Chapter 4 – The Mobile Telephone Service

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4.   Mobile Telephone Service (MTS)

This chapter contains the MTS's state at the end of 2006 and describes namely this service's offerings, its usage and user's profiles and its evolution during that year.

Below are the main items of this service's evolution in 2006.

4.1.   Main items of the evolution in 2006

- In the end of 2006, MTS's penetration reached 115.4 per one hundred inhabitants, one of the highest among the EU countries.

  According to the Electronic Communications Consumer Survey of December 2006, about 87.7 per cent of those residing in Portugal were MTS's clients.

  The difference between the above-mentioned penetration rate and the answers to the said enquiry is due to several factors, such as the fact that many users have more than one active card, new SIM cards are activated for exclusive access to data and Internet services, active cards are used in machines, equipment and vehicles (automated payment terminals using the mobile network, alarm, safety, telemetry and telematics equipment, etc.), cards used by companies.

  However, the growth in the number of subscribers diminished and is now below the EU average, with similar values to those in other countries in which the service is at the same stage of the life cycle.

- The voice service usage level also had a moderated yearly growth (2.9 per cent regarding calls and 7.4 per cent in minutes). This is a smaller growth than that of the latest years and, according to the available information, than that of other EU

countries. Beyond the life cycle effect, traffic evolution may have been influenced by the SMS traffic evolution.

On the other hand, fixed-to-mobile calls stand out due to their stagnant or diminishing amount, a recent evolution that is part of the latest years' trend and that could be explained by the so-called fixed-by-mobile replacement.

- There as a significant increase in 2006 in the amount of sent text messages. It grew 167.8 per cent since the previous year. This increasing SMS trend, which began in mid-2005, was fostered by the mobile operators' promotional campaigns. Mention should be made to the fact that the usage level of SMS in Portugal is still below the EU average.

- This service's maturity stage led the operators to stake on the segments and services with the highest potential to generate revenue and on the data services, namely within 3G.

According to the available data, Portugal is among the EU countries with the highest penetration of 3G telephones.

Operators have launched new services and facilities. E.g. 2006 saw the launch of Mobile TV and changes to the features of broadband Internet access offerings.

The usage level of the majority of these services and facilities is low, except the broadband Internet access, which penetration reached 1.6 per 100 inhabitants at the end of the first half of 2006.

- This service's revenues reached 3.4 billion Euros, a figure that is similar to that of the previous year. The service's revenues were hindered by lower fixed-to-mobile termination prices.

4.2. MTS offer

The MTS is a public switched electronic communications service making it possible to send and receive signals based on land electronic communications networks. The access network is made up of radio means and the terminals are mobile.

The service is provided by the entities with a license for that provision, since the use of the frequencies depends on the granting of individual rights of use[20].

Below are described in more detail the provided services and the entities providing these services in Portugal.

4.2.1. MTS

The first generation (1G) of the mobile service was exclusively designed for voice communications. It used analogue signals and a transmission technique based on Frequency Division Multiple Access (FDMA)[21]. This transmission technique allocates a frequency band to each channel. 1G can thus be identified with the analogue systems, with one single service being provided, voice. In Portugal, this service was provided by TMN since 1989 and terminated on 30 October 1999.

The second generation (2G) uses the European Telecommunications Standards Institute's (ETSI) Global System for Mobile Communications/ Digital Communications System (GSM/DCS) standards and operates in the 900 MHz (GSM) and 1800 MHz (DCS) band. It uses digital technology and, besides voice, it gives access to low-rate data services (e.g. fax and e-mail). This generation, already with a certain ability to transmit data, uses a more effective technique regarding the use of spectrum based

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[20] Cf. no. 3 of article 19 of Law no. 5/2004 of 10 February.
[21] Interference-free access system that grants different frequencies to each user for accessing its several users.

on Time Division Multiple Access (TDMA)[22].

GSM, which also made international roaming possible, has had a huge success as a wireless technology and a previously unseen story of international acceptance. GSM networks had a very fast and broad geographical roll-out and are currently in around 217 countries and territories[23,24]. Currently, GSM technology is used by ¼ of the world population[25].

The technical specificities of this platform (narrow band) and the limitations of terminals (small screen, keyboard, autonomy, and limited memory and data processing), although they made large scale mobility possible, did not give mobiles Internet access the same speed as that of a PC connected to a fixed telephone network. The GSM platform was however perfected and developed to encompass a progressively broader offer of voice and data services.

Within this framework, several manufacturers united their efforts in order to define a protocol that could be used by all mobile communications systems. This protocol, named Wireless Application Protocol (WAP)[26], made a standardised communication between a mobile terminal and a server at the mobile operator network possible. However, this protocol, even if it made some improvements to mobile Internet access, did not have a broad acceptance on the market, if individually considered. Among its main limitations, slow access to the required information and the need for a very specific and little diversified content offering stand out.

The limitations of the above-mentioned standards led to the development of the mobile networks' 2+ generation, with the introduction and development, from GSM, of

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[22] Interference-free access system in which several users simultaneously access a single radio frequency by parting it into channels (time slots). Unlike FDMA, this system multiplies the frequency's capacity by dividing its use in time.

[23] http://www.gsmworld.com/about/membership/member_stats.shtml.

[24] http://ec.europa.eu/information_society/industry/comms/mobile/index_en.htm

[25] According to GSM Association/Wireless Intelligence there were 1,941.6 million connections to GSM networks in the second half of 2006 (http://www.gsmworld.com/news/statistics/index.shtml).

[26] It is a wireless application protocol that uses a specific language and technology, giving mobile telephone users and those of other wireless digital devices the possibility to access Internet contents, exchange e-mail or perform other data transmission operations. It is particularly used in mobile communications networks. Thus, with a micro-browser, it is possible to view pages on the mobile telephone screen that are written in a special language, named WML (Wireless Mark-up Language), more adequate than HTML (Hypertext Mark-up Language), the most common-place computer language on the Internet, to send data to wireless devices.

technological suites aimed at supporting data services, such as GPRS[27] and Enhanced Data for GSM Environment (EDGE)[28], which make it possible to provide mobile data services with higher quality, both in terms of processing capacity and speeds (from the 9.6 kbps transmission rates, available on GSM networks, to rates as high as 115 kbps with error protection and 384 kbps), as well as some multimedia services.

GPRS networks make it possible, in an "always on" mode, to send and receive data at much higher rates than those of the traditional GSM, giving access to the Internet and to search engines with terminals with coloured screens, mobile e-mail, visual communications, multimedia messages and location-based services.

Also the fact that it makes data communications possible with no need for a voice channel will make it possible to set up tariff schemes based on amount of data and no longer on the length of communications.

The third generation (3G), also digital, was designed for the convergence of fixed and mobile communications, and multimedia, by making mobile networks closer to fixed ones, regarding capacity, and giving mobile users access to multimedia services at rates of 384Kbps and above, for voice and data services.

Among the third generation mobile telecommunications systems, UMTS (Universal Mobile Telecommunications System) stands out, in the 2GHz band, and is identified as the European standard within the global family of mobile international telecommunications systems standards (IMT2000/UMTS).

The UMTS technology uses the Wideband Code Division Multiple Access[29] (WCDMA) transmission mode, which is based on multiple access by code division. Although it is different from those of the GSM/GPRS networks, this technology – which requires the

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[27] Evolution of the GSM system, based on packet-switching, making it possible to have throughputs of up to 115 kbps.
[28] Evolution of the GSM system that makes it possible to have throughputs of up to 384 kbps.
[29] Broadband Access system which access discipline to the various users shares the same frequency band through codes assigned to each one of them.

development of complex networks and systems – was designed to be fully GSM-compliant.

UMTS makes the offer of advanced mobile multimedia services, regardless of the user's location, possible, making way for the development of new services and applications: Internet-based services, e-commerce, location-based services, sending photos directly from cameras (using the Bluetooth[30] protocol), live video feeds, remote monitoring of people and vehicles and download of games and music.

Current mobile phones have countless functions, beyond phone calls: they give access to a variety of services that increase the flexibility of mobile communications, call-on-hold, call holding, calls re-routing, caller ID and data services standing out. The microelectronics based on which the software for those applications was set up also makes it possible to include in the mobile phone a digital camera, an FM receiver, an MP3 music player, amongst others.

Besides those facilities, mention should also be made to SMS – Short Message Service[31] – messages, a non-voice service facility for sending and receiving small texts, including letters and numbers, among mobile phones.

Since 2001 and 2002, respectively, within the scope of the service facilities, mobile operators have offered EMS (*Enhanced Messaging Service*) and MMS (*Multimedia Messaging Service*). EMS is an enhancement of SMS, very similar to it regarding use, includes sending and receiving graphic elements / logos or sounds, combines melodies, images, sounds, animations, altered text and regular text in an integrated fashion. This is how it became possible to send moving messages and videos.

Some other important functions were also introduced in the MTS, by regulatory ways: indirect access (available since 31 March 2000); and operator portability (since 1

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[30] Short range radio technology in the 2.4 GHz frequency band, used to ensure connectivity among devices at the user's facilities, within approximately 10 metres, with a maximum throughput of 1 Mbps. It may evolve, in the future, to 6 to 11 Mbps maximum throughput and a 100-metre range.
[31] This service was created still on Phase 1 of the GSM standard.

January 2002).

During 2004, and further to the delays in connection with the difficulty in stabilising the technology, a set of new 3G mobile services based on IMT2000/UMTS (WCDMA) were introduced.

3G-based commercial services – namely broadband Internet access, video call, multimedia services, etc… – were introduced in January 2004, on an experimental basis, and were commercially launched by TMN, Vodafone and Optimus, respectively, on 21 April 2004, 4 May 2004 and 4 June 2004.

4.2.2. MTS providers

The MTS was first marketed in Portugal in 1989 by a consortium of CTT and TLP. Only later, on 22 March 1991, was TMN – Telecomunicações Moveis Nacionais, S.A. set up. The provided services used the analogue C-450 technology.

In March 1991 a public tender for an MTS license using GSM technology took place. That license was awarded to Telecel – Comunicações Pessoais, S.A. on 18 October 1991. The service's commercial offering began on 18 October 1992.

TMN's operation license was issued on 16 March 1992, with excuse from public tender, in accordance with the exceptional rule of article 19 of Decree-Law no. 346/90 of 3 November, as changed by Decree-Law no. 147/91 of 12 April. TMN began offering its service in October 1992.

On 15 July 1997, Notice No. 3542-A/97 (II Series) was published, for the opening of a new contest to grant a license for the provision of the land mobile service in accordance with the GSM and DCS standards and using the 900 MHz and 1800 MHz frequencies, respectively. Further to that contest, a license was granted to Optimus – Telecomunicações, S.A.. Optimus began its commercial offering in August 1998.

UMTS licensing

In order to comply with Decision no. 128/1999/EC, of the European parliament and the Council, of 14 December 1998, regarding the coordinated introduction of a third generation mobile and wireless communications system (UMTS), the general procedure regarding the licensing of the IMT2000/UMTS services was approved by ANACOM's Board of Directors on 23 December 1999.

On 1 August 2000, a contest was opened for the granting of four national licenses for the International Mobile Telecommunications Systems (IMT2000/UMTS), by order of the Minister for Social Equipment of 1 August 2000, published in the Official paper Diário da República, no. 176, II Series, on that same date.

The contest was ruled by the Regulation of the Contest approved by order of the Minister for Social Equipment of 1 August 2000.

On 19 December 2000, the Minister for Social Equipment (MSE) announced the results of the public contest for the granting of four national licenses for the International Mobile Telecommunications Systems (IMT2000/UMTS).

The four licenses at stake were thus granted to the following entities:

- Telecel – Comunicações Pessoais, SA (currently Vodafone)
- TMN – Telecomunicações Móveis Nacionais, SA
- OniWay – Infocomunicações, SA
- Optimus – Telecomunicações, SA.

3G commercial offerings were launched in Portugal 21 April 2004, 4 May 2004 and 4 June 2004, respectively by TMN, Vodafone and Optimus.

The four licensed operator for this system, OniWay, did not begin its mobile telecommunications activity, and its license was formally revoked on January 2003 by Order of the Minister of Economy (Order No. 1758/2003 of 29 January).

Mention should be made to the fact that the mobile virtual network operator (MVNO[32]) activity can be framed within the offering of electronic communications networks and services and is subject to the general authorisation regime, and to the terms of the granting of rights of use of numbers.

MVNOs do not use rights of use of frequencies and, thus, to their own radio access network infrastructure. They are based on the radio means supplied by network operator(s) which possess their own rights of use. MVNOs have a direct contractual relationship with the end customer, in connection with the provision of the service, and, therefore, are not mere distributors of the service, in which the contractual relationship is kept between the end client and the mobile network operator.

MVNOs thus have direct customers, i.e. they are the exclusive responsible parties for the relationship with the end customers and design and market their own retail offering, which they are free to detach from that of the operator on which they are based, by defining their own marketing strategy.

Within this scope, Declaration ICP-ANACOM nº11/2006 was granted to Telemilénio – Telecomunicações, Sociedade Unipessoal, Lda (marketed as Tele2) by the end of 2006, giving this company the possibility to offer mobile telephone, voice telephone traffic resale and SMS traffic resale services, which it did not yet start, however.

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[32] Mobile Virtual Network Operator.

Current state

In 2006, the legally entitled entities for the provision of the mobile telephone service in Portugal remained active: TMN, Vodafone and Optimus.

Table 4-1 – MTS providers

Optimus Telecomunicações, S.A.
TMN — Telecomunicações Móveis Nacionais, S.A..
Vodafone Portugal – Comunicações Pessoais, S.A.

Source: ICP-ANACOM

New offerings in which the distribution of the service is made by a third party, different from the operator, came about in 2006, namely:

- *Talk Mobile* marketed by *The Phone House* with preferential tariffs for numbers within the brand;
- Rede Bónus marketed by *Worten Mobile*, also with preferential tariffs among clients of this network.

All new offerings are based on Optimus' network.

These activities are not MVNO's activities and, therefore, their providers are not MTS providers.

4.3.   MTS user and usage profiles

The following sections contain the main features of the MTS user and of this service's usage.

4.3.1. Characteristics of the MTS user

According to the data received from the 2004-2006 Electronic Communications Consumer Surveys[33,34,35,36], variables age and education level are the ones that mostly separate MTS users from its non-users.

In fact, there is a negative correlation between age and STM penetration. Worth pointing out is the fact that, from those above 65 years of age, only 58.5 per cent has a mobile phone, at the end of 2006. Nevertheless, this result means that there was a considerable increase to penetration in this group vis-à-vis 2004.

Table 4-2 – MTS penetration by age class

Age class	Feb. 2004	Jun. 2005	Feb. 2006	Dec. 2006
15-24	90.1%	96.2%	98.4%	99.1%
25-34	91.8%	92.4%	97.1%	98.5%
35-44	79.6%	86.1%	92.9%	97.1%
45-54	69.6%	75.0%	91.3%	90.9%
55-64	42.3%	69.6%	79.8%	83.0%
65-mais	19.0%	29.0%	51.0%	58.5%
Total	66.0%	74.1%	84.5%	87.7%

Source: ICP-ANACOM, 2004-2006 Electronic Communications Consumer Survey

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[33] The universe defined for this survey was individuals of both genders, aged 15 or over, residing in Mainland Portugal and the Autonomous regions of Madeira and the Azores. The size of the sample was determined for a maximum error of 3 per cent for the main results (assuming a significance degree of 95 per cent) The sample was stratified by region (NUTS II), habitat/size of households (5 groups), gender, age (3 groups), education (3 groups) and occupation (2 groups), based on the last General Population Census: Census 2001. 1051 interviews were made. Data collection was made with personal and direct interviews. The field work took place between January and February 2004, by Intercampus.

[34] The universe defined for this survey was individuals of both genders, aged 15 or over, residing in Mainland Portugal and the Autonomous regions of Madeira and the Azores. The size of the sample was determined for a maximum error of 2.5 per cent for the main results (assuming a significance degree of 95 per cent). The sample was stratified by gender, age and region, in accordance with the last General Population Census: Census 2001. 2184 interviews were made. Data collection was made with personal and direct interviews. The field work took place between 9 June and 12 June 2005, by Metris GFK.

[35] The universe defined for this survey was individuals of both genders, aged 15 or over, residing in Mainland Portugal and the Autonomous regions of Madeira and the Azores. The size of the sample was determined for a maximum error of 2.5 per cent for the main results (assuming a significance degree of 95 per cent). The sample was stratified by gender, age and region, in accordance with the last General Population Census: Census 2001. 2,020 interviews were made. Data collection was made with personal and direct interviews. The field work took place between 17 January and 22 February 2006, by Marktest

[36] The universe defined for this survey was individuals of both genders, aged 15 or over, residing in Mainland Portugal and the Autonomous regions of Madeira and the Azores. The sample was selected by quota of sex, age and education and occupation, structured by region and residence. In total 2,519 interviews were carried out. Of these 2,519 interviews, 997 were made by mobile phone and 1,522 by fixed-line. In the cases of Table 1, point 2 and Table 3, a 3.1% margin of error is ensured. In Table 7 a 2.5% margin of error is ensured. In the remaining tables the margin of error is approximately 1.95%. The results were adjusted for the total target population and households according to the weighting calculations of MARKTEST and based on the 2001 Census of INE. For mobile services a weighting was applied to be representative of the Portuguese population of over 15 years of age and residing in Portugal, based on the social-demographic characteristics of the survey. The fieldwork and processing of the information was performed MARKTEST between 9 November and 29 December 2006.

On the other hand, those with lower education levels are the ones among which the MTS penetration is the lowest.

