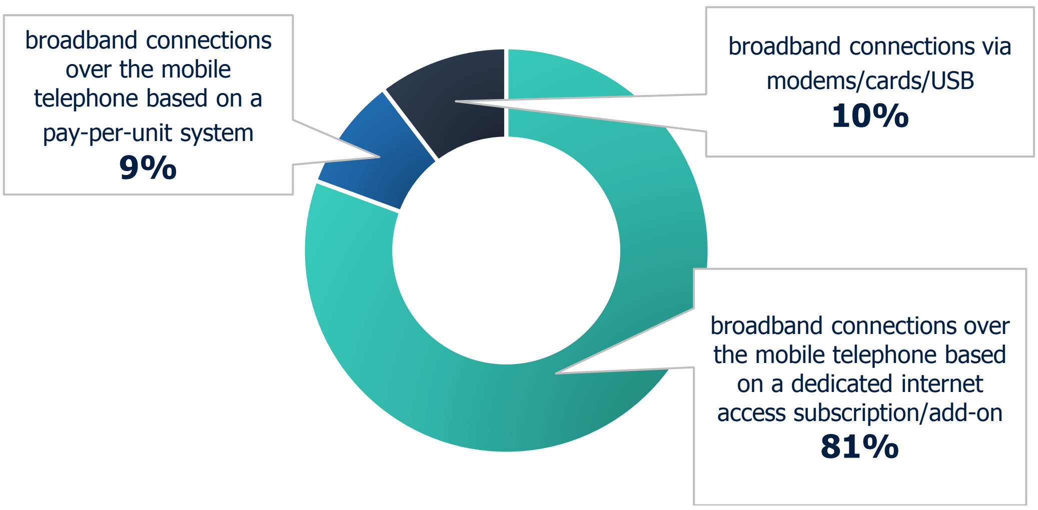
Exhibit 6. Structure of fixed broadband internet access connections in the EU countries, by speed, as of 30 June 2016



Source: *2017 Digital Agenda Scoreboard*

81% of the 16.6 million EDGE, CDMA, EV-DO, 3G, 3G+ connections were achieved over the mobile telephone, based on a dedicated subscription (13.4 million connections). The rest of the connections, in almost equal shares, were achieved over the mobile telephone using the pay-per-unit system and via modems/cards/USB.
Exhibit 7. Structure of active mobile broadband internet access connections, as of 31 December 2016

Fig. 7. Structura conexiunilor active de acces la internet în bandă largă furnizate la puncte mobile, la data de 31.12.2016



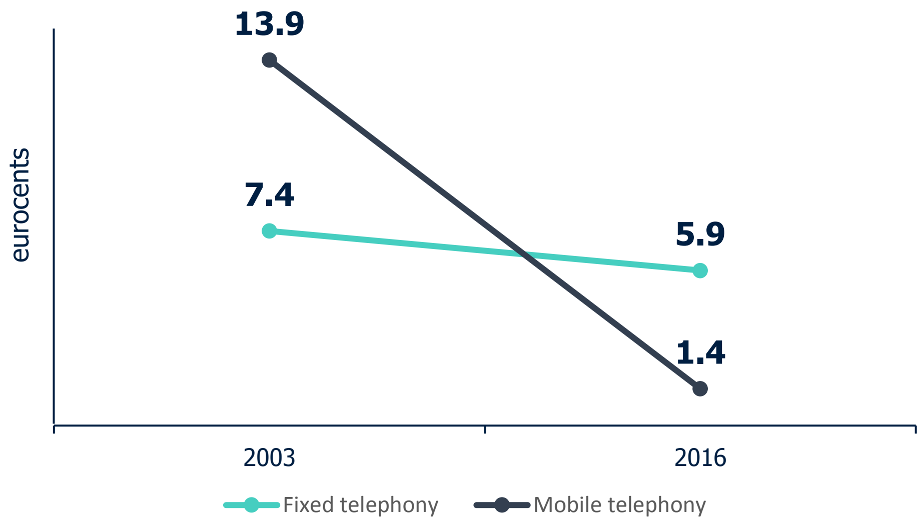
Source: ANCOM, according to the data reported by the providers

Diminishing tariffs, among the lowest in Europe

According to the European Commission's report on fixed broadband access services, in October 2015, Romanian users benefited from fixed Internet monthly tariffs that were half of the EU average - 12.6 euros, compared to 25.9 euros (values calculated based on the cheapest offers in the market, for subscriptions to services between 30 and 100 Mbps, weighted by the purchasing power).

