

TRENDS IN THE ROMANIAN MOBILE TELECOMMUNICATION SERVICES MARKET

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Abstract:

Managing space and especially time are perhaps the most important challenges accepted in the economy of the immaterial. The telecommunication services, by their volatile nature, unlimited as potential and relational by definition, found the solutions that transform time into an economic variable, differentiated and easy handled. Information technology, audiovisual and telecommunication contributed individually, but mostly focused, on domination and compressing time, even canceling space. The logical support of techniques for transmitting images, sounds and information is provided through telecommunications. The most dynamic and perishable services in the contemporary period are found in the telecommunications area, which is facing an exacerbated instability of the market and the need for a financial power increasingly larger. We have proposed in this paper to analyze the current state of this category of services and to determine the trends regarding the evolution of Romanian telecommunications market.

1. Introduction

In the professional literature it is widely accepted the modern society transition to the information age, even if there are made aware of difficulties regarding the analyze of the inevitable problems that may arise. Some experts have predicted a society of telecommunications, of virtual enterprises and of teleactivities based on electronic communication and easy, free access to information (Marian Stoica, 2006), finding slowly that were wrong, but not in content - given certain evolutions that can sustain these statements and here we mention the fact that new technologies lead to economic growth and job creation.

As specialists appreciate, but also the realities of our contemporary life, the lately development from recent years of the ICT industry was exponential, perhaps the most spectacular in the history of industrial change. In this context, the unprecedented development of telecommunications inevitably lead to falling prices of telecommunication services and equipment. Also both enterprises and individuals have and uses new and high quality services. Another advantages of the evolution are: quick installation of telecommunications lines, more efficient information services, development of call center sites, call transfer service etc.¹

There are various definitions of telecommunications, one of them being - "Telecommunications, in its turn, can be defined as communication of distance signals." Another definition is found in the Romanian legislation that also define telecommunications as being any emission, transmission or reception of signals, messages, images, sounds or information of any kind, by wire, radio, optical or other electromagnetic systems.

In a general sense, the office of UNCTAD defines telecommunications as representing some means of delivery or distribution circuits of capital and information, essential for marketing services such as advertising, banking, insurance, obtaining and processing information, legal services and other professional services, and also for distribution of material goods.

More systematic, telecommunications can be defined broadly as those services that allow electronic transmission of sound, images and information from one point where are issued to another point, where they are received to be used or distributed. When the two points from the ends trail ran by information and pictures are in different countries or where services involving businesses in different countries, telecommunications gain international character and form a segment of the global market.

The telecommunication market is a particularly dynamic area, which develops even faster than the world economy. The access to information became a strategic element, also as equipments that are required for processing and dissemination of data in an electronic form.²

¹https://www.researchgate.net/profile/Marian_Stoica/publication/237120064_Premise_ale_trecerii_la_societatea_informatiionala/links/00b49538eed304cbb7000000.pdf

²https://www.researchgate.net/profile/Alina_Almasan/publication/4982326_Knowledge_Society_and_the_Communication_Economy_in_Romania/links/00463527b5c0f30dff000000.pdf

In Romania, the telecommunication market is dominated by telephony, mobile, Internet, television services,- not necessarily in this order. The telecommunications area is an extremely dynamic and exciting area, aspect that we are trying to demonstrate in this paper. The main telephony operator lost from the point of market liberalization approximately 10% of market share. This situation is due to alternative that Romanians have - mobile phone, and also to the currently market alternative operators.³

2. Telecommunications services market

The telecommunications services market includes the supply and demand of transport activities and distribution of different signals (voice, images, information). The telecommunications sector's offer includes, in the same time, the network operation and different services provision, the distinction between the two categories of activities becoming more accurate related to offer diversification and to the prevailing ownership type modification.

Givento the variety of activities in the telecommunications sector, globally agreed that it is necessary to distinguish between:

1. basic telecommunications services and value-added services (improved services, value-added network services)
2. value-added services and information services,
3. telecommunications services and telecommunications facilities.