Table 4-3 – MTS penetration by class of education

Class of education	Feb. 2004	Jun. 2005	Feb. 2006	Dec. 2006
University/ Post-graduation/ Master/ PhD	96.8%	95.1%	99.0%	99.3%
Medium/ Polytechnic	89.5%	100.0%	91.7%	98.8%
12th grade (11th grade)	96.4%	96.9%	96.7%	98.9%
9º grade	86.5%	91.5%	91.0%	96.1%
6º grade	81.4%	82.2%	89.9%	93.9%
Complete primary education	50.0%	55.5%	76.9%	77.8%
Incomplete primary education /Illiterate	10.2%	20.5%	34.4%	43.0%

Source: ICP-ANACOM, 2004-2006 Electronic Communications Consumer Survey

People residing in the Azores and inland are those with less mobile phones, but all regions, bar Midland, reinforced their penetration in 2006.

Table 4-4 – MTS penetration by NUT II (%)

Region	Feb. 2006	Dec. 2006
North	83.0	86.5
Midland	84.5	84.3
Lisbon and Vale do Tejo	88.8	93.0
Alentejo	78.3	85.5
Algarve	84.9	89.3
Madeira	85.4	89.9
Azores	78.9	82.6
Total	84.2	87.7

Source: ICP-ANACOM, Electronic Communications Consumer Survey – February and December 2006.

4.3.2. Characteristics of the MTS usage

Below are some items on the use of the MTS, namely used tariff schemes and features of the made calls.

Tariff schemes

Regarding tariff schemes used by the MTS subscribers, about 80 per cento f the subscribers use prepaid plans. This ratio has been stable over the last few years.

Graph 4-1 – Distribution of subscribers by type of tariff plan
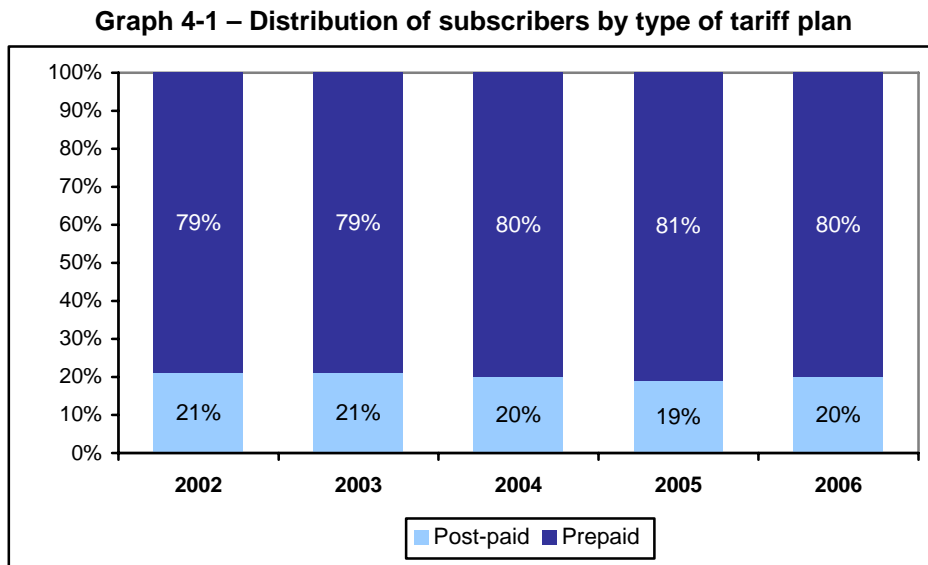
It should be reminded that Portugal was a pioneer in introducing the prepaid in the mobile telephone service. TMN launched in 1995 the MIMO product. These products give customers greater control over the service bill and do not require the payment of monthly fees.

The graphic below shows that Portugal is among the countries with the highest shares of prepaid, right after Malta and Italy. Finland and Denmark are the countries with the lowest ratios. In 2006, the EU average was at 55 per cent.

Graph 4-2 – Weight of prepaid cards in the overall amount of subscribers – Portugal vs. the EU
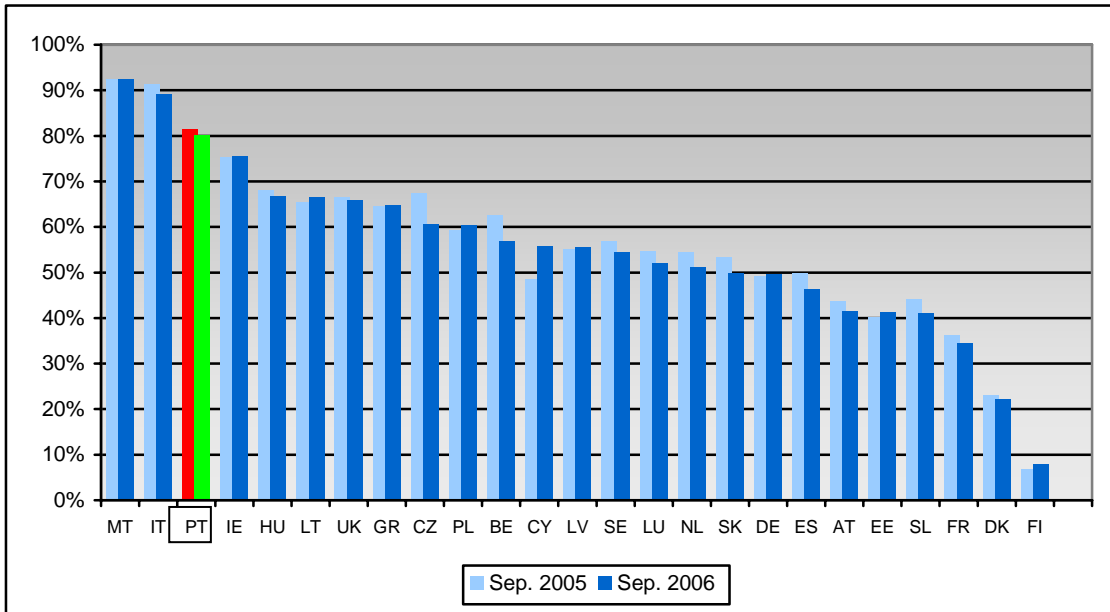
Source*: Mobile Communications Europe*, *informa telecoms & media* (Issue 440).

The weight of the plans with no mandatory charges over the last few years should be pointed out. On the other hand, as penetration increases, operators are forced to look for costumers in segments of the population with lower income levels and age below average. This type of product is particularly targeted at fulfilling these segment's needs.

Graph 4-3 – Type of contract with the mobile operator
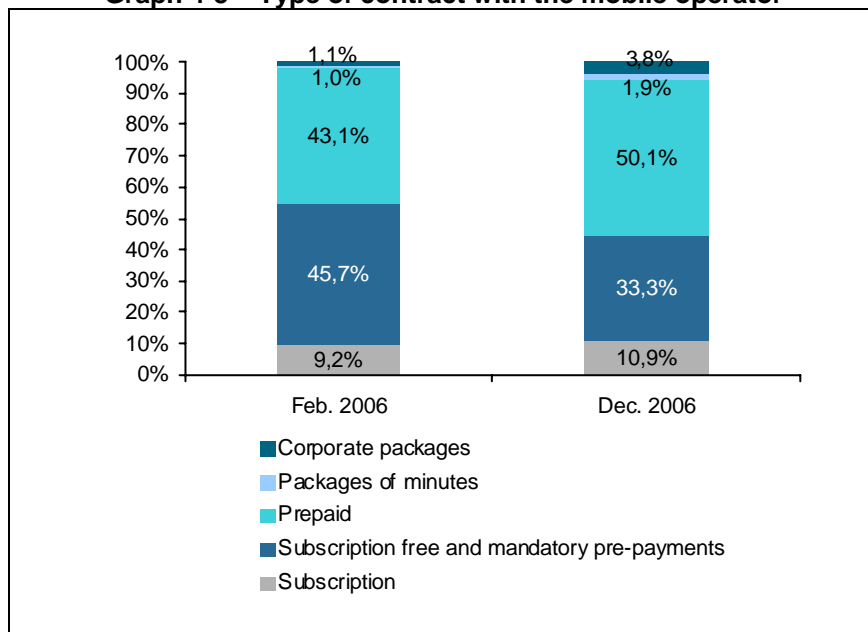
Source: ICP-ANACOM, Electronic Communications Consumer Survey – 2006.

Voice traffic: usage level

As can be seen on the following graphs, MTS traffic tends to grow. The growing traffic trend should be related with the increasing amount of subscribers, the service's massive use and also the decline in the use of the FTS.

On the other hand, seasonal nature increases occurred in each year's 3rd and 4th quarters, in connection with the summer and Christmas holidays.

Graph 4-4 – Evolution of the MTS outgoing traffic, trend and cycles (minutes)
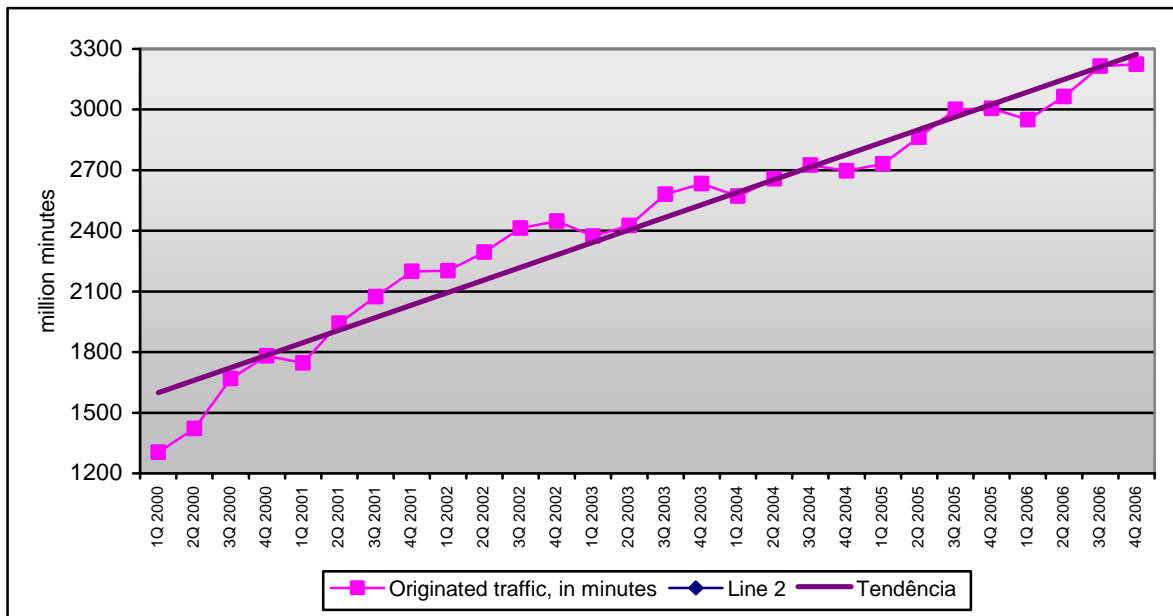
Source: ICP-ANACOM

Graph 4-5 – Evolution of the MTS outgoing traffic, trend and cycles (calls)
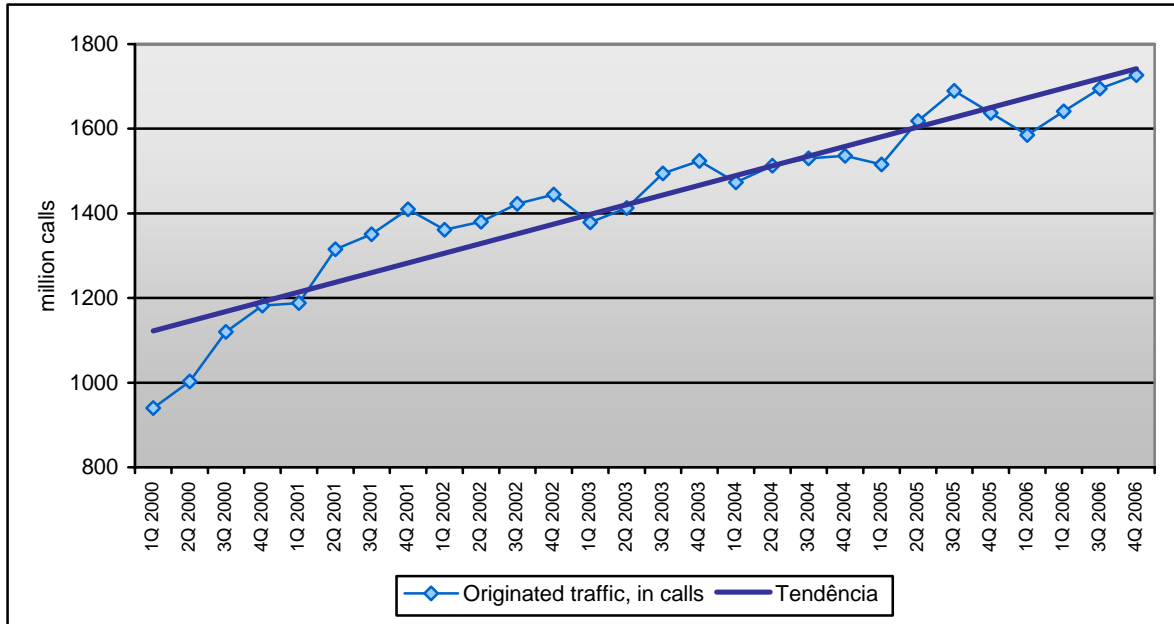
The average monthly traffic per subscriber is close to 88 minutes and 47 calls. The amount of minutes peaks during the 3rd quarter, for the above-mentioned reasons.

Graph 4-6 – Traffic evolution per subscriber, in minutes
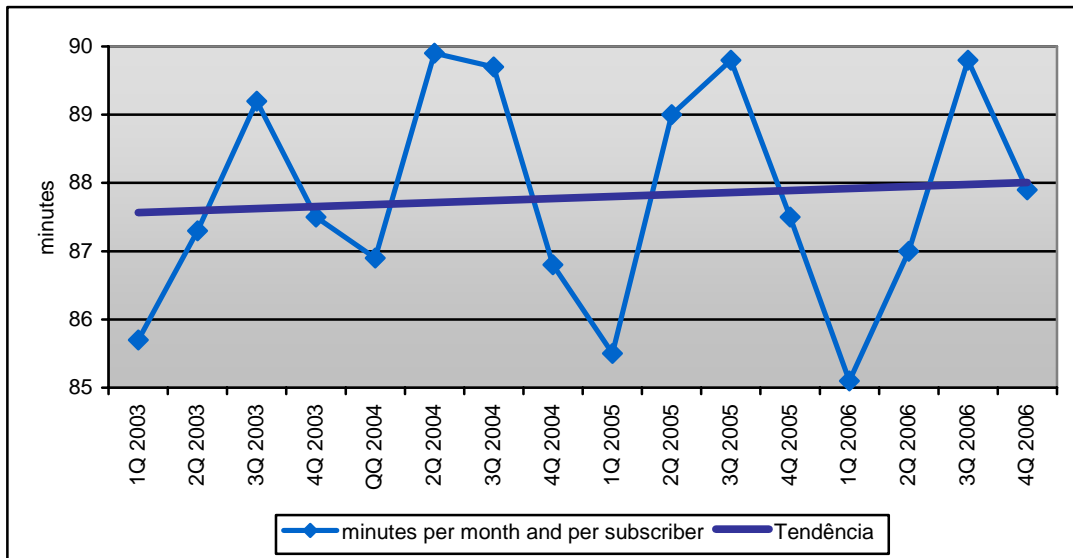
A slight decreasing trend in the amount of calls per subscriber can however be perceived. The average amount of calls per subscriber was close to 47 in the 4th quarter of 2006, less than in that same quarter the previous year.

Graph 4-7 – Traffic evolution per subscriber, in calls
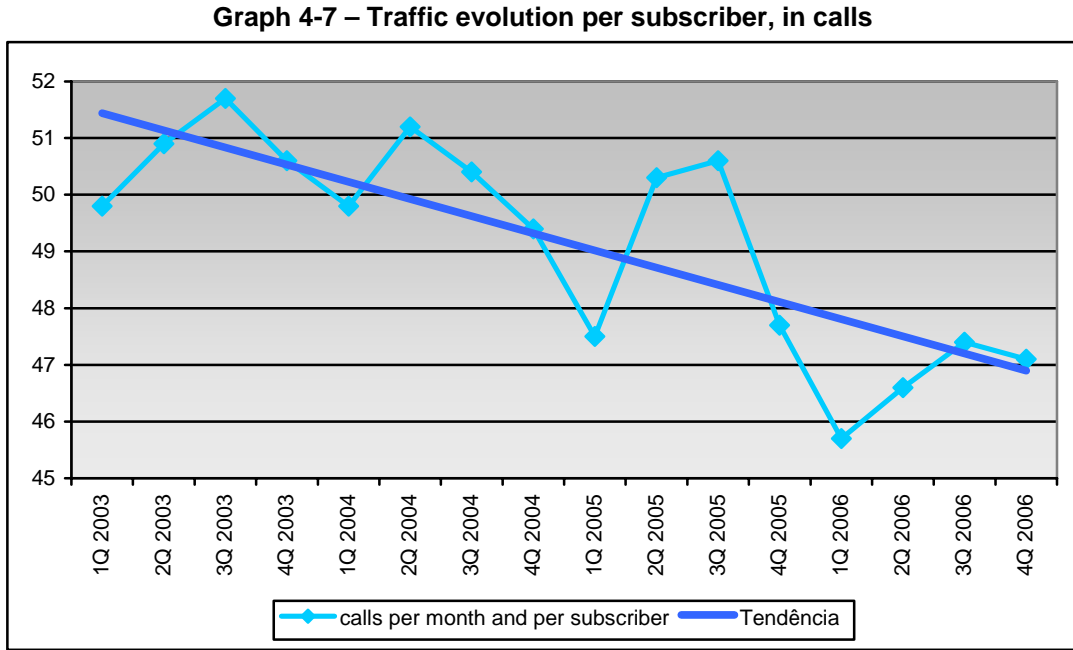
Source: ICP-ANACOM   Unit: 1 Call

This evolution can be justified by the fact that the new subscribers to this service have an income level below the average or by macroeconomic factors of a cyclical nature that impacted on this service's consumption.