Concerning mobile telephony, the downward tariff trend in tariffs is illustrated by the fact that between 2003 and 2016 the average revenue per minute decreased by **90%**, from approximately 13.9 eurocents in 2003 to around **1.4 eurocents in 2016**, while the average revenue per minute for fixed telephony dropped by **20%**, from around 7.4 eurocents in 2003 to around **5.9 euro cents in 2016**, also taking into account the revenues from access services - subscriptions or add-ons.

Exhibit 8. Evolution of the average revenue per minute – fixed and mobile telephony, as of 31 December 2003 and respectively 31 December 2016



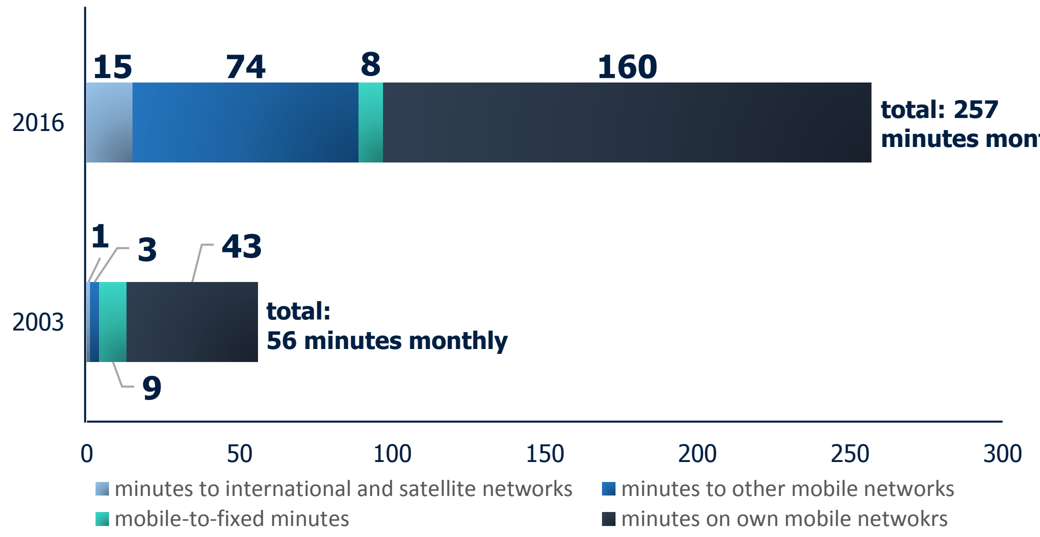
These decreases in mobile telephony tariffs on the retail market are also due to ANCOM’s regulations, as the operators designated with significant power on the markets for the provision of fixed, respectively mobile call termination on their own networks were imposed the obligation to observe certain maximum ceilings for the interconnection tariffs on wholesale level. Thus, the maximum per-minute tariff applied by mobile operators for these services decreased by 90%, from 9.72 eurocents in 2003 to 0.96 eurocents as of 1 April

2014. The maximum interconnection tariff for fixed call termination in the Telekom network (the regulated operator as of 2003) dropped on average by 80% compared to the 2003 level, so that - from 1 April 2014 - it cannot exceed 0.14 eurocents/minute. ANCOM's regulations contributed to a 20% decrease in the average per-minute revenue received from end-users, from about 7.4 eurocents in 2003 to approximately 5.9 eurocents in 2016 (revenues from subscriptions or add-ons are also taken into account).

A connected society, consuming massive amounts of services

The Romanians' growing interest in especially mobile communications is revealed by the upsurge in the traffic volume on mobile networks, given the increased competition and lower tariffs. Total voice traffic increased 16 times over the past 15 years, from 4.4 billion minutes in 2003 to 70.6 billion minutes in 2016, while the number of users and the average monthly voice traffic per user grew nearly 5 times (from 56 minutes to 257 minutes). At present, Romania features one of the highest voice volumes per user among EU member states, confirming that mobile telephony services are very affordable in our country.