The basic or standard telecommunications services are represented mainly by telephone, telegraph and telex. Depending on the level of sector's development, from country to country, they may include other services equivalent to those mentioned. Value-added or improved services include a very broad nomenclature being into a continuous diversification of services for the transmission of information, mobile telecommunications, and other activities using modern ways of accessing traditional networks (telephone cards) or with a complex functionality (teleconferencing, videoconferencing, etc.). They are defined as "those services that involve the use of computers to present, process, change the analog appearance and the content transmitted by a subscriber or which provides to a subscriber additional information, differently organized or restructured to those that would be achieved by direct contract with information stock." These definitions were adopted by signing of the bilateral treaty between the US and Canada and assumed also by signatory countries of the General Agreement on Trade in Services (GATS).

The proportion of basic services and value added services reflects the level of economic development of a country and, therefore, of the sector. Moreover, between economic development and telecommunications sector there is a feedback relationship.

The convergence between IT services and telecommunications (telematics) is one of the factors that led to the multiplication of discounts offered to an increasingly demanding in terms of the variety and timeliness of services provision. The concerned services are offered not necessarily by the telecom operator but any firm that can access the network controlled in most cases by a single operator.

Telecommunications sector is highly concentrated in the hands of a small number of companies drawn from ex-international monopolies. Therefore, it is estimated that telecom operators (OT) are part of the largest companies in the world.

Nowadays, the mobile telephony services market in Romania includes four operators, namely Orange, Vodafone, Telekom Romania and RCS&RDS, their number dropping following the operator Telemobil by Cosmote takeover in 2009. Since September 2014, Cosmote and Romtelecom communicate under the Telekom Romania brand (integrated services operator).

3. Evolutions of Romanian mobile telecommunications sector

The services offered by operators include voice, SMS and data traffic. Due to rapid development in telecommunications technology, the regulations at this level of market endure many changes. These issues intensifies the level of the mobile market dynamism. On the other hand, given the high penetration of SIM cards in Romania, the mobile market can be categorized as a mature market.

To present the evolution of mobile telecommunications services in Romania we used statistical data provided by the National Authority for Management and Regulation in Communications (ANCOM), given the specific indicators to this field and the total volume of voice traffic originated or terminated on public mobile networks in Romania, the total voice traffic originated or terminated on the mobile public networks in Romania, voice traffic / SMS traffic/ MMS traffic volume, international roaming, etc.

³ <https://statistica.ancom.org.ro:8000/sscpds/public/alldocuments/report>

Table No.1, The total volume dinamyc range of voice traffic originated or terminated on the mobile public networks in Romania, in terms of the calls origin during 2012-2014

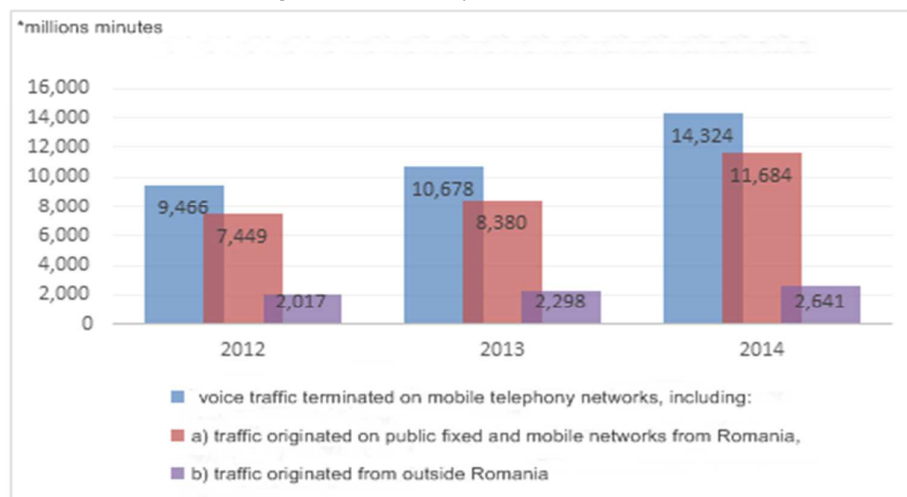
Indicators	2012	2013		2014	
	mil. min.	mil. min.	Annual evolution (%)	mil. min.	Annual evolution (%)
Voice traffic originated on mobile telephone networks	N/A	N/A	-	223	-
Voice traffic terminated in mobile telephone networks, including:	9466	10.678	+12.8	14.324	+34.2
a) traffic originated on public fixed and mobile networks in Romania including:	7449	8380	+12.5	11.684	+39.4
a1) traffic originated on personal public fixed networks	414	424	+2.5	322	-24.0
b) traffic originated outside Romania	2,017	2,298	+13.9	2641	+14.9