The following graph shows an international comparison of traffic per subscriber. As can be seen, and following the available data, this service's usage in Portugal is below the average of the analysed countries.

Graph 4-8 – Minutes per month and per subscriber – international comparisons
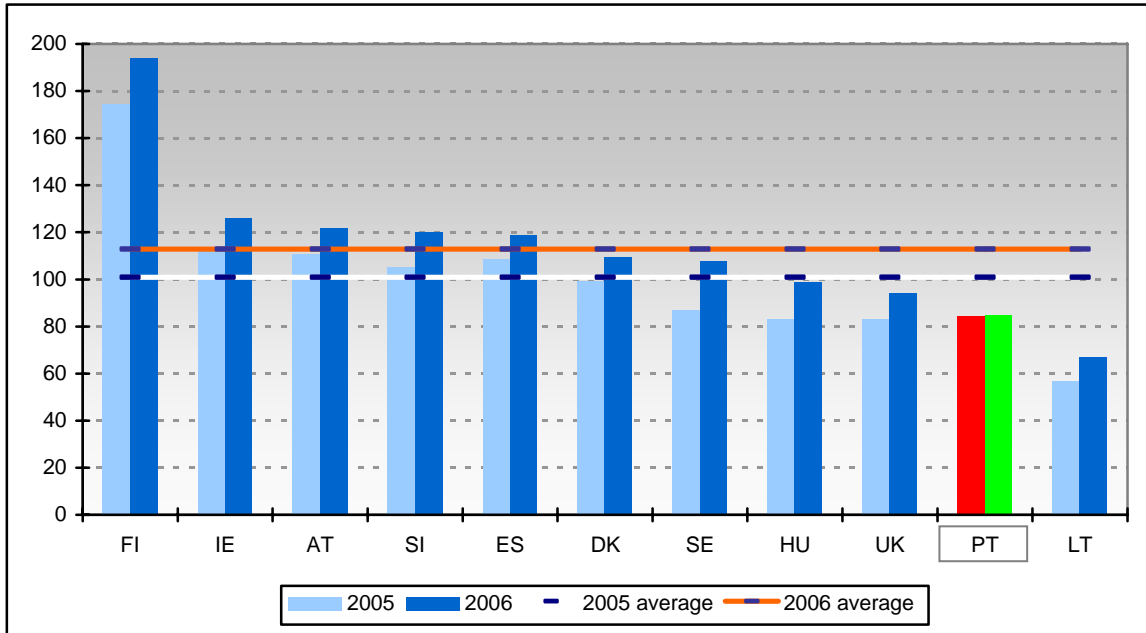
Source: ICP-ANACOM and remaining NRAs   Unit: 1 Minute
Note: For Denmark, Hungary, the United Kingdom and Sweden only 6-month traffic was considered. For Austria and Spain 9-month traffic.

Voice traffic: type of calls

Regarding the type of made calls, about 2/3 of calls are made to the network where the call has its origin. Other mobile operators' networks are the destination of around 22 per cent of the originated traffic, and the FTS comes next. Regarding entry traffic, the relative weight of the types of calls does not change significantly.

Table 4-5 – Voice call traffic distribution by type of call

	2005	2006
Outgoing traffic	100.0%	100.0%
Own network - own network	67.4%	66.8%
Own network - national FTS	7.9%	8.0%
Own network - international networks	3.2%	3.4%
Own network - other national MTS	21.5%	21.8%
Incoming traffic	100.0%	100.0%
Own network - own network	66.4%	66.3%
National FTS - own network	9.5%	8.9%
International networks - own network	2.9%	3.1%
Other national MTS - own network	21.2%	21.7%

Source: ICP-ANACOM

There is, on the other hand, a progressive decrease in the weight of calls with destination and origin in fixed networks, which should be related with the declining amount of FTS users.

Graph 4-9 – Voice traffic distribution in calls per type of call
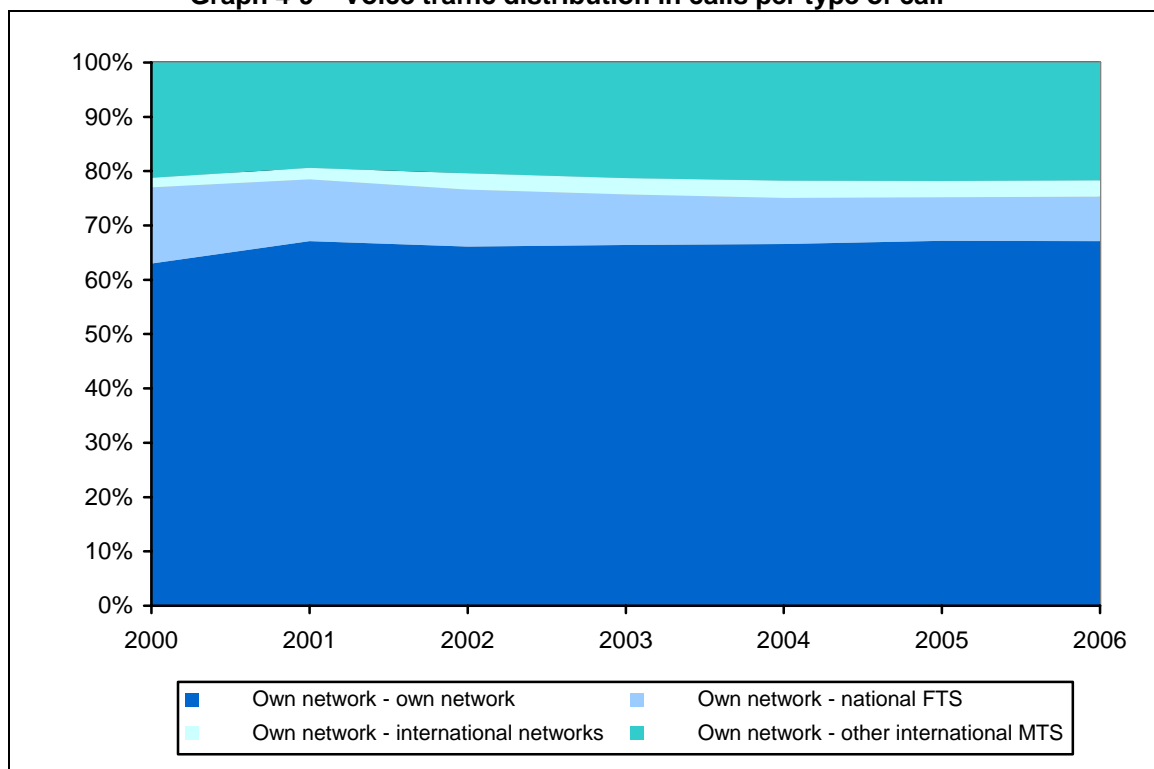
Voice traffic: average length of calls

The average length of calls is still above 100 seconds. The average length of calls in the mobile network is lower than that of the fixed network. The average length of international calls should be highlighted. They reach lengths above 150 seconds, when they are originated in the country, and of 178, when they are terminated in the country.

Table 4-6 – Average length of calls

	2000	2001	2002	2003	2004	2005	2006
Total outgoing traffic	87	91	100	103	106	108	112
Own network – own network	83	89	100	104	107	109	115
Own network – national FTS	87	86	90	96	96	97	96
Own network – international networks	172	180	170	166	156	155	155
Own network – other national MTS	93	90	94	97	98	100	103
Total incoming traffic	90	93	102	104	107	109	114
Own network – own network	83	89	100	104	107	109	115
National FTS – own network	99	102	106	107	107	110	113
International networks – own network	185	178	182	176	175	174	178
Other national MTS – own network	92	91	94	97	98	100	103

Source: ICP-ANACOM   Unit: Seconds

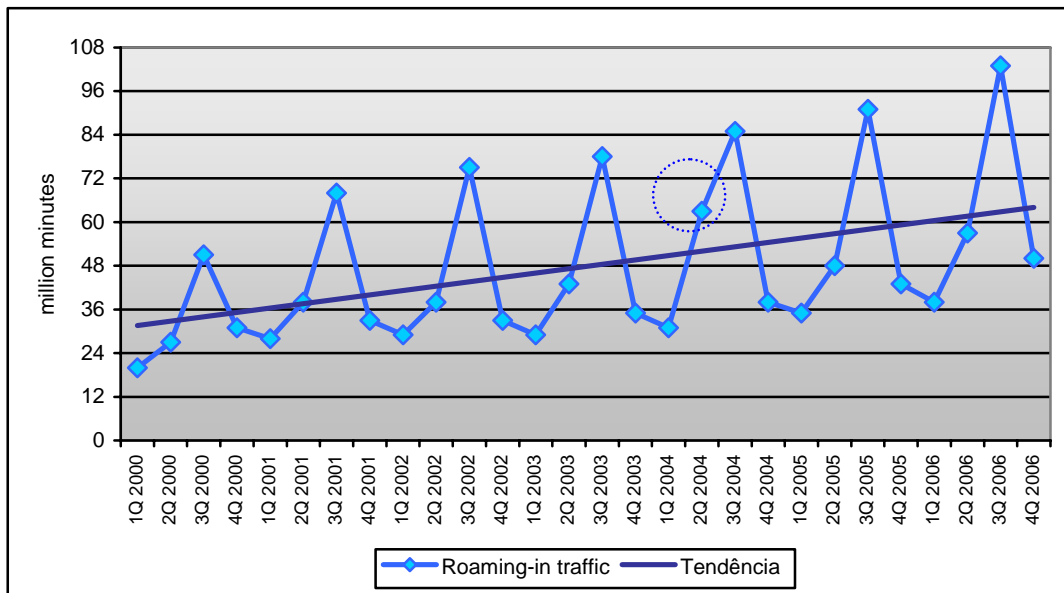## Roaming traffic: voice and SMS

The roaming traffic is highly seasonal, in connection with the summer holiday period.

The following graph shows that the "Euro 2004" phenomenon had some impact on the roaming in traffic[37] (2nd quarter of 2004).

Graph 4-10 – Evolution of roaming-in traffic and trend

Source: ICP-ANACOM

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[37] Traffic made by foreign operators' subscribers using national networks.

The roaming out traffic[38] is also highly seasonal, to the same reasons.

Graph 4-11 – Evolution of roaming-out traffic and trend
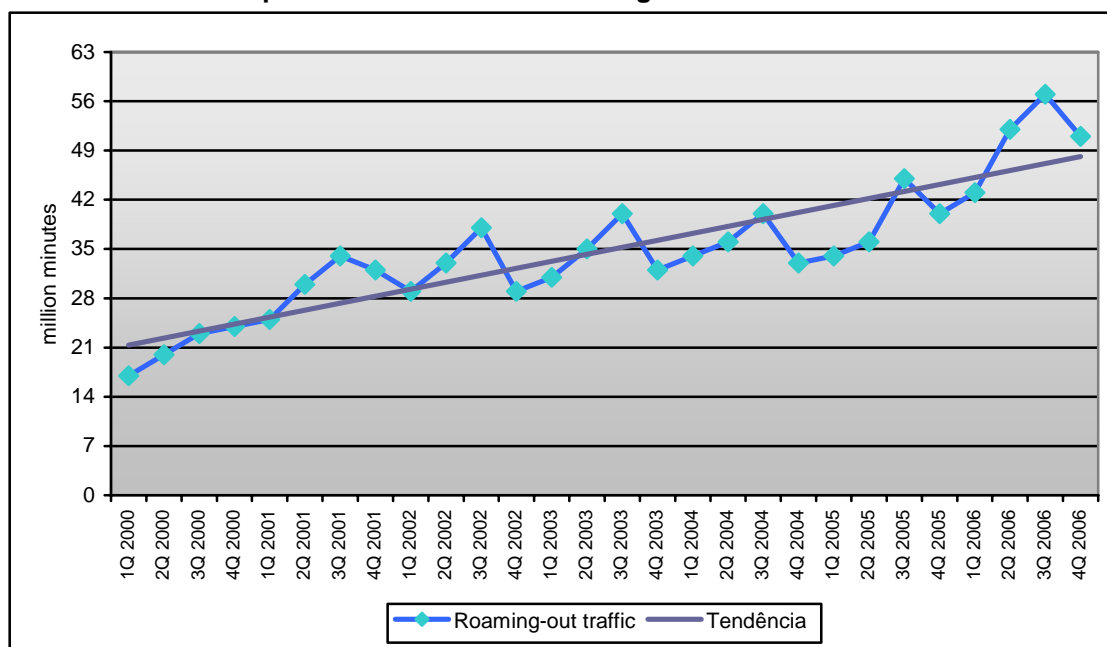
Specifically regarding roaming out, there is a growing trend in the use of SMS, which could be related with the price level of this type of calls and with the termination figures in these cases.

Also promotional campaigns by operators, to promote the intensified use of SMS, considerably add to the amount of roamed-in messages. It should be highlighted that receiving roamed messages has no costs to the roamer and receiving a voice call means paying the part of the call in connection with the termination cost of the foreign operator at which the roamer is registered. This, in connection with the afore-mentioned campaigns, can explain the peaks in the third quarters of 2005 and 2006, in the holiday seasons.

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[38] Traffic made outside the country by national operators' subscribers using the networks of foreign operators.

Graph 4-12 – Evolution of roaming-out traffic per type of traffic
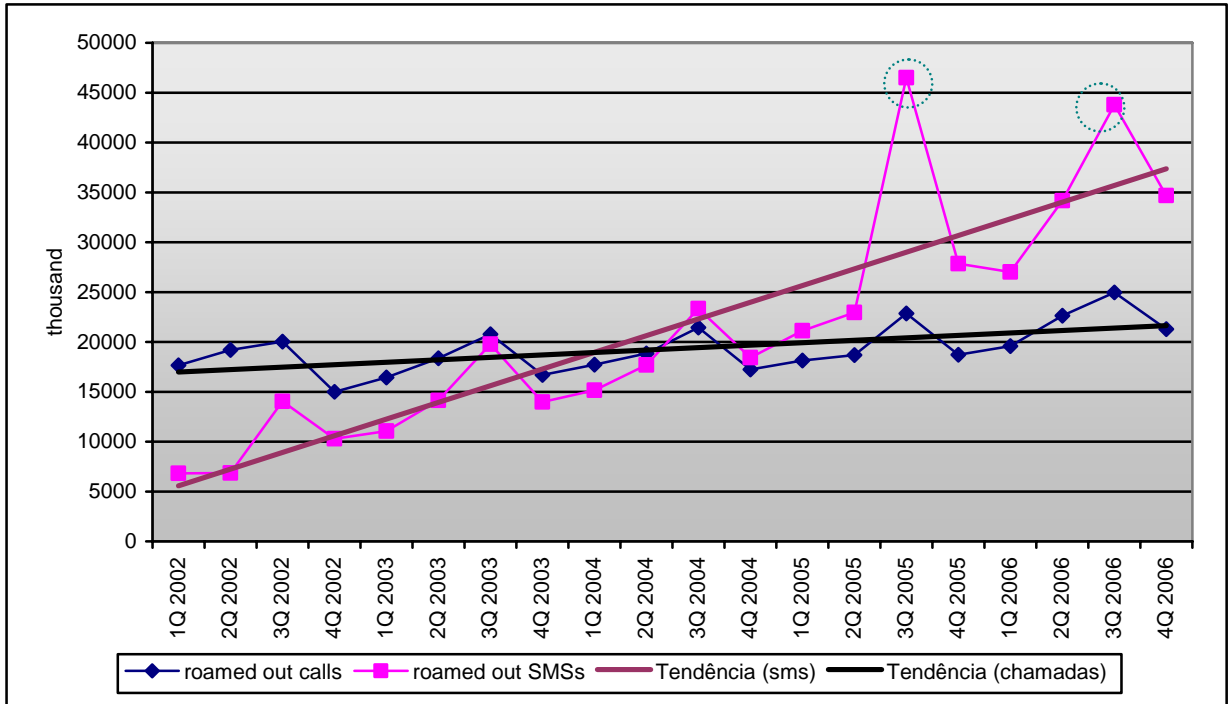
Source: ICP-ANACOM

On average, roamed calls are longer than those made within national networks.

SMS

Until 2004, there was a monthly average of 20 SMS per subscriber. This significantly changed during 2006, a change that was intensified in 2006, when the average reached 88 SMS per month and per subscriber, although in the 3rd quarter that year it reached 94.

Graph 4-13 – Evolution of the amount of SMS per subscriber and per month, trend
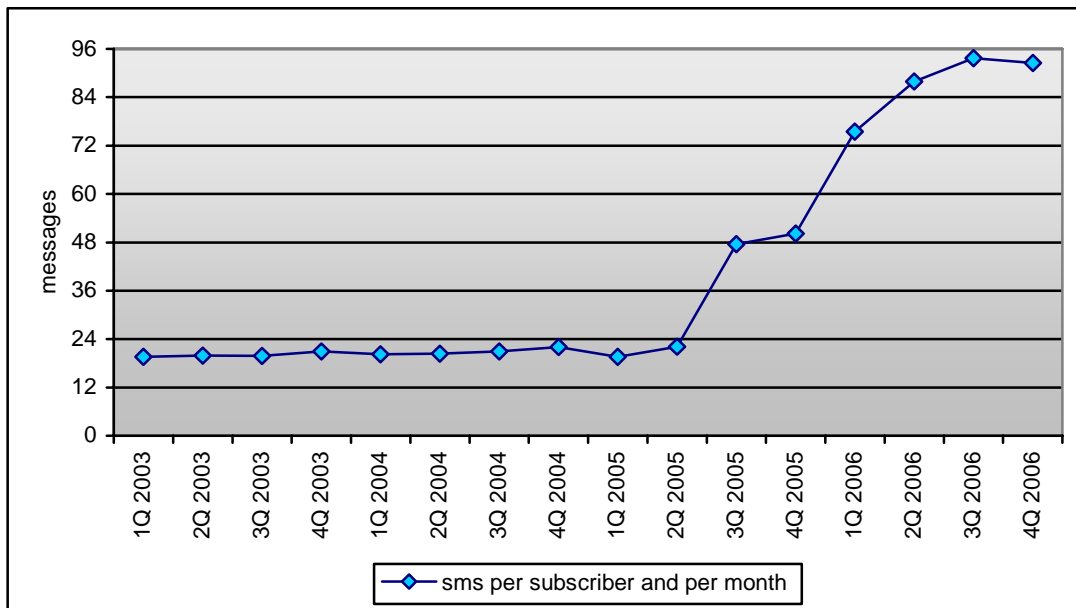
This evolution should have a relation with the new tariff offerings and promotions that the operators launched, as mentioned above.