Exhibit 9. Average monthly consumption achieved by a mobile communications services user, by categories of calls, as of 31 December 2003 and 31 December 2016



Source: ANCOM, according to the data reported by providers

On the one hand, the number of fixed telephony subscribers, as well as the total voice traffic achieved at fixed locations, are lower than the one recorded in 2003, dropping to one-third of the 2003 traffic volume, which stood at 9 billion minutes. Romanians speak less on the fixed telephone, so that the 2016 average monthly traffic per fixed line was 106 minutes lower (64 minutes – monthly average) compared to 2003 (170 minutes – monthly average).

On the other hand, Internet traffic has boomed in recent years in Romania. Thus, surfing the internet anywhere, anytime, has become an increasingly used practice in Romania, the users' interest in accessing the internet from the mobile phone being on an upward trend. The total traffic achieved through mobile broadband connections reached 169 thousand TB in 2016 and average monthly traffic per mobile connection in 2016 reached 0.73 GB.

However, the vast majority of Internet consumption in Romania is still achieved through fixed connections: 5.4 million TB in 2016. The average monthly consumption exceeded 100 GB per fixed connection, exceeding 103 GB in 2016.

Compared to 2004, the total postal traffic increased, therefore 554 million postal items were processed in 2016, over 137 million more than in 2004. Cross-border postal items have also grown, from over 14.9 million postal items in 2004, to nearly 32 million postal items in 2016, so that their share in total traffic rose from 3.5% in 2014, to 5.77% in 2016. On average, 28.69 postal items per inhabitant were sent in Romania in 2016, compared to the 2004 situation, when 19.21 postal items per inhabitant were reportedly processed.

Enlarging broadband services coverage

The most notable developments are recorded in the growth of fixed and mobile Internet coverage, especially with the implementation and development of new access technologies. Considering the providers altogether, by mid-2016, the coverage with fixed broadband Internet services had reached almost 90%, while 4G networks had covered more than 75% of the territory.

Exhibit 10. Coverage with fixed broadband internet, June 2016

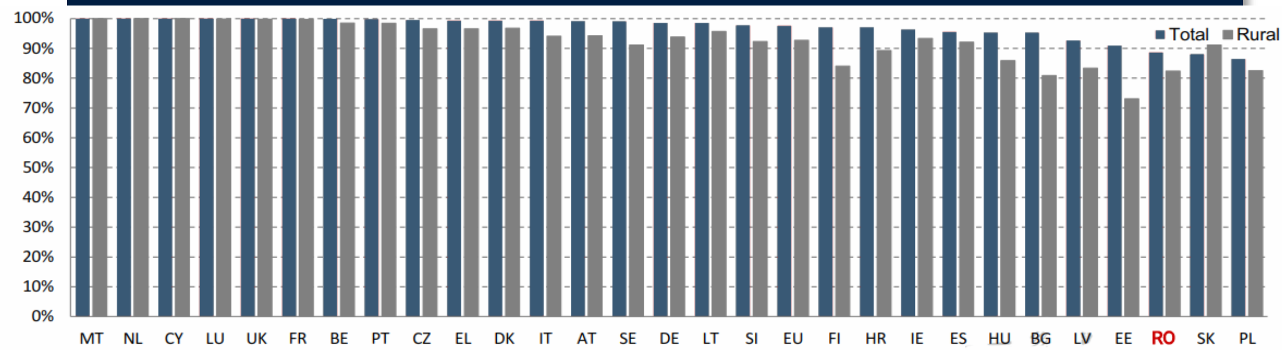
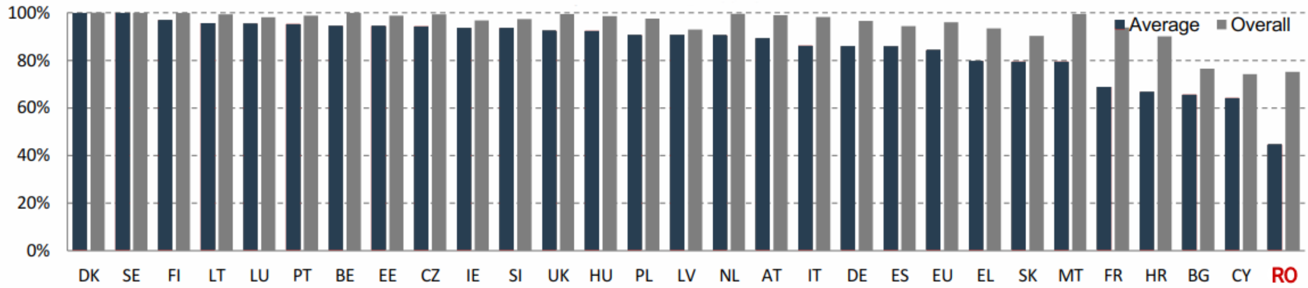