Source: <https://statistica.ancom.org.ro:8000/sscpds/public/alldocuments/report>

Note: The Indicator for **voice traffic originated on mobile telephone networks** include traffic originated in providers's public electronic communications, by providing a mean of access to personal networks, available to other providers (eg to virtual mobile networks, to providers through national non-geographic numbers of 0ZAB = 0808 off NNP, to providers that made interconnection agreements for national roaming etc.); it is not included traffic originated and terminated in personal land mobile networks in Romania (traffic from self-supplied originating services)

It can be noticed from the data presented above that during the analyzed period the voice traffic terminated on mobile networks of telephony recorded significant increases from 9.466 million minutes in 2012 to 14.324 million minutes in 2014, which meant an evolution of 52% better in 2014 compared to 2012 and by 34.2% compared to 2013. The largest share of this traffic holds public traffic originated in fixed and mobile networks in Romania, namely 78% in 2012 and 82% in 2014, the difference being attributed to traffic originated outside Romania. It should also be noted that in 2014 traffic originated on personal mobile fixed networks recorded significant decreases of 24% compared to 2013 which shows the users interest, decreasingly, regarding to fixed telecommunications. Moreover, it is observed that in the past years of our analysis the traffic originated outside Romania experienced slight increases, aspect influenced also by the fact that Romanians are traveling more often outside borders, either for tourism or for work. The evolution of the considered indicators are shown in the first figure.

Figure No. 1. The dynamics of total voice traffic



Source: author's contribution related to ANCOM data

A very important segment in the mobile telecommunications refers to the SMS traffic, which in the period 2012-2015 had the following evolution:

Table No. 2. Dynamics of text messages and multimedia messages traffic volume originated or terminated on the mobile public networks in Romania, related to origination (in Romania, outside Romania) in 2012-2014

Indicator	2012	2013		2014	
	mil. min.	mil. min.	Annual evol. (%)	mil. min.	Annual evol. (%)
SMS traffic terminated on mobile telephone networks, excluding the traffic on personal mobile network, including:	906	1.123	+23,9	1.981	+76,4
a) traffic originated on mobile and public fixed networks from Romania, of which:	785	995	+26,8	1.869	+87,7
a1) traffic originated on personal public fixed network	2,1	2,4	+15,2	1,7	-29,0
b) traffic originated outside Romania	121	128	+5,5	112	-11,9
MMS traffic terminated on mobile telephone networks, excluding the personal mobile network traffic, of which:	2,4	2,8	+15,3	3,3	+17,5
a) traffic originated on mobile and public fixed networks from Romania	2,2	2,6	+16,0	3,0	+16,3
b) traffic originated outside Romania	0,19	0,20	+7,0	0,27	+32,5

Source: <https://statistica.ancom.org.ro:8000/sscpds/public/alldocuments/report>

It is observed a positive evolution also for SMS and MMS traffic with 76.4% more in 2014 compared with 2013 and with 118% more than in 2012. Romania holds primacy in originated traffic recording annual increases compared to traffic from abroad which recorded decreases of 29% in 2014 compared to 2013. MMS messages are still low as number compared to the SMS messages representing 3.3 million in 2014 compared to 1.981 billion SMS over same year, however, they also are growing from year to year.