It should be mentioned that the so-called Premium messages are only 1.4 per cent of the overall SMS.

Data services

Sending multimedia messages (MMS) is still the mostly used 3G service, with 47 per cent of all answers. There was a sharp decrease in the use of ring- and image-download services.

Table 4-7 – Services used with the 3G mobile phone (%)

	Feb-06	Dec-06
MMS	63.9	47.0
Internet access	12.8	24.9
Video calls	26.6	21.7
Ring tone- and image downloading	35.3	19.7
MMS albums	11.5	14.7
E-mail, Messenger or chat	14.1	12.9
On line games	11.7	12.3
Video services	9.7	10.6
NA	0.5	0.4
None of the above	22.7	31.7

Source: Electronic Communications Consumer Survey – February and December 2006
Note: multiple answering

4.3.3. Barriers to joining the service

According to the Electronic Communications Consumer Survey, among those that do not have a mobile phone, the main reason is "do not need it" (49 per cent).

The service's price levels, which was, in the previous year, the second main barrier to joining the service, is now the third, with the ratio of non-users giving it decreasing in 9 per cent. This evolution might have been influenced by the coming about of lo-cost or no-frills tariff schemes in 2005.

Table 4-8 – Reasons for not having a mobile telephone

IN PORTUGAL	Feb. 2006	Dec. 2006
Does not need	36.4%	49.0%
Too expensive	23.3%	14.5%
The fixed network suffices	21.6%	21.5%
Other Answers	9.4%	6.5%
Difficulties in using the mobile phone	7.2%	7.5%
Na	2.2%	1.1%
Total	100.0%	100.0%

IN EU25	Eurobarometer EU25
Does not want	42%
Too expensive	25%
The fixed network suffices	34%
Access to other media (public phones)	7%
Will purchase one in the next 6 months	4%
Other/Na	13%

Source: ICP-ANACOM, Electronic Communications Consumer Survey – 2006

Source: European Commission, *E-communications household survey, July 2006*

The main barriers to joining the service are similar to those given by the European consumers.

4.4. MTS's evolution in 2006

Below is a set of items on the MTS's performance in 2006: availability, penetration, service usage, prices and quality of service.

4.4.1. Geographical availability of the service

MTS is available in the overwhelming majority of the Portuguese territory, and it reaches almost 100 per cent of its population.

4.4.2. Service penetration

MTS penetration in Portugal reached very high figures during this year. At the end of 2006, the service's penetration rate reached 115.4.

Table 4-9 – MTS penetration in Portugal

	2002	2003	2004	2005	2006
Amount of subscribers[39] per 100 inhab.	88.4	95.6	100.3	108.3	115.4

Source: ICP-ANACOM   Unit: %

Mention should be made to the fact that, according to December 2006 Electronic Communications Consumer Survey, around 87.7 per cent of those residing in Portugal were MTS clients.

[39] The subscriber definition was approved by ICP-ANACOM's determination of 7.02.2002 and is linked to the amount of cards encompassed by a contractual relation established with one of the Mobile telephone Service operators and to which the right to originate or receive traffic over their networks was granted.

The difference between the above-mentioned penetration rate and the answers to the above-mentioned inquiry are due to various factors, such as:

- The fact that there are users with more than one active card;
- The activation of new SIM cards for exclusive use by data and Internet access services;
- The fact that there are active cards for use by machines, equipment and vehicles (automatic payment terminals using the mobile network, alarm, security, telemetry and telematic equipment, etc.);
- The fact that there are cards for use by companies.

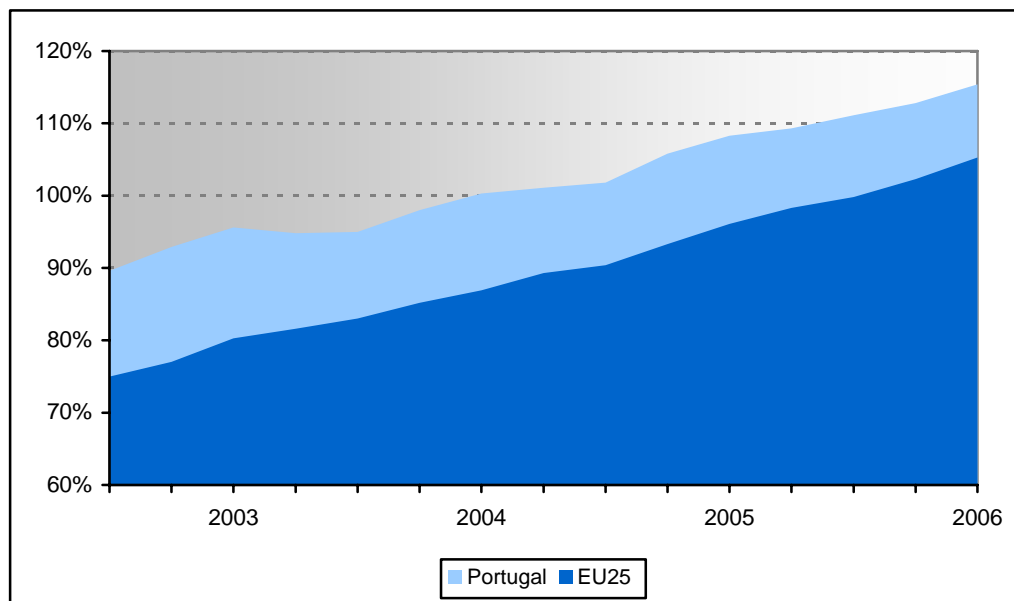MTS penetration in 2006 is still above the EU average.

Graph 4-14 – MTS penetration in the EU (%)
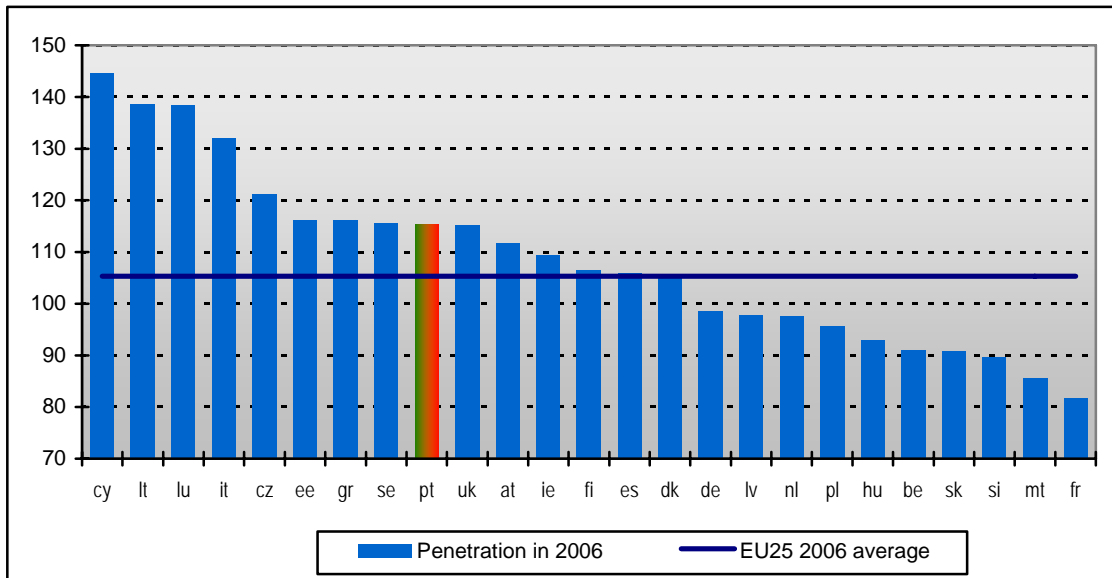
Sources: population: INE and Eurostat; subscribers: *Mobile Communications, from Informa telecoms & media*.

This is a middle term trend. MTS penetration in Portugal has consistently been above the EU average.

Graph 4-15 – Evolution of the MTS penetration in Portugal and in the EU

Sources: ICP-ANACOM, INE, Eurostat and *Mobile Communications, from Informa telecoms & media*.

MTS penetration growth and its evolution vis-à-vis the European average should have been influenced, namely, by the fast introduction of GSM in Portugal, the small penetration of the FTS, the marketing investment and the innovations launched by the operators in the market (namely tariff-related innovations). Particularly, the introduction of prepaid offerings, together with the simplified administrative procedure in connection with the purchase of the service and its activation, led to the mass use of the service and the "democratisation" of the use of the mobile phone, which, from a status symbol, became a regular commodity, available to all.

Graph 4-16 – Evolution of the amount of subscribers of the mobile telephone service: before and after prepaid
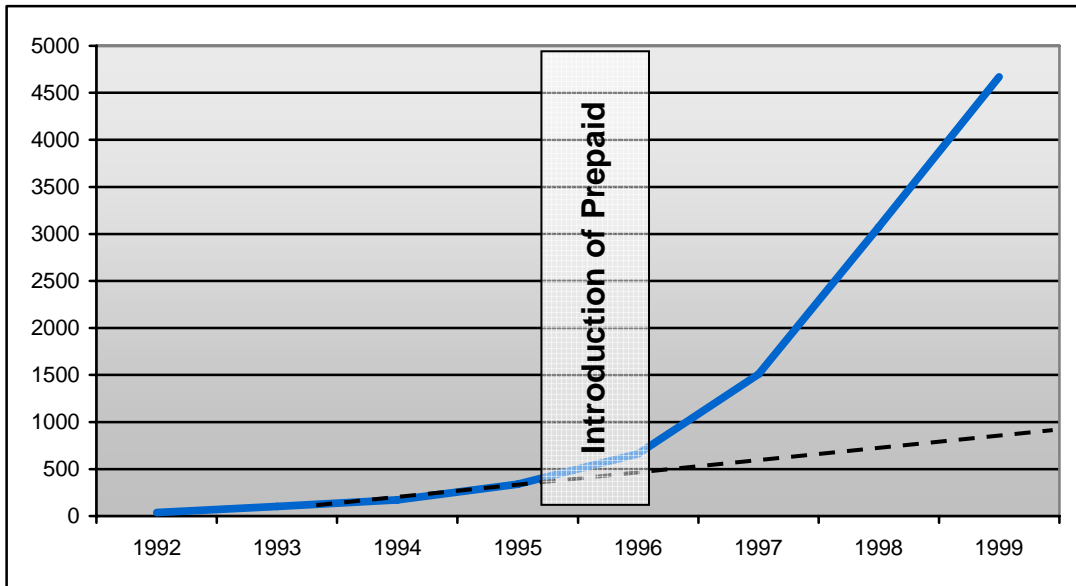
Unit: 1 Subscriber

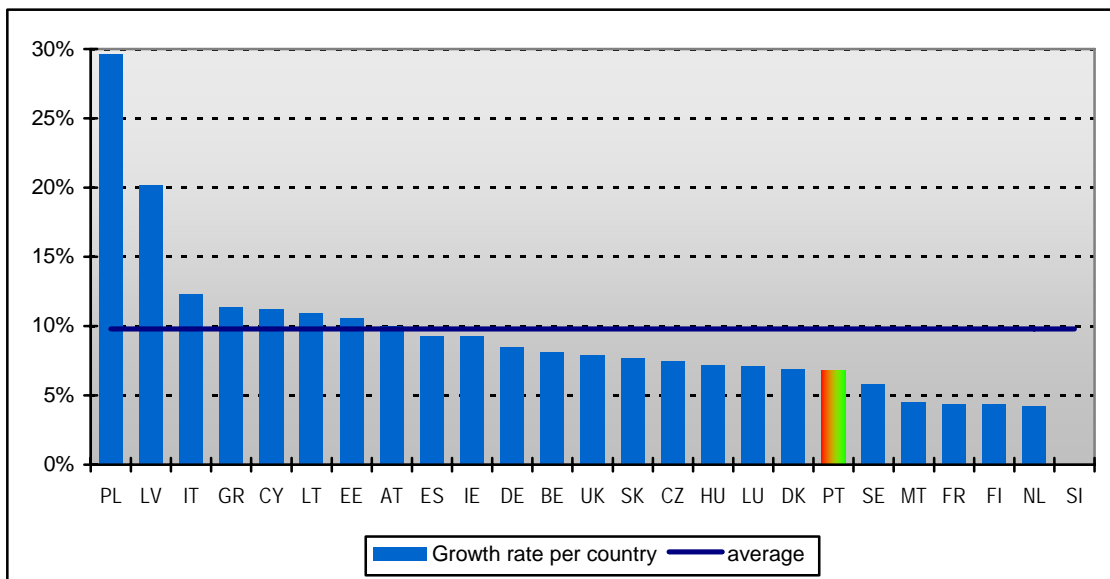Mention should be made to the fact that, in spite of Portugal's position in the EU ranking, the service's growth has slowed down in 2006. This service is having strong development mainly in the Eastern European countries, most of all Poland and Latvia.

Graph 4-17 – Subscriber growth rate in EU25 – 2005-2006

4.4.3. Amount of service subscribers

At the end of 2006, there were 12.2 million subscribers[39] to the MTS, a 6.8 per cent increase in the total amount of subscriber vis-à-vis the previous year, a ratio that is slightly below the 2002/2006 average.

Table 4-10 – Amount of subscribers[39]

	2005	2006	2005/2006 var. (%)	2002/2006 average yearly var. (%)	2002/2006 cumulated var. (%)
Total	11,447,313	12,226,439	6.8%	7.4%	32.9%
Post-paid	2,156,764	2,455,608	13.9%	6.6%	29.0%
Prepaid	9,290,549	9,770,831	5.2%	7.6%	34.0%

Source: ICP-ANACOM   Unit: 1 subscriber; %

Graph 4-18 – Evolution of the amount of subscribers[39] and growth rates
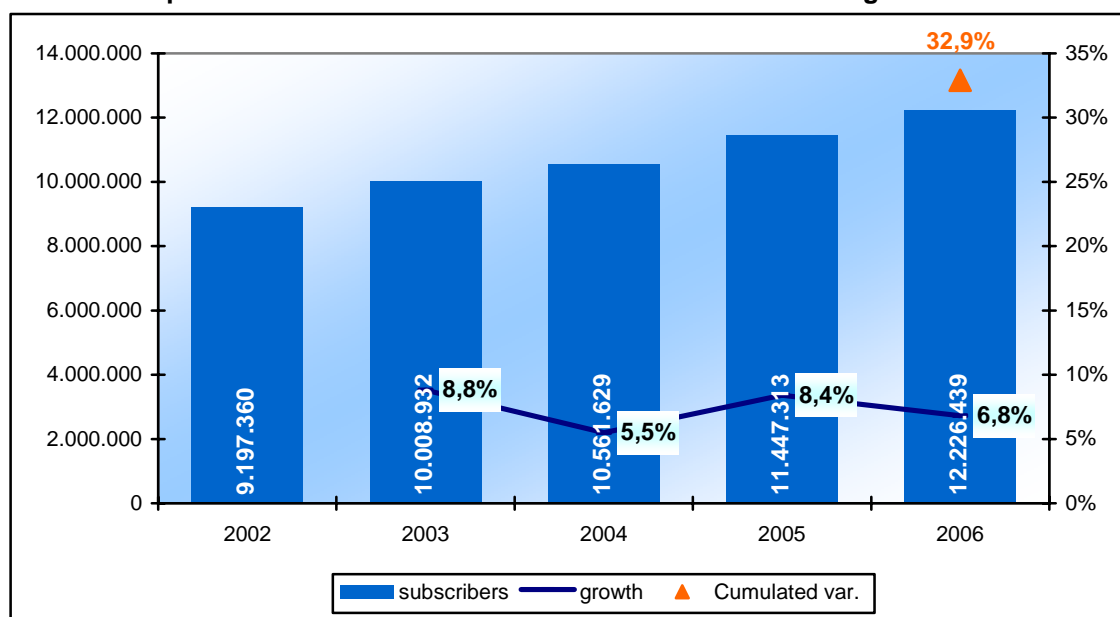
Source: ICP-ANACOM   Unit: 1 subscriber; %

Graph 4-19 – Evolution of the amount of subscribers[39] per type of tariff plan
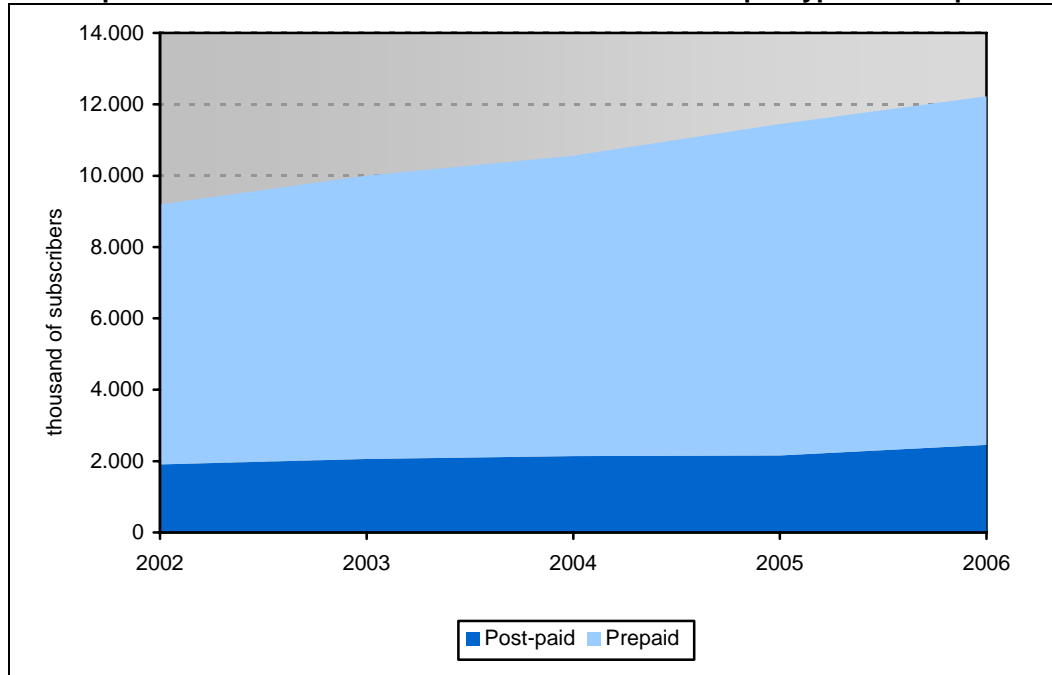
Source: ICP-ANACOM

The recent evolution in the amount of subscribers[39] was partly influenced by the following factors:

- The development of 3G services. The amount of 3G subscribers[39] 3G in Portugal is estimated in about 2.22 million by the end of 2006[40];
- The coming about of the discount offerings (Uzo, Rede 4, Vodafone Directo), in 2005;
- The coming about of new mobile broadband Internet access offerings I;
- The development of new applications for machines, for example.