Exhibit 11. 4G coverage, June 2016



Source: IHS and Point Topic　　*Average coverage in Malta refers to 2015*

Increasing penetration rates for mobile telephony and internet

Mobile services' penetration rates at the population level rose from 33% at the end of 2003, to 116% at the end of 2016 ("active" SIM cards). However, the penetration rate of fixed telephony services at household level decreased by 10 percentage points, to 44%, while the penetration rate at the population level remained 21%.

ANCOM evolved along with the internet: the penetration rate of fixed broadband Internet access services increased from 0.1% on 31 December 2003 to 23% on 31 December 2016, at the population level, respectively from 0.04% to 54%, at household level. As for mobile broadband access services, penetration rate on the population level of 84% was registered at the end of 2016, compared to 2003, when mobile broadband was almost non-existent.

As well, an important development has seen the penetration rate on the level of households of audio-visual programme re-transmission services, which increased by 60 percentage points - from 37% at the end of 2003, to 97% at the end of 2016.

Number portability – the freedom to choose any provider

Number portability, a service made possible by ANCOM for Romanian users starting from 2008, enables them to keep their phone number while changing service providers, thus increasing their freedom of choice and giving them the opportunity to enjoy the benefits of a competitive telephony market. The users' freedom of choice is a further incentive for competition between providers.

Since 2008, when number portability was launched in Romania, until February 2017, more than 3.66 million users had benefited from this service, of which 3 million are mobile users and about 654 thousand are fixed telephony users, their number rising steadily over the years.

User empowerment in relation to providers

For improving the users' information over the years, the Authority has set up a series of tools aimed at increasing their awareness of communications services and their negotiating power in relation to suppliers.

At the launch of the number portability service, the Authority also launched **portabilitate.ro**, where the users can get informed on the porting process and find the steps to be followed if one decides to change the telephony operator. The page also makes available a search engine by which one can find the operator of the network where a number is active, and whether that number has been ported or not.

Moreover, since 2012, the users can access **veritel.ro**, the telecom offer comparison tool developed by ANCOM enabling them to check online the extent to which the offer from their telephone and internet service provider is best suited to their consumption needs.

Two years later, ANCOM launched **netograf.ro**, an application through which the users can test and monitor the quality of their Internet access service at any time and where they can access quarterly and annual statistics on the fixed and mobile Internet quality, as actually experienced by users in Romania.

All these tools created by ANCOM for the users are independent, objective and may be accessed free of charge.

ANCOM's steps and decisions impacting the market of electronic communications and postal services

ANCOM has set up and implemented a stable regulatory framework fostering market development, in perfect synchronization with the EU rules, but adapted - to the highest degree - to the challenges and needs specific to Romania.

One of the decisions that influenced the sector as a whole was to simplify the providers' market entry by introducing and subsequently revising a general authorization regime adapted to the needs and evolution of the Romanian market, which created the premises for the free provision of electronic communications services and of postal services.

The designation of Telekom Romania Communications[1] as a provider with significant power (SMP) on the wholesale market for access to the fixed public telephone networks for call origination, termination and transit and – subsequently – on the retail markets for access and calls provided at fixed locations, the implementation of the carrier selection and pre-selection procedures and of the unbundled access to the local loop, which enabled other providers to offer services based on the former monopoly operator's network, the gradual reduction of fixed and respectively mobile call termination rates, following the designation of all operators in the respective wholesale markets as having significant market power, as well as the implementation of number portability were major decisions based on which today's Romanian market was built, as one of the most competitive communications markets in the European Union, with low rates and quality services.

Furthermore, the spectacular growth in the Romanian internet market was spurred by the 77% increase in the spectrum resources available for broadband communications, following the 2012 spectrum auction, the opening of the 900 MHz and 1800 MHz bands for 3G technology, by the designation of Romtelecom as a provider of significant power on the market for services of access to infrastructure elements, and by the regulation of the conditions for access to its local loop.

[1] Former company Romtelecom S.A.

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