Table No.3. Dynamics of voice traffic / SMS traffic / MMS traffic volume, international roaming carried through mobile telephone networks in 2012-2014

Indicators	2012	2013		2014	
	Absolute value	Absolute value	Annual evol. (%)	Absolute value	Annual evol.
International roaming voice traffic "inbound" (mil. minutes), of which:	205	231	+12,6	260	+12,7
a) dialed (mil. minutes)	88	98	+11,2	110	+12,1
b) incoming calls (mil. minutes)	116	132	+13,8	150	+13,0
International roaming voice traffic "outbound"(mil. minutes), of which:	359	423	+17,9	647	+53,0
a) dialed (mil. minutes)	94	105	+11,6	196	+87,0
b) incoming calls (mil. minutes)	265	318	+20,2	451	+41,8
SMS traffic international roaming "inbound" (mil. messages)	50	51	+3,0	52	+1,2
SMS sent traffic roaming "outbound" (million)	105	112	+6,5	123	+9,9
Access to the Internet traffic and data transmission services (including MMS) international roaming "inbound" (thousand GB)	17	37	+123,3	97	+163,6
Access to the Internet traffic and data transmission services (including MMS) international roaming "outbound" (thousand GB)	14	34	+149,4	202	+487,7

Source: <https://statistica.ancom.org.ro:8000/sscpds/public/alldocuments/report>

Annual evolution of voice traffic, international SMS and MMS roaming, both "inbound" and "outbound" system, is a favorable evolution recording growth in 2014 compared to previous years. As regarding SMS, it presents a relatively constant response of relatively upstanding rates for such traffic. The Internet access and data transmission had a remarkable increase of traffic, related to increases by 123.3% in 2013 compared to 2012 and 63.6% in 2014 compared to 2013. It can be noticed that in "outbound" system both calls and messages but also Internet access and data transmission had spectacular evolutions related to increases to year-to-year of 487.7% as in case of MMS.

According to ANCOM, the international roaming voice traffic structure "inbound" - originated traffic and terminated traffic in 2014 are presented as follows:

1. 58% of incoming calls
2. 42% of calls made

Continuing analysis of the mobile telecommunication services it is presented statistics on the these services users depending on their type - ie.on subscriptions and prepaid "valid" cards, enterprise or population.

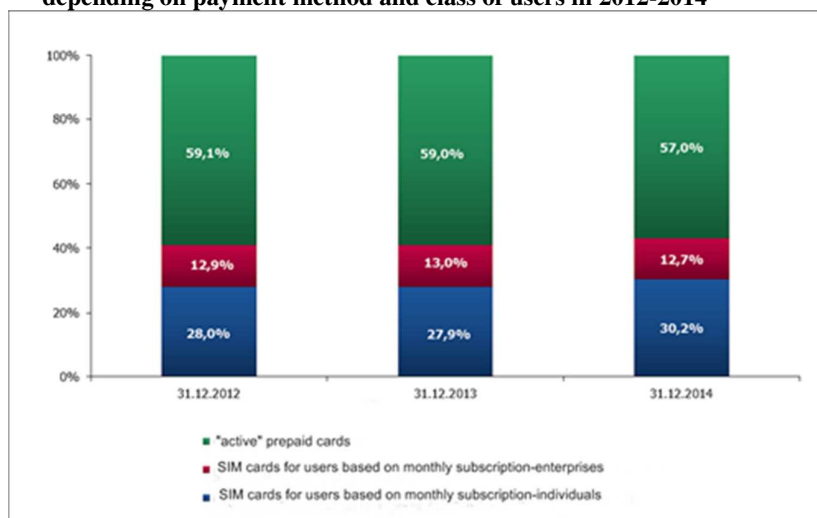
**Table No.4. Dynamics of the total number of "users" ("active" SIM cards) during 2012 - 2014.
The penetration rates of mobile services.**

Indicators	31.12.2012	31.12.2013		31.12.2014	
	mil.	mil.	Annual evol. (%)	mil.	Annual evol. (%)
Total users (users based on subscriptions and "valid" prepaid cards), of which:	25,5	25,5	-0,2	25,2	-1,3
Total "active" users (user based on subscriptions and "active" prepaid cards), of which:	22,8	22,9	+0,33	22,9	+0,01
- users based on subscription, including:	9,3	9,4	+0,5	9,8	+4,9
- individuals	6,4	6,4	+0,05	6,9	+8,4
- enterprises	2,9	3,0	+1,5	2,9	-2,5
- Users based on "valid" prepaid cards, of which:	16,2	16,1	-0,6	15,3	-4,9
- users based on 'active' prepaid cards	13,5	13,5	+0,2	13,1	-3,4
Rate of penetration "valid" SIM cards, on 100 inhabitants (%)	127,0	127,2		126,1	
Rate of penetration "active" SIM cards, on 100 inhabitants (%)	113,6	114,5		114,9	