These factors contributed to sustain the trend of the MTS growing amount of subscribers[39] in Portugal.

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[40] Source: *Converging Media from informa telecoms & media*, Volume 6 Number 10, June 1, 2007.

Graph 4-20 – Evolution of the amount of subscribers[39] and growth trend
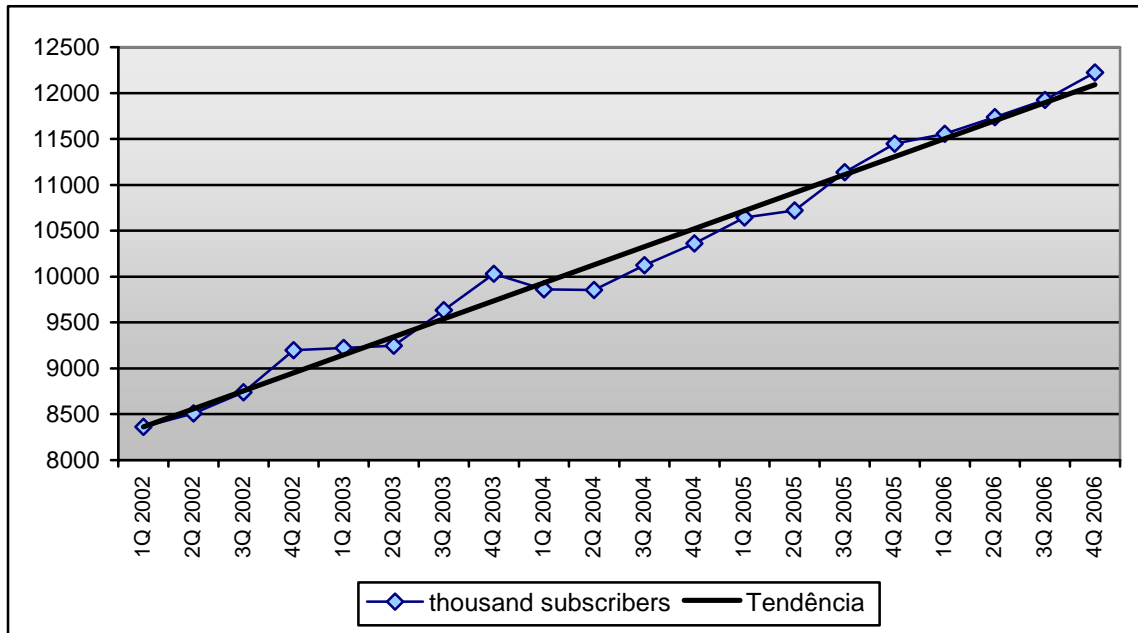
As mentioned above, the growth in the amount of subscribers was below the EU average.

That may be due to the life cycle stage of this service and/or to macroeconomic cyclical factors. The future evolution of this indicator will make it possible to draw more solid conclusions on this matter.

4.4.4. The service's usage level

Below is the evolution of the service's usage level, in terms of voice traffic, SMS, MMS, roaming, data services, video telephony and mobile *TV*.

Voice traffic

In 2006, MTS subscribers made around 6.65 billion calls, 2.9 per cent more than in the previous year.

In that same period, MTS subscribers received over 6.7 billion calls, which is 2.1 per cent more than in the previous year.

Table 4-11 – Voice traffic in calls

	2005	2006	2005/2006 var. (%)	2000/2006 average yearly var. (%)	2000/2006 cumulated var. (%)
Outgoing traffic	**6,461**	**6,648**	**2.9%**	**7.8%**	**56.6%**
Own network - own network	4,353	4,439	2.0%	8.8%	66.0%
Own network - national FTS	512	534	4.3%	-1.7%	-10.0%
Own network - international networks	208	226	8.8%	19.3%	188.6%
Own network - other national MTS	1,388	1,448	4.4%	8.3%	61.2%
Incoming traffic	**6,558**	**6,693**	**2.1%**	**8.0%**	**58.6%**
Own network - own network	4,353	4,439	2.0%	8.8%	66.0%
National FTS - own network	626	593	-5.2%	-4.7%	-25.3%
International networks - own network	189	206	9.0%	15.0%	131.5%
Other national MTS - own network	1,390	1,455	4.6%	14.0%	119.6%

Source: ICP-ANACOM   Units: million calls, %

Between 2000 and 2006, outgoing traffic grew 56.6 per cent and incoming traffic grew 58.6 per cent. However, this was not a regular growth. The growth rates decreased since 2002 and are below the growth rates of the amount of subscribers.

Graph 4-21 – Call volume evolution 2000/2006
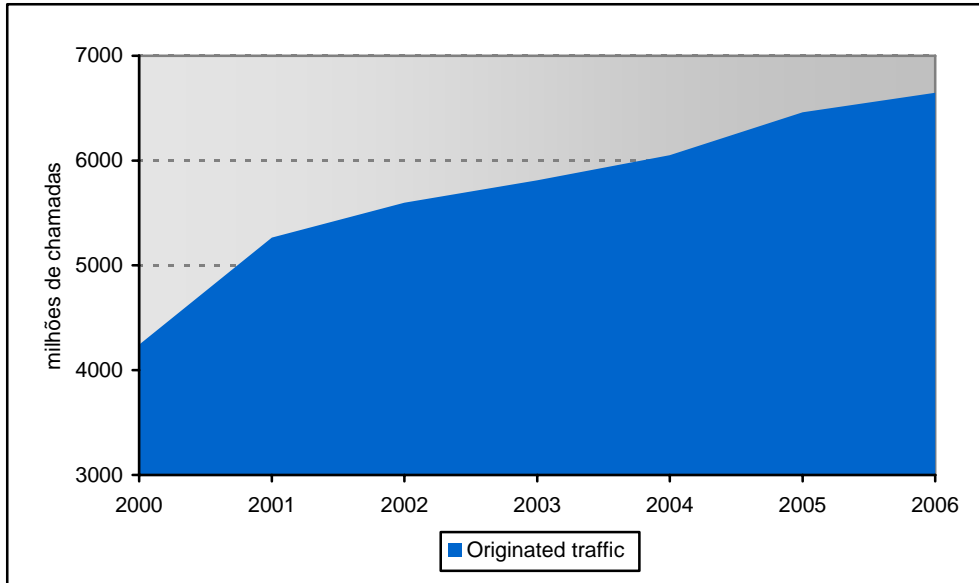
Source: ICP-ANACOM

If we analyse the traffic evolution by type of call, we can see that the fixed-to-mobile calls maintain their decreasing trend, with a negative variation (-5.2 per cent) vis-à-vis the previous year. This type of calls already stands for less than 10 per cent of all calls with termination in the mobile network.

Graph 4-22 – Weight of the fixed-to-mobile traffic in the overall incoming traffic (calls)
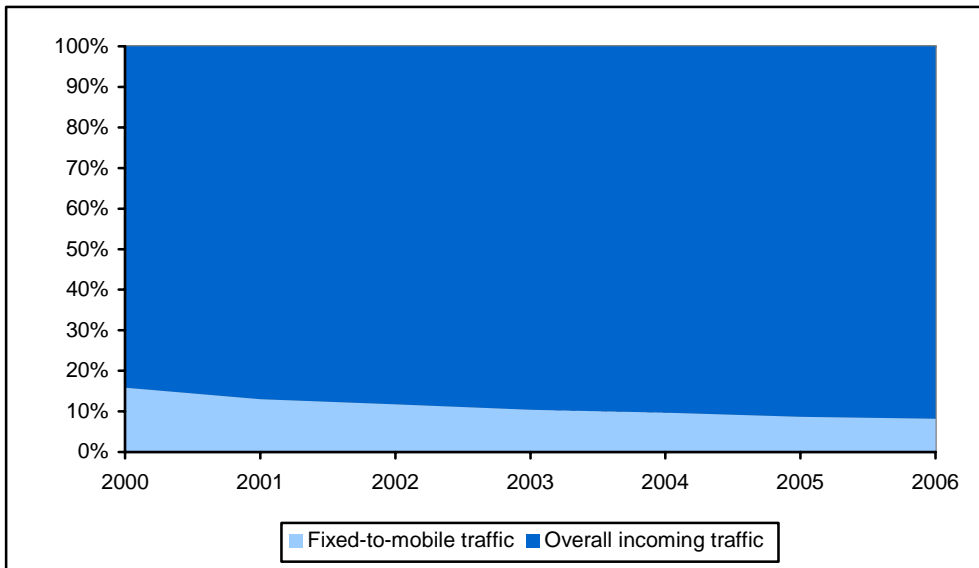
Source: ICP-ANACOM

Regarding traffic evolution in minutes, the amount of minutes of conversation with origin in the mobile networks grew about 7.4 per cent vis-à-vis the previous year, reaching about 12.5 billion minutes.

The amount of minutes ended in mobile networks reached over 12.7 billion, a 6.9 per cent growth cent vis-à-vis the previous year.

Table 4-12 – Voice traffic in minutes

	2005	2006	2005/2006 var. (%)	2000/2006 average yearly var. (%)	2000/2006 cumulated var. (%)
Outgoing traffic	**11,599**	**12,452**	**7.4%**	**12.4%**	**101.6%**
Own network - own network	7,920	8,520	7.6%	14.9%	130.4%
Own network - national FTS	829	858	3.5%	-0.1%	-0.4%
Own network - international networks	537	583	8.6%	17.3%	160.2%
Own network - other national MTS	2,314	2,491	7.7%	10.2%	79.0%
Incoming traffic	**11,927**	**12,745**	**6.9%**	**12.5%**	**102.3%**
Own network - own network	7,920	8,520	7.6%	14.9%	130.4%
National FTS - own network	1,147	1,119	-2.4%	-2.5%	-14.3%
International networks - own network	546	613	12.1%	14.4%	123.8%
Other national MTS - own network	2,314	2,493	7.8%	16.1%	144.4%

Source: ICP-ANACOM   Units: million minutes; %

Between 2000 and 2006, there was a growth of around 101.6 per cent in the outgoing traffic and of around 102.3 per cent in the incoming traffic. However, this was not a regular growth. The growth rates decreased since 2002. The traffic in minutes grows at similar growth rates as those of the amount of subscribers.
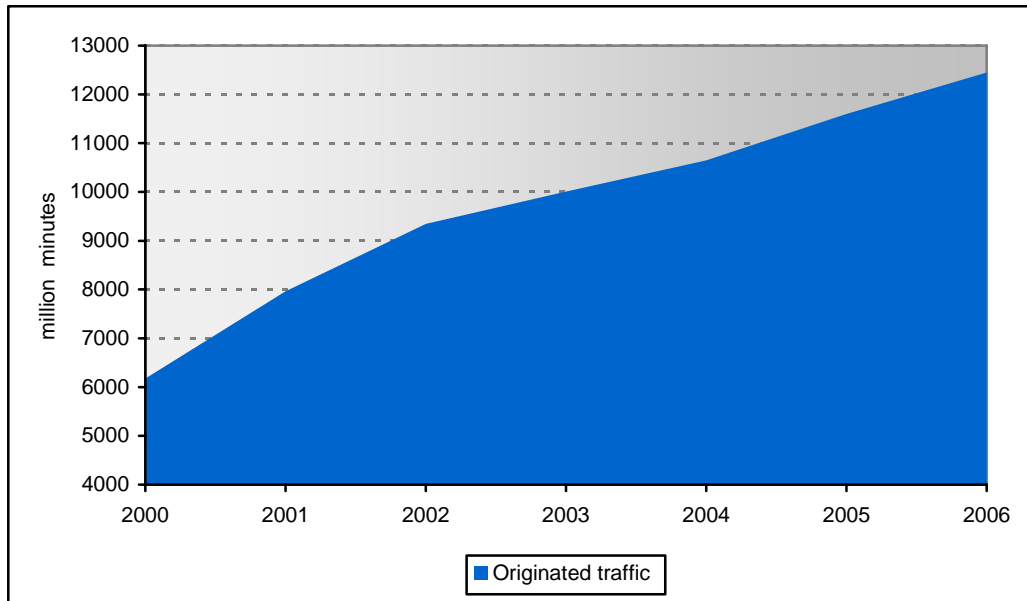
Graph 4-23 –Minute volume growth 2000/2006

Source: ICP-ANACOM

On the other hand, traffic growth in mobile networks, in 2006, was below that of other countries.

Graph 4-24 – Traffic growth in minutes, in 2006 – international comparisons
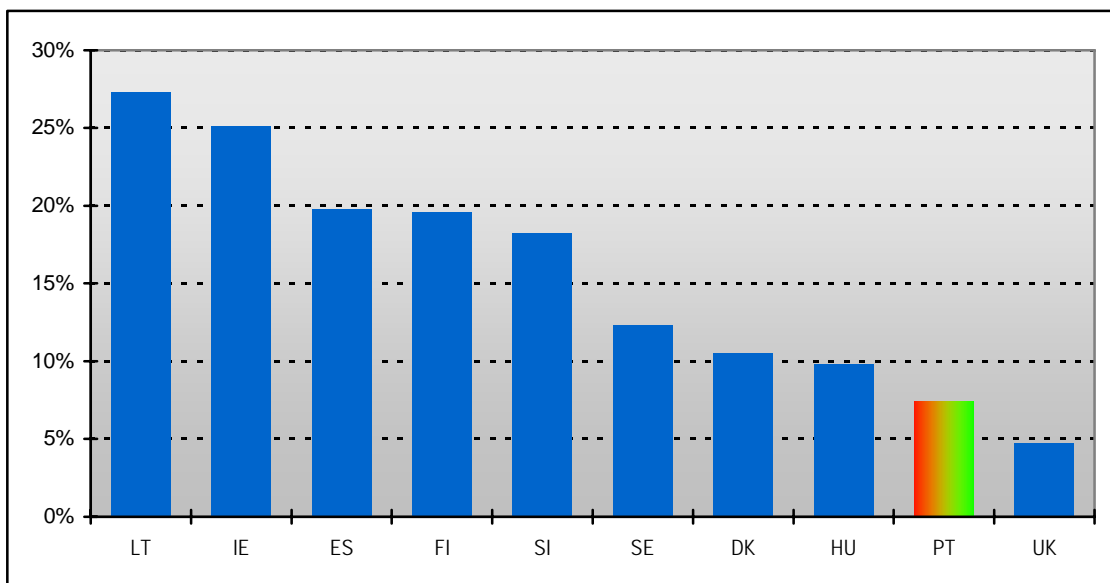
Source: ICP-ANACOM and remaining NRAs.
Note: For countries where it was only possible to collect traffic figures until the 1st half of 2006, growth rate vis-à-vis the second half of 2005 was used (Denmark, Hungary, United Kingdom and Sweden) and for Spain the first 9 months of each year were used.

Just as with the amount of calls, the amount of minutes with origin in the fixed networks with destination in the mobile networks has lost weight in the overall mobile networks' incoming traffic. The fixed-to-mobile time of conversation has again decreased vis-à-vis the previous year (-2.4 per cent).

Graph 4-25 – Weight of the fixed-to-mobile traffic in the overall incoming traffic (minutes)
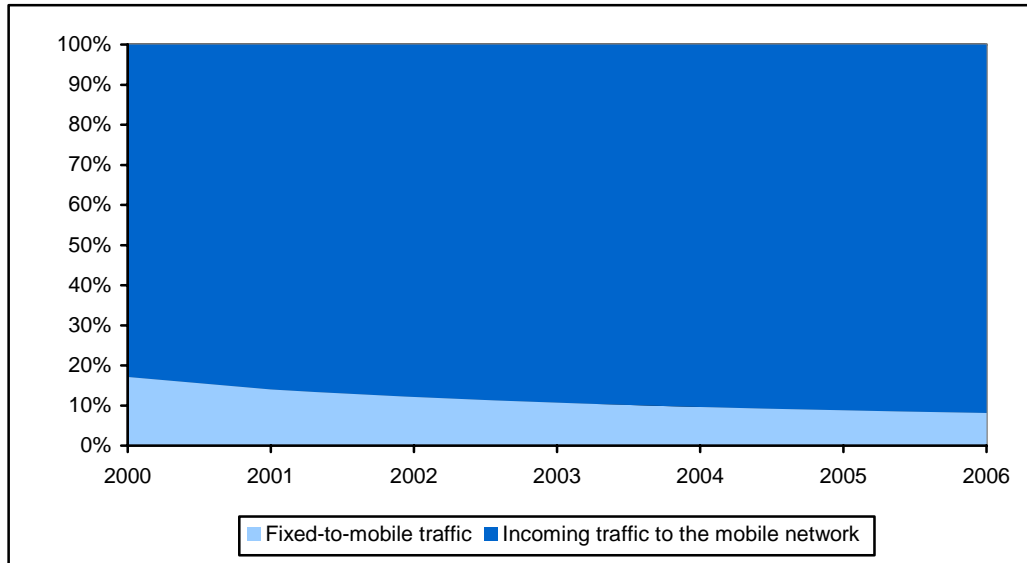
The decreasing mobile-to-fixed and fixed-to-mobile traffic trend is linked to the fixed-by-mobile replacement phenomenon.