Source: <https://statistica.ancom.org.ro:8000/sscpds/public/alldocuments/report>

Analyzing data on the total number of active mobile users in Romania, we can see that in recent years the mobile telephony market declined slightly, followed by stagnation in recent years. However, both the volume of voice traffic originated and terminated on the mobile networks in Romania is constantly growing. This decline is also reflected in the rate of penetration of active SIM cards, level recorded at the end of 2013 being with 3% lower than the one recorded only three years before. This contradicts the evolution of SIM cards average penetration rate in the European Union, which since 2004 is on an upward trend. Along with the decrease of their rate of penetration, we can see an increase in the volume of voice traffic originated by end-users to other mobile networks than its own. This increase may be a result of regulations to reduce interconnection tariffs implemented by ANCOM in recent years.

Figure No. 2. Structure of the number of "users" of mobile services („active" SIM cards"), depending on payment method and class of users in 2012-2014



Source: <https://statistica.ancom.org.ro:8000/sscpds/public/alldocuments/report>

Regarding to the number of mobile services users it reveals a major proportion regarding prepaid SIM cards that represent the largest share, but slightly decreasing in 2014 when were 57% users of its kind compared to 59% in 2012 and 2013. The subscription based cards are in proportion of 30-33% including 12.7% enterprises and 30.2% individuals, more in 2014 than in the previous years, given also the facilities offered through subscriptions promoted by mobile operators in Romania.

4. Phone number portability

Seven years ago, in October 2008, it was launched number portability phenomenon, as a result 2 327 058 phone numbers changed their operator, but not the user. 1 798 488 of these are numbers of mobile telephony and 528 570 of fixed telephony⁴. So during this period, 2008-2015, the number of users who chose to port their telephone number has steadily increased. The volume of ported numbers every year since the launch of portability is:

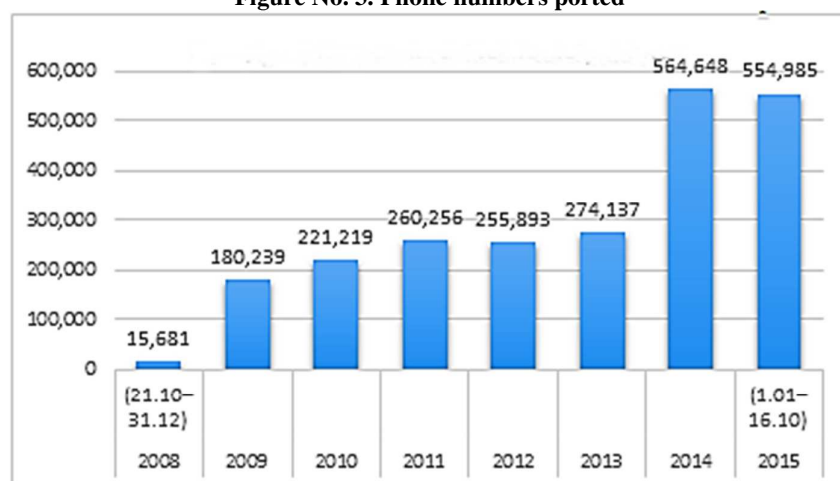
Table no. 5. The volume of ported numbers in period 2009-2015

2008 (21st October– 31st december)	2009	2010	2011	2012	2013	2014	2015 (1st January– 16th October)
15.681	180.239	221.219	260.256	255.893	274.137	564.648	554.985

Source: http://www.ancom.org.ro/peste-2300000-de-numere-portate-n-537apte-ani_5473

According to ANCOM, the initiator of this operation, the total of ported numbers in the period October 2008 - October 2015, 77% are mobile numbers, respectively 1 798 488. In the segment of mobile telephony, Vodafone continues to be the operator with the most numbers received in the network by porting - 509 318 numbers, followed by Orange with 452,551 numbers, RCS & RDS with 447,209 numbers, Telekom Romania Mobile Communications with 373 669 numbers and Telekom Romania Communications with 14.975 mobile numbers ported.

Figure No. 3. Phone numbers ported



Source: ANCOM

The statistics for the current year shows that the phone number portability records a growth rate accelerated so that from January to October 2015 were already completed 554 985 porters compared to 564.648 in 2014. The monthly average of porters corresponding to the first 9 months of 2015 rose to 58.650 from 47.054 porters in 2014 and 22,844 in 2013. Over 89% of all ported numbers between 1 January to 16 October 2015 are mobile numbers, respectively 494 397. Nearly half of these were ported to RCS & RDS network - 233 546, while Vodafone received by porting 111 170 new users, Orange - 83 520, Mobile Communications Telekom Romania - 55.436 and Romania Telekom Communications - 10.691.

The portability offers to phone users complete freedom of choice because it allows keeping the same phone number when changing phone provider.

5. The Romanian telecommunications compared with the EU telecommunications

For a detailed picture of telecommunications services in Romania we present a comparison with those of the European Union in terms of indicators such as investments in the field, market indicators and the balance of payments of telecommunication services.

⁴ http://www.ancom.org.ro/peste-2300000-de-numere-portate-n-537apte-ani_5473

Table No. 6. The situation of the main indicators of telecommunications in Romania and EU in 2014

	Telecommunication UE			Telecommunication Romania		
	Value	% Change		Value	% Change	
	2014	2005-14	2014	2014	2005-14	2014
Investment in economy (mill. US\$)						
Inward FDI						
Stocks (2012)	194642	...	-14	2823	...	-8
Flows	...	-	-	207	-	-
Market indicators						
Total telephone subscriptions (per 100 inhab.)	166	2	-1	127	5	0
Mobile phone subscriptions (% tot. tel. subscript.)	74,7	1	1	83,3	1	0
Internet users (per 100 inhab.)	82	...	4	54,1	11	9
Broadband internet subscriptions (per 100 inhab.)	31	11	4	18,5	30	6
Secure Internet servers (no.)	422960	20	21	2491	41	81
Production and Employment						
Value added (mill. US\$, 2012)	217231	0	-9	3206	2	34
% of total value added(2012)	1,5	-3	-4	1,9	-6	20
Trade - Balance of Payments (mill. US\$)						
Telecommunications services						
Imports (2013)	41336	...	4	414	2	9
Exports (2013)	51101	...	3	655	3	19
Investment abroad (mill. US\$)						
Outward FDI						
Stocks (2012)	782487	...	-16	127	...	27
Flows	...	-	-	23	-	-

Source: https://www.wto.org/english/res_e/booksp_e/serv_profiles15_e.pdf

Although some indicators may not be comparable, the European Union is composed of 28 countries including Romania, so that we get into discussion those indicators which can position Romania. Thus, in terms of investments, we can say that compared to the previous year 2014 in Romania was a decrease of 8% compared with 14% decrease in the EU. If we refer to the total telephone subscriptions (per 100 inhab.) it is observed that EU has a value of 166 with an increase of 2% in the period 2005-2014 and Romania has a value of 127 subscriptions with a growth of 5% during 2005-2014. Mobile phone subscriptions presents an exciting development (% total telephone subscriptions), which in Romania is 83.3% compared to 74.7% in the EU. The analysis of Internet users (per 100 inhab.) brings to focus the fact that in Romania are 54.1 per 100 inhabitants compared to the EU where there are 82 per 100 inhabitants. To note that also in Romania the telecommunications value-added is 1.9% compared to 1.5% in the EU and that our country exports telecommunication services more than imports respecting the EU trend, but the increase from the previous year of the reporting one 2012 is 19% to export in Romania versus 3% in the EU.

We present below some comparisons between Romania and other EU countries about the position in overall ranking of the world market indicators.