Graph 4-26 – Mobile-to-fixed and fixed-to-mobile call evolution and trend
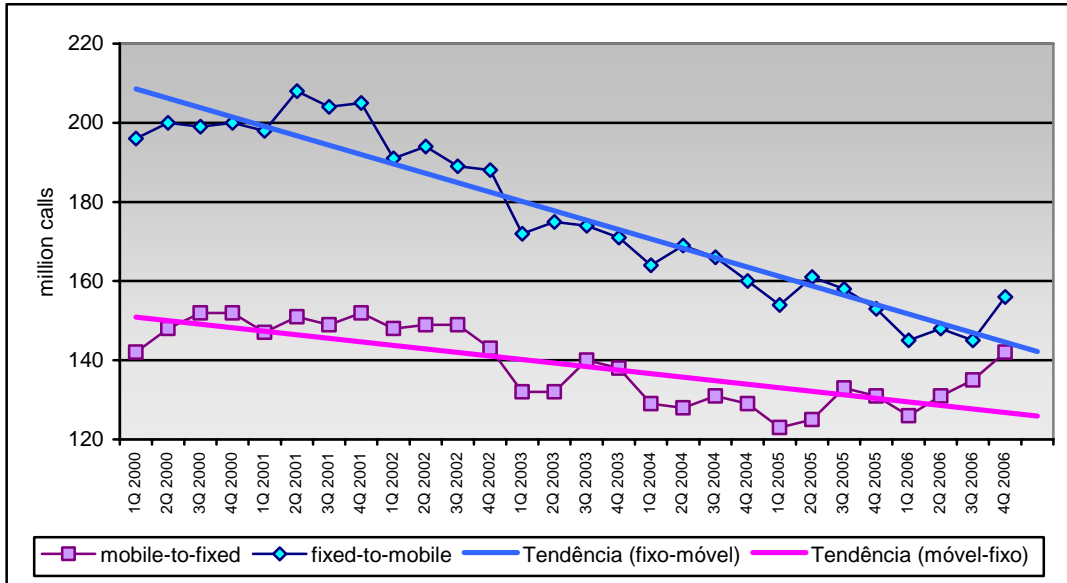
In 2006, however, this type of traffic grew. Reduced mobile terminations and the coming about of low-cost tariff schemes, with no price difference per call destination, could have fostered this type of calls.

Graph 4-27 – Mobile-to-fixed and fixed-to-mobile minute evolution and trend

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SMS

2006 had a significant increase in the amount of sent text messages (167.8 per cent vis-à-vis the previous year).

Table 4-13 – SMS with origin in own network

	2005	2006	2005/2006 var. (%)	2000/2006 average yearly var. (%)	2000/2006 cumulated var. (%)
Amount of messages	4.652	12.458	167.8%	68.2%	2,166%

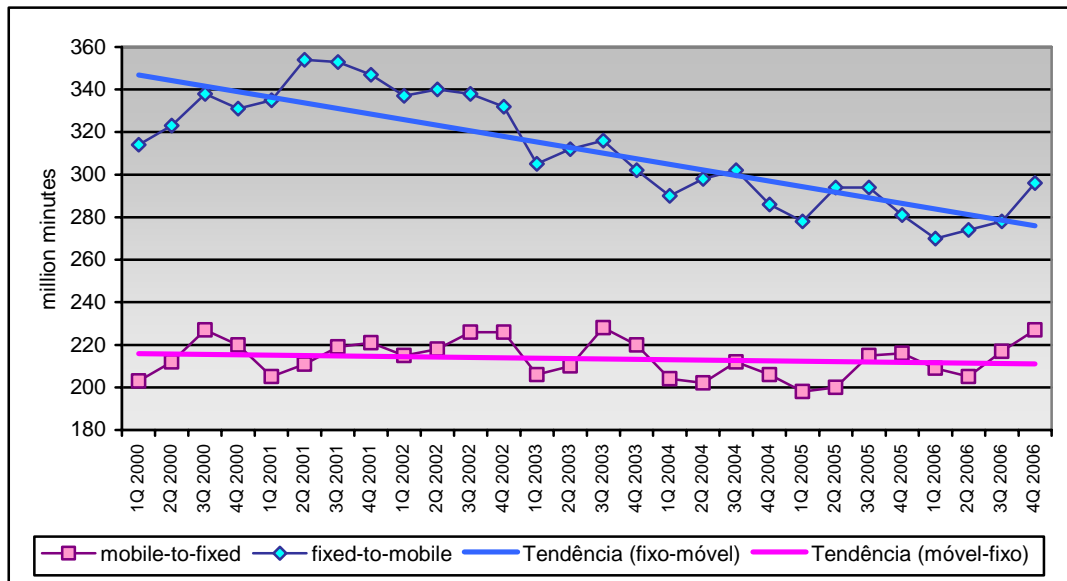Source: ICP-ANACOM   Unit: million messages, %

This was due to promotional campaigns put in place by the mobile operators since early 2005.

Graph 4-28 – Evolution in the amount of SMS
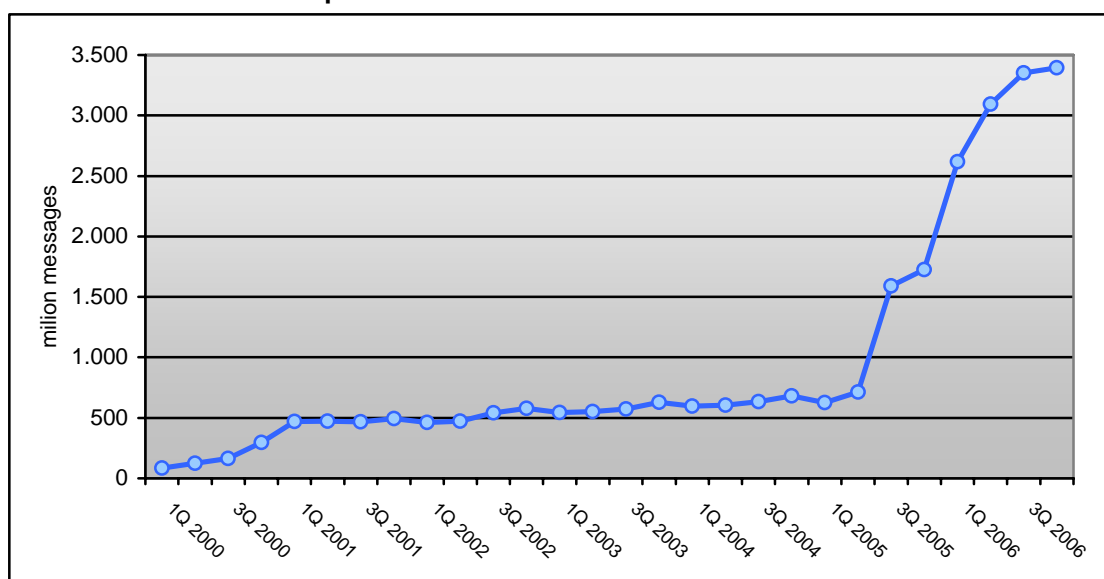
Source: ICP-ANACOM

According to the available data, SMS use in Portugal is relatively low in intensity, if compared to other countries, Finland standing out. However, in the past year, it came closer do the average of the analysed countries.

Graph 4-29 – Amount of SMS per subscriber and per month – international comparisons

Regarding the growth in the SMS traffic, Portugal leads the group of the analysed countries.

Graph 4-30 – SMS traffic growth – international comparisons

MMS

MMS messages have been gaining some strength within the service operation.

Table 4-14– MMS with origin in own network

	2005	2006	2005/2006 var. (%)	2003/2006 average yearly var. (%)	2003/2006 cumulated var. (%)
Amount of messages	30,806	49.834	61.8%	148.8%	1,440.6%

Source: ICP-ANACOM   Unit: thousand messages, %

Graph 4-31 – Sent MMS evolution – 2003/2006
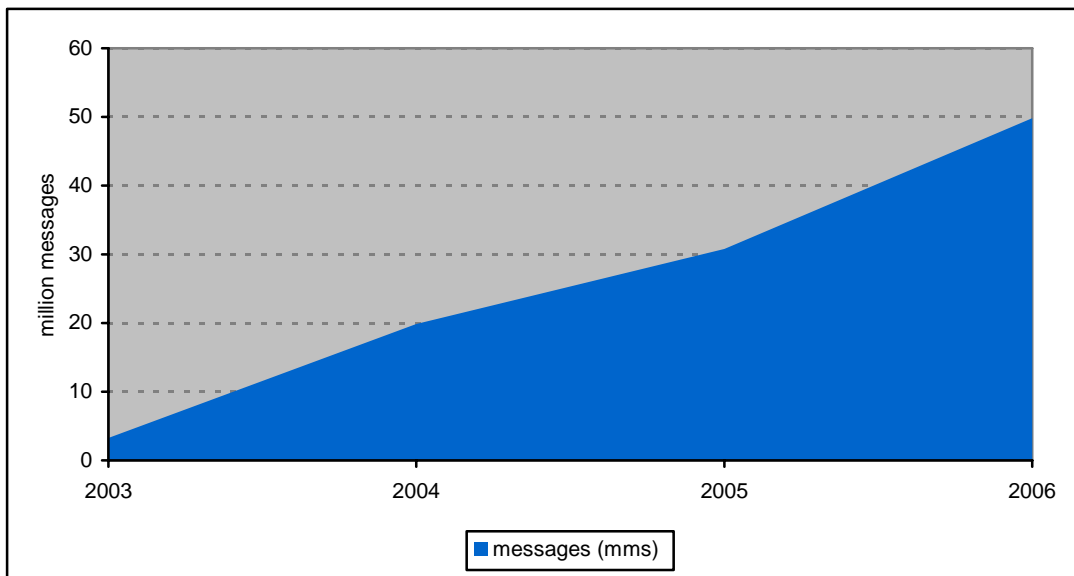
However, the amount of MMS, if compared to that of SMS, is relatively small.

Roaming

In 2006, the roamed in traffic has significantly changed, text messages standing out (25.2 per cent).

The average roamed in call length was 118 seconds, similar to the previous year.

Table 4-15 – Roaming-in traffic

	2005	2006	2005/2006 var. (%)	2000/2006 average yearly var. (%)	2000/2006 cumulated var. (%)
Roamed voice calls	110.441	126.077	14,2%	3,7%	15,8%
Amount of roamed minutes	216.706	248.368	14,6%	11,6%	93,0%
Roamed text messages	153.732	192.438	25,2%	37,8%	161,9%
Average length of calls (sec)	118	118			

Source: ICP-ANACOM   Unit: thousand, %, seconds
Note: The series of calls began in 2002 and that of text messages in 2003.

Graph 4-32 – Roaming-in traffic volume growth 2000/2006
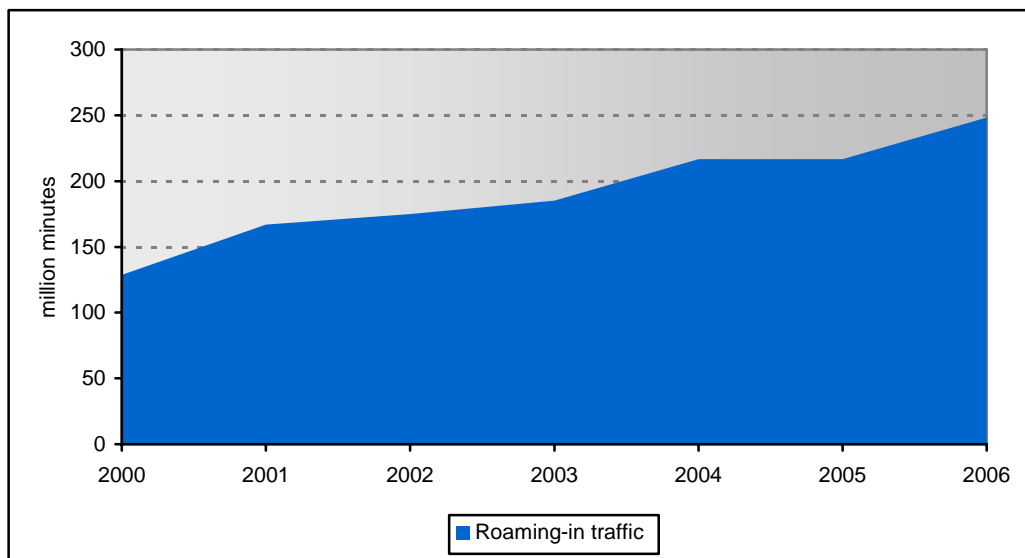
Source: ICP-ANACOM

Roamed in traffic has grown: about 12.8 per cent in calls, 31.8 per cent in minutes and 17.9 per cent regarding the amount of text messages.

Table 4-16 – Roaming out traffic

	2005	2006	2005/2006 var. (%)	2000/2006 average yearly var. (%)	2000/2006 cumulated var. (%)
Roamed voice calls	78,377	88,434	12.8%	10.8%	23.2%
Amount of roamed minutes	154,728	203,864	31.8%	15.9%	141.8%
Roamed text messages	118,424	139,665	17.9%	38.4%	136.9%
Average length of calls (sec)	118	138			

Source: ICP-ANACOM   Unit: thousand / seconds
Note: The series of text messages began in 2002.

The most significant variation occurred in the amount of minutes (31.8 per cent). There is a growing trend in the SMS use, probably fuelled by the price level of this type of calls and the value of the terminations in these cases. It should be underlined, once more, that receiving roamed messages has no costs to the roamer, whereas receiving a voice call means paying the part of the call in connection with the termination cost of the foreign operator at which the roamer is registered. This, together with the afore-mentioned campaigns, may explain why using SMS is preferred over voice calls.

Graph 4-33 – Roaming-out traffic volume growth 2000/2006
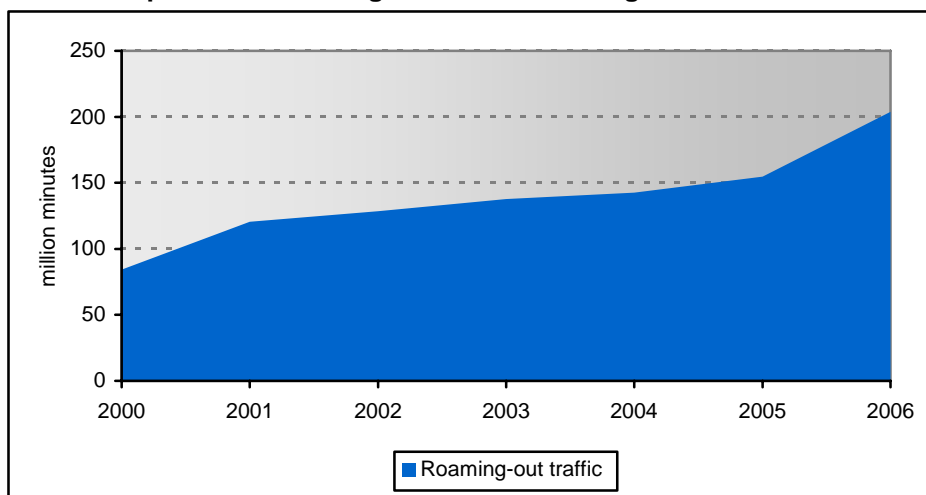
Source: ICP-ANACOM

There was a considerable increase in the roamed out calls average length, in 2006, from about 118 seconds to 138 seconds per call.

Data services traffic

The amount of data service users with the WAP protocol and the GPRS technology is relatively small.

Table 4-17 – Amount of data services users

	Dec. 2004	Dec. 2005	Dec. 2006
With access to WAP services (GSM)	1,064	1,208	1,418
With access using GPRS technology	1,403	1,976	2,510

Source: ICP-ANACOM   Unit: thousand users

On the other hand, there was a decrease in traffic regarding services using the WAP protocol. This evolution may be linked to the development of 3G services.

Table 4-18 – Access to a WAP mobile portal

Data Service Traffic	2003	2004	2005	2006
Access to WAP services (via GSM)				
Calls	31,970	26,271	13,472	10,667
Minutes	32,368	26,725	13,898	9,048
Access to WAP services (via GPRS)				
Sessions	n.a.	102,111	84,383	85,436
Mbytes	n.a.	2,214	5,496	13,231

Source: ICP-ANACOM   Unit: thousand

The amount of subscribers[39] that are already using third generation mobile services (IMT2000/UMTS) has significantly grown.

Table 4-19 – 3G/UMTS service subscribers[39]

	Jun. 2005	Feb. 2006	Dec. 2006
Does not have	93,5%	83,7%	78,0%
Has	5,1%	16,0%	22,0%
Na	1,4%	0,3%	0,0%

Source: ICP-ANACOM, Electronic Communications Consumer Survey – 2005- 2006.

It is worth pointing out that, in January 2006, Portugal was 3rd on the 3G user penetration ranking, within the EU[41].

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[41] Cf. European Commission, i2010 – Annual report on Digital Economy, 30.03.2007.