Table No. 7. Market indicators positioning in some EU countries compared to Romania in 2014

RANK 2014	RO	AT	BE	BG	HR	DK	FI	FR	EL	GR	HU	IT	PL	UK
Market indicators														
Total telephone subscriptions (per 100 inhab.)	106	21	65	49	89	58	76	55	30	52	81	23	40	31
Mobile phone subscriptions (% tot. tel. subscript.)	136	151	174	129	169	156	83	202	192	182	155	141	84	187
Internet users (per 100 inhab.)	87	32	24	83	58	4	12	30	22	69	40	71	62	13
Broadband internet subscriptions (per 100 inhab.)	64	38	15	61	54	6	24	9	18	34	40	52	50	13
Secure Internet servers (no.)	38	18	22	49	54	17	20	6	3	43	32	13	11	5

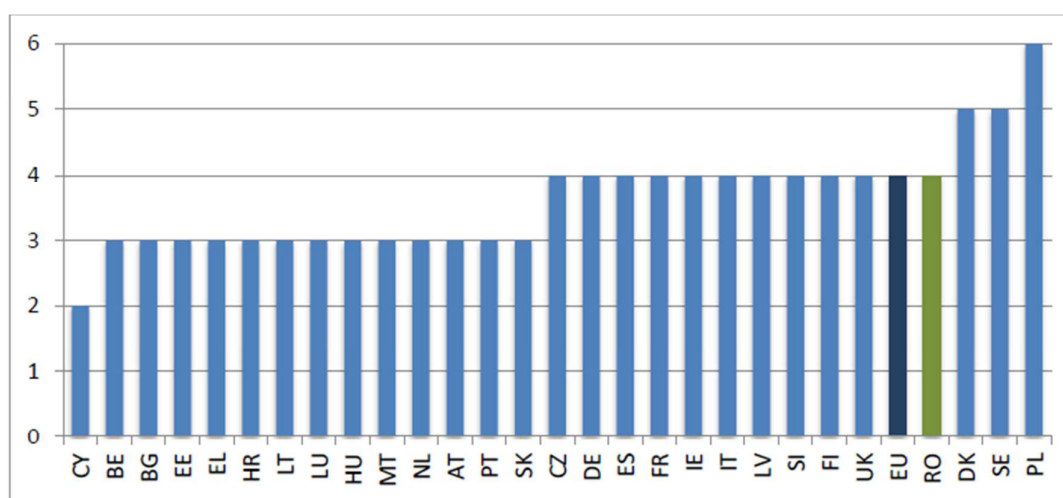
Source: https://www.wto.org/english/res_e/booksp_e/serv_profiles15_e.pdf

Analyzing the data from the table above it is observed that Romania is positioned with less favorable compared to the presented countries in terms of total telephone subscriptions (per 100 inhab.), but on the mobile phone subscriptions (% total telephone subscriptions) we can see that we are better positioned than Austria,

Belgium, Denmark, Greece, Italy, Hungary and the UK. It is certain the fact that other 135 countries have better indicators than Romania. As Internet users we are ranked on the 87th place, but surprisingly is the Secure Internet servers indicator (no.) which is ranked on the 38th place in the world better than Bulgaria, Croatia and Germany.

Given that in EU countries the mobile operators are average a number of four, we can say that Romania has a lower degree of concentration because there is a larger number of operators. As shown in the chart below, the countries where there is a greater number of mobile operators are Poland with 6 operators, Denmark and Sweden with five operators.

Figure No 4. Number of mobile operators, October 2013



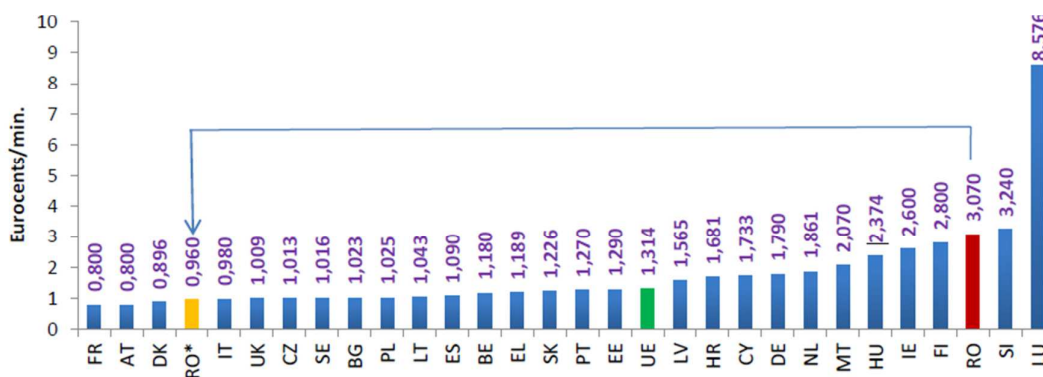
Source: European Commission – Digital Agenda for Europe/

http://www.consiliulconcurentei.ro/uploads/docs/items/id9929/evolutia_concurentei_in_sectoare_cheie_2014.pdf

By comparing the market shares of the major mobile operators in Romania and the EU, calculated according to the number of active SIM cards, we find that at the end of January 2015 the market leader had a market share of around 43%, the main competitor had a market share of 29.2%, while the remaining 27.8 % is split between other operators (the majority being owned by a company with a 22.8% share). In terms of share of market operators in the European Union, the statistics by the end of 2014 show that the market leader has an average share of about 35.4%, with 7 percent less than the telephony services market from Romania. It can be observed that in the EU the situation is more balanced than in Romania, where market leader detaches itself from its competitors. It also notes that both Romania and other EU member states, the top two mobile operators hold approximately two thirds of total users, which indicates high concentration of this market. Lately, it is noticed a decrease in interconnection tariffs on mobile market in Romania given the rules imposed by ANCOM, these being on the 25th place among the European countries with the lowest interconnection charges.

Thus, regarding the competition, the low level of these charges can represent an intensification of competition and lower the barriers to entry on the market of virtual mobile operators (MNVOs). On the retail market, virtual operators are able to set their own rates, independent of the host operator. Now, Romania is part of the European countries whose telecom market has no currently any virtual operator. According to data available on the website of the European Commission, on the opposite side are countries like the Czech Republic (58 MNVOs) and Netherlands (52 MNVOs). The presence of these operators contribute to increasing competitiveness in the mobile telephony market and, at the same time, to decreasing concentration rate of this market.

Figure No.5. The interconnection rates in EU in January 2015 (including Romania - RO) and the Romania's situation in April 2015 (RO *)



Source: European Commission – Digital Agenda for Europe/

It is interesting to note the fact that after the reduction of interconnection tariffs from April 2014, the cost of operators for the provision of minutes for calls to any telephone network decreased considerably. Compared with regulated tariffs from 1st March 2012, the costs decreased by approximately 76.3%. For example, if in March 2012, the cost associated with the provision of 100 minutes in any operator's network reached € 4.05, in April 2014 the provision of the same service costs only € 0.96. Therefore, it can bring both a direct benefit to consumers by lowering termination rates in any network, and indirectly through increased competitiveness due to the entry of several operators on the market.

6. Conclusion

The telecommunications services segment is one of the most dynamic activity sectors in Romanian economy, but also at European level. From those presented in this paper it is enlightened the importance of these services in achieving the purpose for which they were created, namely it eliminates the communication limits between people through voice traffic, messaging and data, which have evolved dramatically lately.

The statistics for the current year shows that the phone number portability records a growth rate accelerated so that from January to October 2015 were already completed 554 985 porters compared to 564.648 in 2014. The monthly average of porters corresponding to the first 9 months of 2015 rose to 58.650 from 47.054 porters in 2014 and 22,844 in 2013. Over 89% of all ported numbers between 1 January to 16 October 2015 are mobile numbers, respectively 494 397. Nearly half of these were ported to RCS & RDS network - 233 546, while Vodafone received by porting 111 170 new users, Orange - 83 520, Mobile Communications Telekom Romania - 55.436 and Romania Telekom Communications - 10.691.

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The mobile telecommunications industry due to reduced number of active enterprises on the market, thus a high level of concentration, homogeneity of products and barriers to entry on market, presents important elements of a structural nature and behavior that are significant sources of competitive pressure.

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