Graph 4-34 – Penetration of 3G subscribers per 100 inhabitants
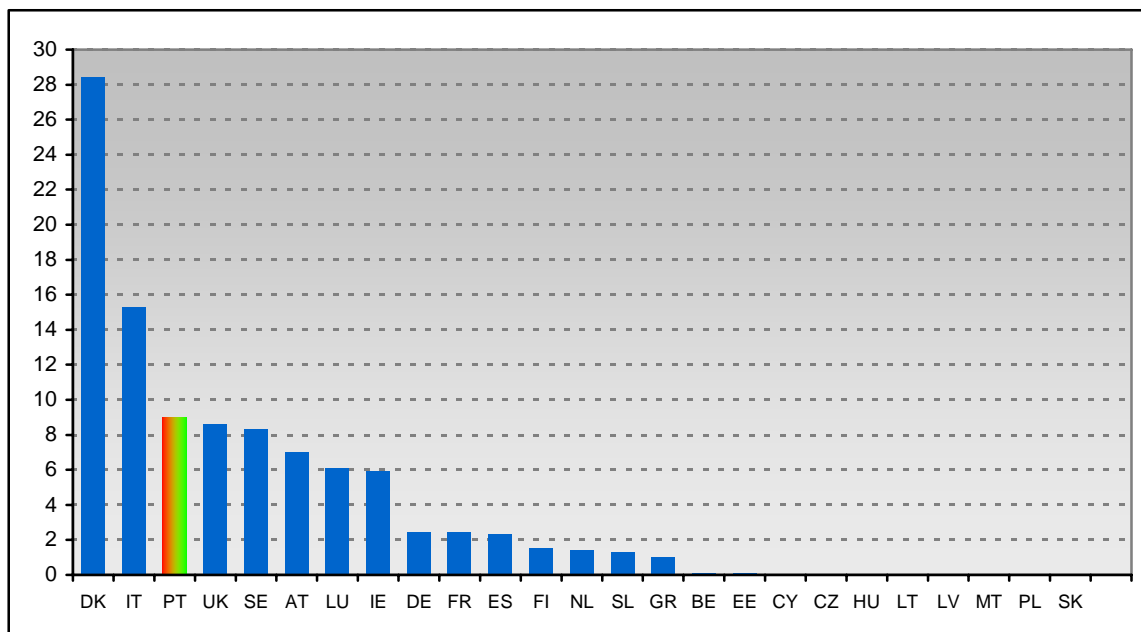
Source: European Commission, i2010 – Annual Report on Digital Economy

On the other hand, the ratio of clients with 3G devices **using their 3G mobile phones to access the Internet** has doubled[42], and is currently 24.9 per cent (in accordance with the results of the 2006 Electronic Communications Consumer Survey, vide note 36).

The evolution of the amount of mobile broadband users was influenced by the changes made by its suppliers to the offerings of this type of service.

Mention should be made to the fact that all operators have reinforced their mobile broadband offerings and started to provide access to the Internet over High-Speed Downlink Packet Access **(**HSDPA).

The offerings' features were also changed. The operators increased the download throughputs, changed the terms of the tariffs and introduced a system connecting the PS via Universal Series Bus (USB).

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[42] Excludes Internet access using a 3G board directly connected to the PC.

Table 4-20 –Optimus's mobile broadband Internet access offerings – 2006

Offering	Throughput (download/upload)	Incl. traffic Nat/Internat	Monthly fee	Additional consumption	Happy-Hour (2h-9h or 9h-16h)	Observations
Kanguru Basic	384Kb/64Kb	1Gb	22.50€	0.025€/Mb	n.a.	Mobile/Personal
Kanguru Light	640Kb/64Kb	2Gb	29.90€	0.025€/Mb	n.a.	Mobile/Personal
Kanguru Light	640Kb/64Kb	2Gb	22.50€	0.025€/Mb	n.a.	Fixed/Personal
Kanguru Xpress	3.6Gb/64Kb	6Gb	29.90€	0.025€/Mb	5€ / month	Fixed/Personal
Kanguru Xpress Executivo	3.6Mb/64Kb	15Gb	48.40€	0.025€/Mb	5€ / month	Mobile/Corporate
Kanguru Xpress Profissional	3.6Gb/64Kb	6Gb	39.90€	0.025€/Mb		Mobile/Corporate
Kanguru Equipas	640kb	2Gb	29.89€	0.025€/Mb		Mobile/Corporate
Kanguru Fixed Profissional	3.6Gb/64Kb	15Gb	39.90€	0.025€/Mb		Fixed/Corporate
Kanguru Fixed Equipas	3.6Gb/64Kb	6Gb	29.89€	0.025€/Mb		Fixed/Corporate

Source: www.optimus.pt

Table 4-21 - TMN's mobile broadband Internet access offerings – 2006

Name of the offering	Throughput (download/upload)	Incl. traffic Nat/Internat	Monthly fee	Additional consumption	Happy-Hour (2h-9h or 9h-16h, except Wi-Fi)	Observations
B. Larga Plus	3.6Mb	6GB	39.90	0.025€/Mb	€5 / month	
B. Larga	1.8Mb	2 Gb	29.90	0.025€/Mb	n.a.	
B. Larga Light	384Kb	1Gb	22.50	0.025€/Mb	n.a.	

Source: www.tmn.pt

Table 4-22 – Vodafone's mobile broadband Internet access offerings – 2006

Name of the offering	Throughput (download/upload)	Incl. traffic Nat/Internat	Monthly fee	Additional consumption	Happy-Hour (2h-9h or 9h-16h, except Wi-Fi)	Observations
BL 384Kb	384Kb	1Gb	22.50	0.025€/Mb	n.a	Mobile Internet
BL 640Kb	640Kb	2Gb	29.90	0.025€/Mb	n.a.	Mobile Internet
BL 3.6Mb	3.6Mb(supports upgrades up to 7.2Mbps)	5GbDown / 1Up	39.90	0.025€/Mb	€5 / month.	Mobile Internet
BL 640Kb	640Kb	2G Down /0.2Gb	22.50	0.025€/Mb	n.a.	Fixed Internet
BL 3.6Mb	3.6Mb	5GbDown / 1Up	29.90	0.025€/Mb	€5 / month.	Fixed Internet

Source: www.vodafone.pt

Video telephony

Video telephony service still has a very small amount of traffic.

Table 4-23 – Amount of video calls and traffic volume

	2006
Amount of video calls	4,206
Video call traffic volume	9,743

Source: ICP-ANACOM   Unit: thousand messages, thousand minutes, %

Mobile TV

Also in 2006 the mobile TV service was introduced in the market, giving users access to the television service.

Optimus has about 19 available channels, TMN 26 and Vodafone 25.

Table 4-24 –Mobile TV service

Optimus	TMN	Vodafone
Tariff scheme: Each channel: <u>one day viewing</u> - €1.90 (1h traffic limit*) - Each channel: <u>automatically renewable monthly subscription</u> - €2.90 (2h traffic limit*) - 14-channel pack: <u>automatically renewable monthly subscription</u> - €7.50 (4h traffic limit*) *No traffic limit subscriptions until 30/06/2007	Tariff scheme: - € 7.5 monthly subscription - one time use € 0.90 per access/day. Each option gives access to all available channels, except Playboy and Blue TV Playboy and Blue TV additional € 3.50 cost per access/day.	Tariff scheme: **Monthly Subscription (30 days)** – 7.5€ (limitless access to all channels, except erotic ones). First 30 days are free for new monthly subscriptions. **24hour Subscription** – 0.90€ (limitless access to all channels, except erotic ones) **Erotic Channels**- 2.5€ per 2 hour periods/each channel

The service's revenues and ARPU

The service's revenues reached 3.4 billion Euros, practically the same as in the previous year. The reason behind this stagnation was the downward movement of the mobile termination tariffs enforced by ICP-ANACOM.

Table 4-25 – Service's revenues

	2005	2006
Revenues from providing the service to operators	756,072	663,814
Revenues from providing the service to clients (prepaid and post-paid)		
Monthly fee revenues (subscriptions and supplementary services)	145,866	148,796
Revenues from Voice communications	1,880,046	1,907,623
Revenues from Data communications	281,377	334,557
.		
Other revenues	379,176	348,244
Total MTS revenues	**3,442,537**	**3,403,034**

Source: ICP-ANACOM   Unit: thousand Euros
Note: Other revenues include equipment sales and anticipated payments of prepaid services.

The average revenue per user [39] is estimated to have declined in about 5.7 per cent in 2006.

Table 4-26 – Average revenue per user[39] (ARPU[43])

	2000	2001	2002	2003	2004	2005[44]	2006
Average revenue per user (ARPU)	31.41	29.53	26.42	25.24	25.59	23.12	21.81
Yearly variation	2.9%	-6.0%	-10.5%	-4.5%	1.4%	-9.6%	-5.7%

Source: ICP-ANACOM, providers' Reports & Accounts.   Unit: Euros, %.

4.4.5. Service's price levels

Below is an international price comparison for this service and its price evolution between 2002 and 2006.

MTS international price comparison[45]

According to the available information, Portugal's price level is below average for prepaid plans. However, regarding post-paid, this scenario significantly changes, for prices in Portugal are above average for medium and high consumption profiles.

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[43] ARPU - Average Revenue Per User.
[44] Estimated. Reckonings based on the amount of subscribers and on the following publications:
   a) Optimus, Sonaecom's site, Sonaecom Quarterly Report at
      http://www.sonae.com/channelDetail.aspx?channelId=4225EB60-9C99-4FB5-ABDE-088FD8671346
   b) TMN, Group PT's site
      http://www.telecom.pt/InternetResource/PTSite/PT/Canais/investidores/InformacaoFinanceira/IndicadoresChave/TMN.
   c) htm; Vodafone, group Vodafone Plc's site
      http://www.vodafone.com/start/investor_relations/financial_performance.html
[45] Methodological note:
   The results of the shown baskets were taken from OECD/Teligen database of November 2006 and are expressed in Euros, VAT excluded and without considering PPP (purchasing power parity). From the OECD countries, those that are part of the EU were selected. Taking into account that, by default, OECD/Teligen always produces two results by country (regarding the incumbent operator and the second most representative one), the operator with the lowest tariff plan, regarding the yearly invoice for each usage basket and profile, was selected for each country.
   The shown deviations refer to the average of the selected countries, Portugal excluded. The shown values are those of the new baskets defined in 2006.

Table 4-27 – International price comparisons (November 2006) – deviations from average[45]

Package \ Profile	Low consumption	Medium consumption	High consumption
Post-paid	-5.7 %	8.5%	26.0%
Prepaid	-31.8%	-43.6%	-44.0%

Source: Teligen, OECD, ICP-ANACOM

Regarding the low consumption profile, the price of the prepaid packages in Portugal is about 32 per cent below the average of the analysed countries.
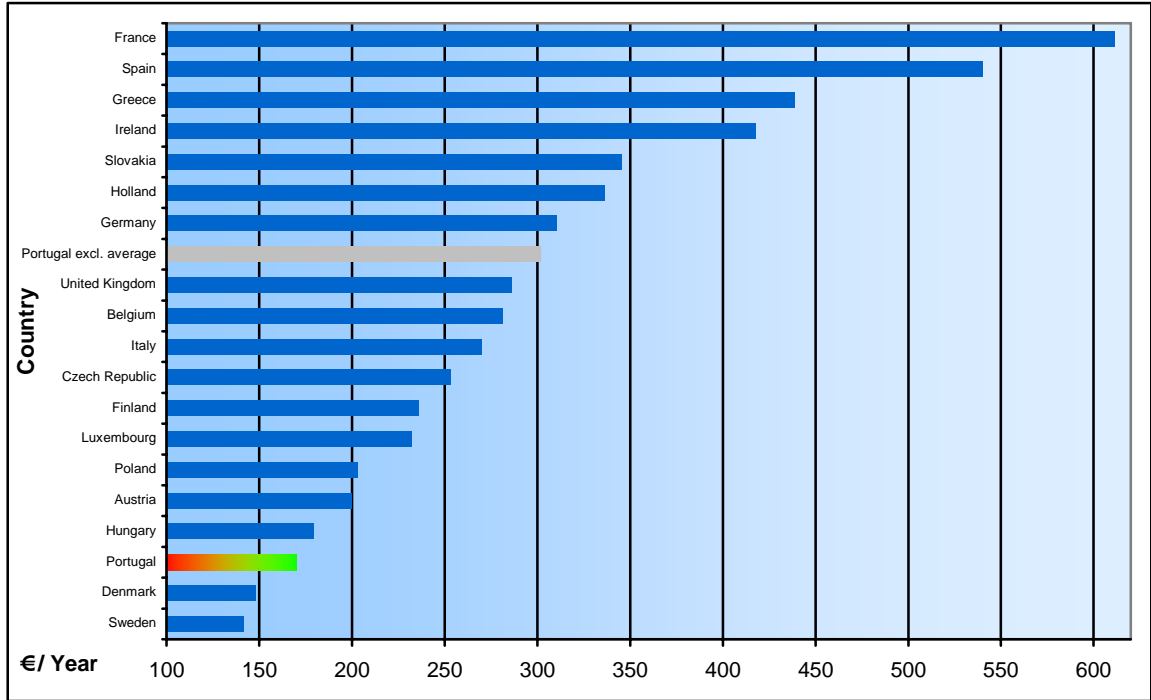
Graph 4-35 – Low consumption profile – prepaid packages (November 2006)

Source: Teligen, OECD, ICP-ANACOM

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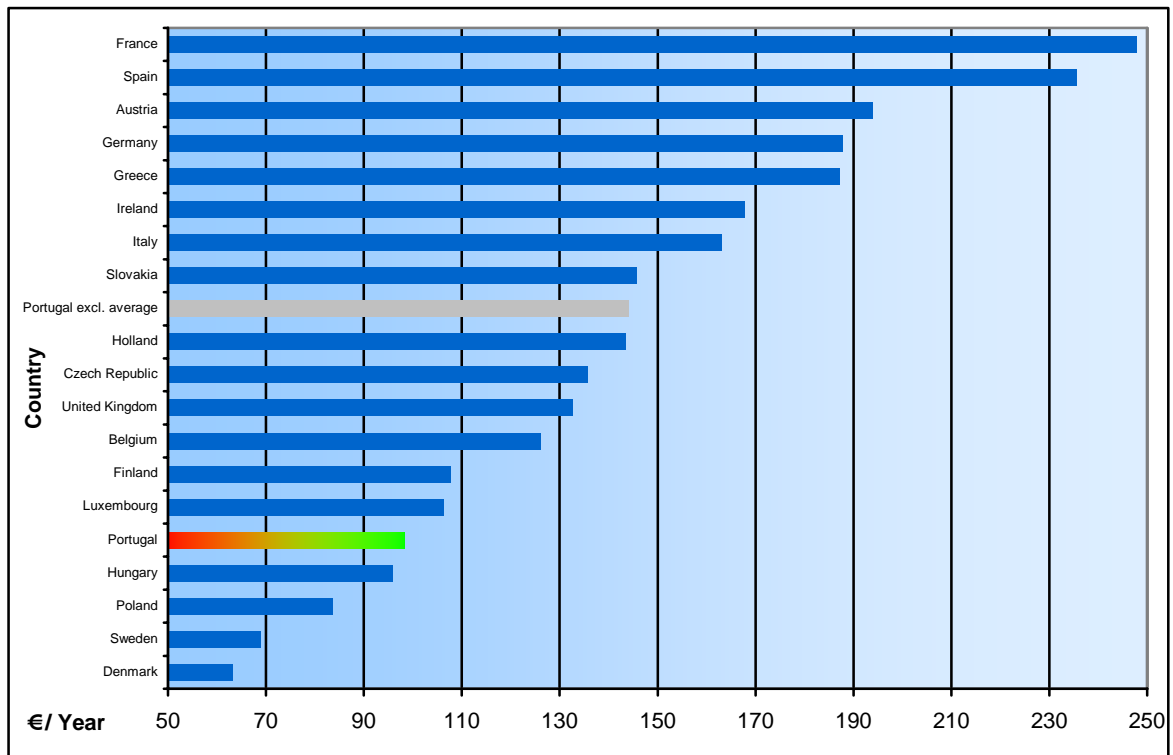
Regarding the medium consumption profile, the prices in Portugal are about 43.6 per cent below the average of the analysed countries, for the prepaid packages.
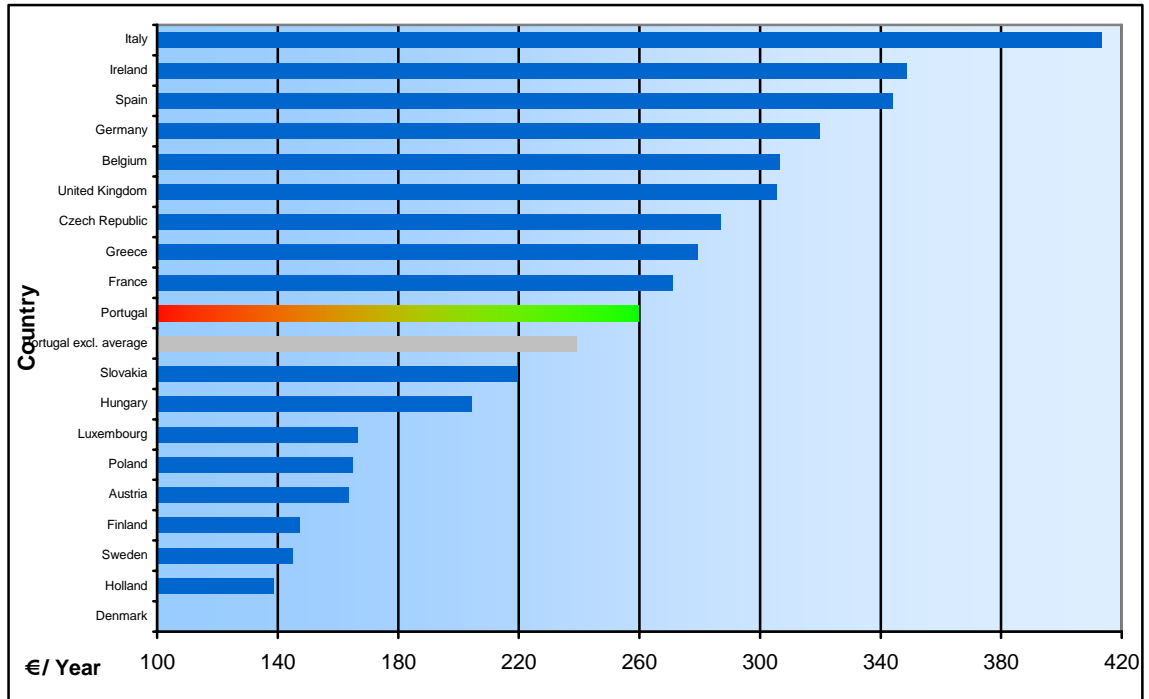
Graph 4-36 – Medium consumption profile – prepaid packages (November 2006)

Source: Teligen, OECD, ICP-ANACOM

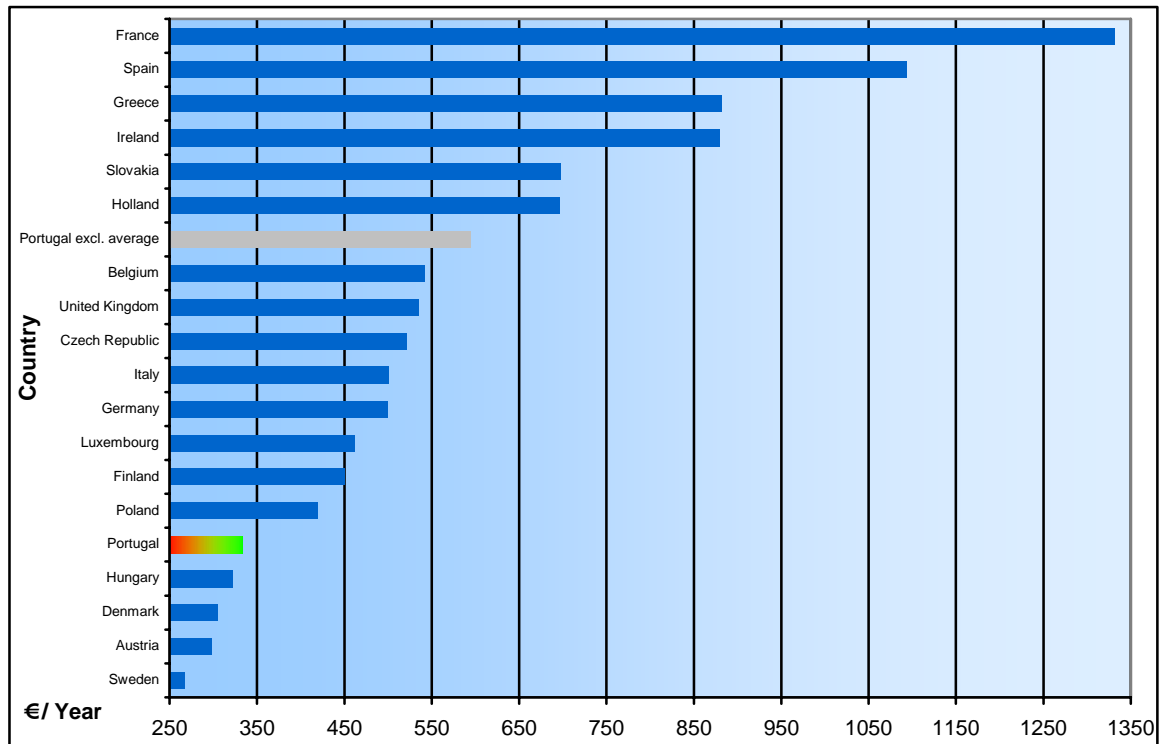Regarding post-paid packages, the prices in Portugal are about 8.5 per cent above average.

Graph 4-37 – Medium consumption profile – post-paid packages (November 2006)

Source: Teligen, OECD, ICP-ANACOM

Regarding the high consumption profile, prepaid offerings in Portugal have a price 44 per cent below average.
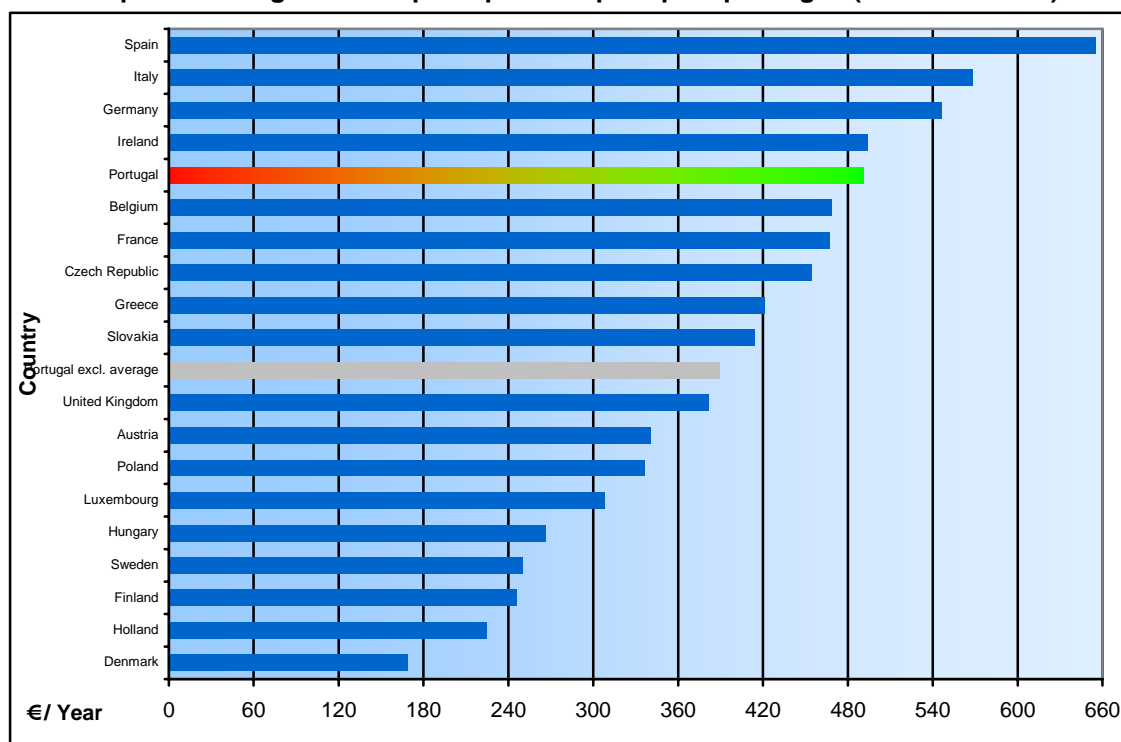
Graph 4-38 – High consumption profile – prepaid packages (November 2006)

Source: Teligen, OECD, ICP-ANACOM

Regarding post-paid packages, the deviation from the average is about +26 per cent.

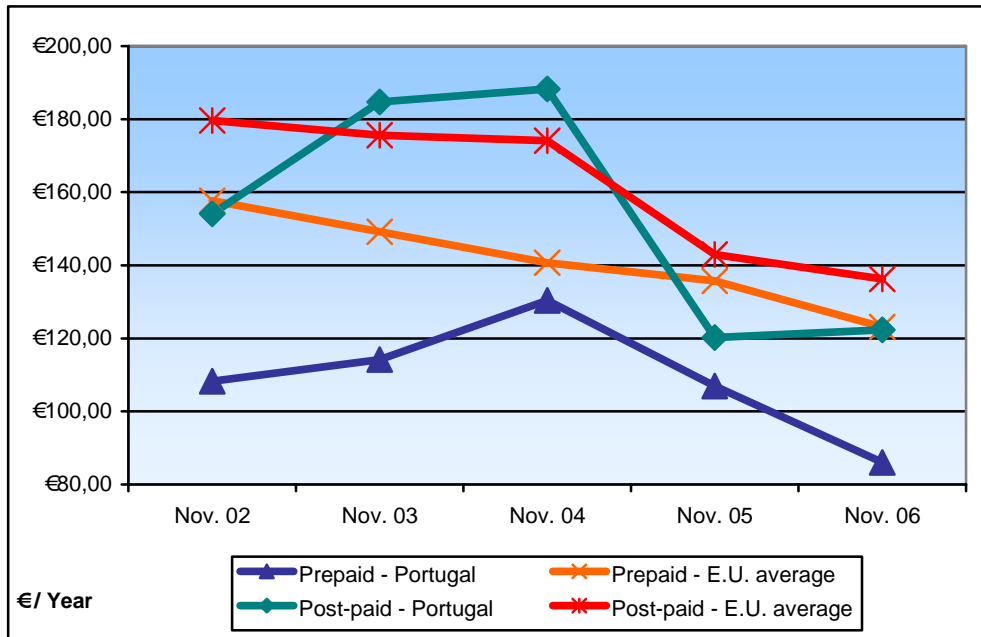**Graph 4-39 – High consumption profile – post-paid packages (November 2006)**

Source: Teligen, OECD, ICP-ANACOM

Evolution of the national prices and comparison with the EU (2002/2006)[45]

The graphs below show the main trends regarding the service's price evolution in Portugal.

Regarding he low consumption profile, prepaid plans tend to be below average, with a significant drop in 2006, unlike EU's average figure.
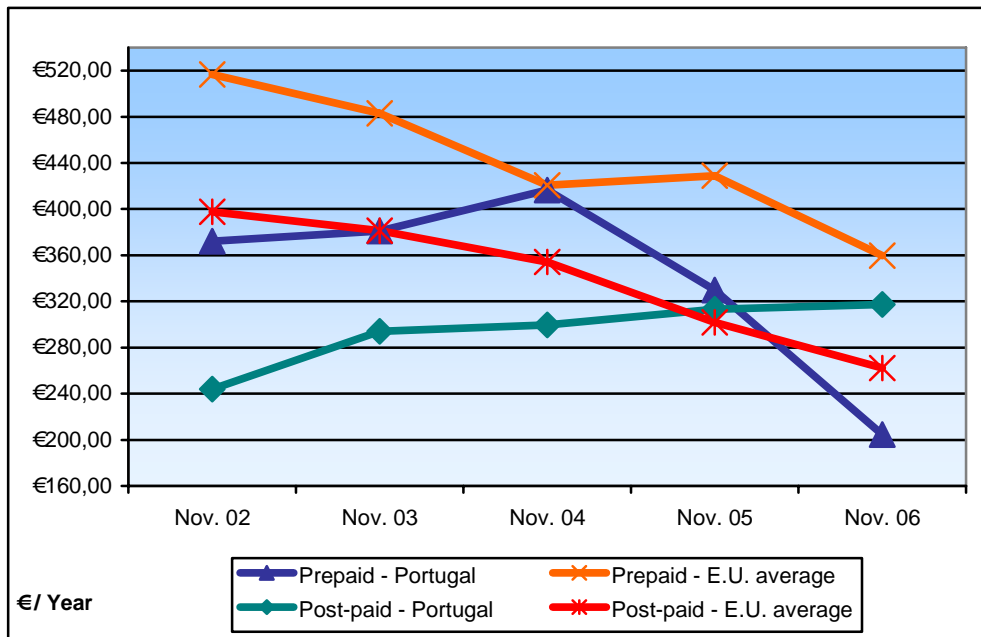
Graph 4-40 – Price evolution – low consumption basket

€/ Year

Source: Teligen, OECD, ICP-ANACOM

Regarding the medium consumption profile, post-paid plans have overtaken average.

Graph 4-41 – Price evolution – medium consumption basket

€/ Year

Source: Teligen, OECD, ICP-ANACOM

Regarding the high consumption profile, the prepaid plans' price has significantly decreased. As for the post-paid plan, in spite of a small decrease, it is still above average.

Graph 4-42 – Price evolution – high consumption basket
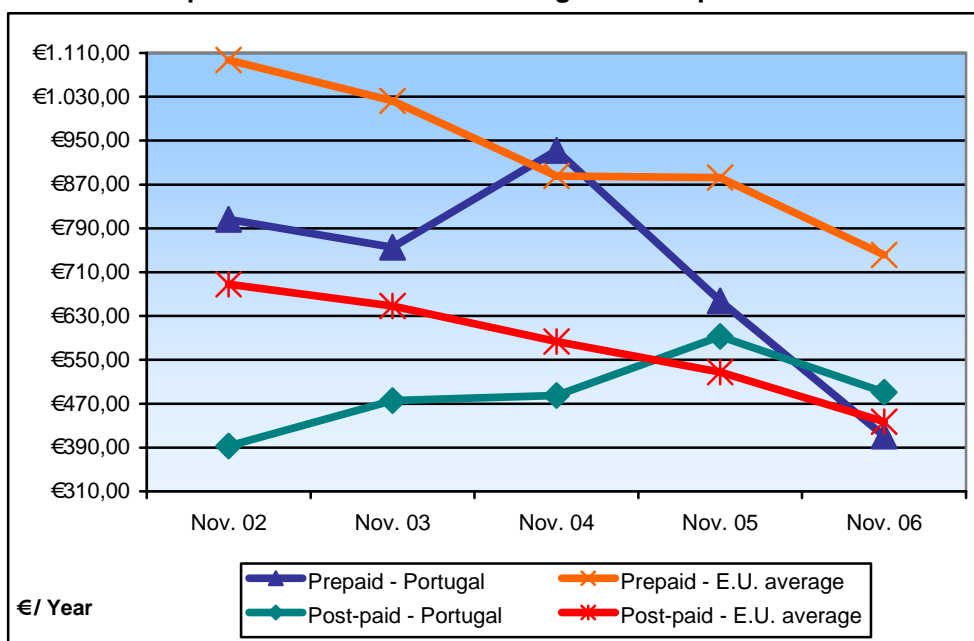
Source: Teligen, OECD, ICP-ANACOM

4.4.6. GSM networks' quality of service

ICP-ANACOM has been undertaking study assessing the quality of mobile networks in Portugal.

In 2006, it evaluated the quality of mobile voice (GSM), video telephony (UMTS) and network coverage (GSM and WCDMA) offered by the operators Optimus, TMN and Vodafone in mainland Portugal's main urban agglomerations and road axles, by analysing the technical parameters which translate quality perception from the consumer's standpoint[46].

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[46] Cf. http://www.anacom.pt/template12.jsp?categoryId=237202

The results of the quality of service indicators that were analysed in this study show significant differences between the GSM and UMTS networks.

GSM networks have good coverage levels and a good voice service performance, both in the urban agglomerations and in the road axles. The UMTS networks had less favourable results. These networks still do not have a good WCDMA coverage: there are areas with poor or no coverage at all. On the other hand, the video telephony service's performance is reasonable in the urban agglomeration but substantially worse on road axles.
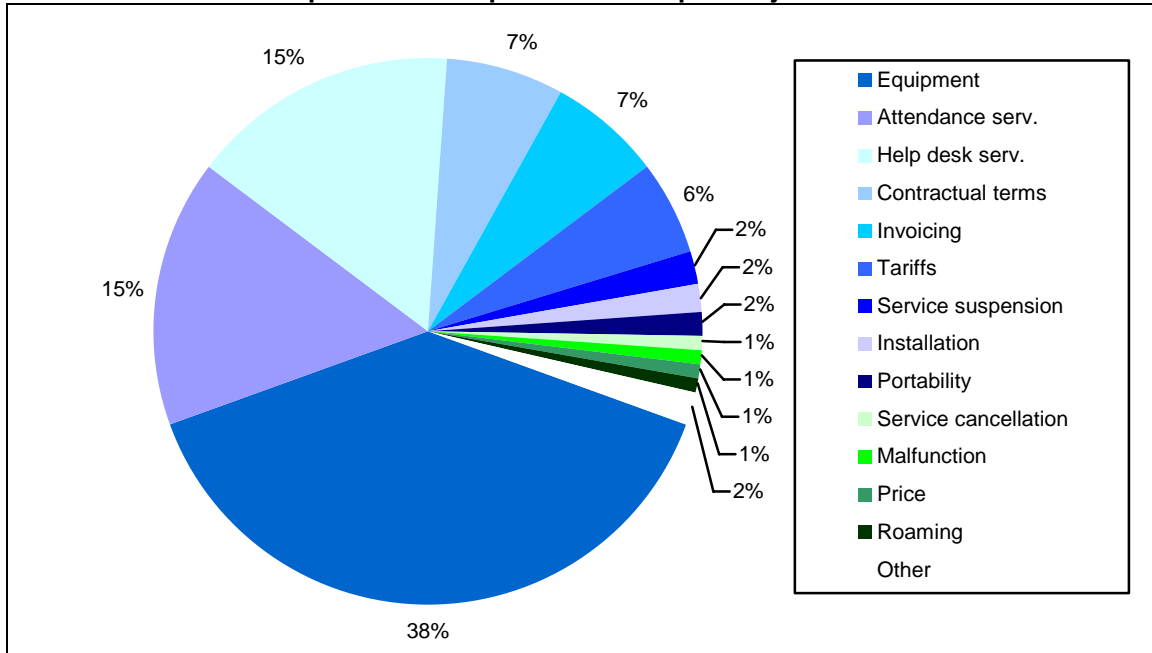
4.4.7. Consumers' evaluation

In order to evaluate consumers' perception on the quality of the MTS, below are some notes on the received complaints.

During 2006, ICP-ANACOM received around 4,644 complaints on the mobile telephone service and its providers. The MTS stands for around 27 per cent of the overall amount of complaints received at ICP-ANACOM regarding electronic communications services.

About half of those requests are issues regarding terminal equipment, which is largely out of the service providers' hands. However, the amount of complaints regarding the MTS operators-/providers' attendance and assistance services has increased.

Graph 4-43 – Complaints on MTS per subject – 2006

- Equipment
- Attendance serv.
- Help desk serv.
- Contractual terms
- Invoicing
- Tariffs
- Service suspension
- Installation
- Portability
- Service cancellation
- Malfunction
- Price
- Roaming
- Other

15%
15%
7%
7%
6%
2%
2%
2%
1%
1%
1%
1%
2%
38%

Source: ICP-ANACOM