2. Telephone service at a fixed location (FTS)

This chapter sets out the situation of the FTS as at the end of 2009, describing in particular the provision of this service, the profile of its use and its users and evolution seen.

A summary is then made of the main developments seen in the service during 2009.

2.1. Main developments in 2009

- In 2009, a reversal was seen in the declining trend in FTS penetration in Portugal; FTS penetration increased to 40.0 per 100 inhabitants. This increase resulted mainly from the penetration of new FTS products, including voice over Internet protocol (VoIP) products (e.g. provided as part of multiple play offers), and products based on GSM / UMTS [Global System for Mobile Communications (GSM) / Universal Mobile Telecommunications System (UMTS)] provided at a fixed location.

- Similarly, an increase was observed in fixed-fixed traffic minutes (2 %) which however did not translate into an increase in traffic per customer. With respect to revenues from the service, a decline of 11 % was reported, compared to 2008.

- In 2009, prices paid by residential customers of the FTS in Portugal were below the average price in EU19 for all consumption profiles.

- It should also be noted that the FTS generally has high levels of satisfaction.

- According to the most recent *Inquérito ao Consumo dos Serviços de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey) conducted by ICP-ANACOM, 73 % of users were satisfied with the overall quality of the service.

- Regarding the offer structure, the number of FTS operators in activity remained unchanged from the previous year. The investment of alternative operators in products without telephone line subscription (e.g. based on GSM, on cable television distribution networks and multiple play), resulted in a fall of 4.3 % points in the share of accesses of Grupo PT. The incumbent's share was reported at around 64.7 % at the end of 2009.

2.2. The FTS offer

The FTS consists of the provision to the general public of the transport of voice in real time between fixed locations, enabling any user, using a device connected to a network termination point, to communicate with another terminal point.

The service is provided by entities that have general authorization to provide this service as well as by the Universal Service provider.

The services and undertakings which offer these services in Portugal are described in more detail below.

2.2.1. Platforms and technologies for accessing the service

Regarding access to the public telephone network at a fixed location, this can be offered using various methods:

- pairs of copper wires – this support is mostly used by PTC, the incumbent operator, and today is the support that provides greater geographical and population coverage. With the implementation of the reference unbundling offer (RUO) , alternative operators have begun offering access to the public telephone network at a fixed location using unbundled local loops of the incumbent operator;

- coaxial cable – cable made up of a central copper wire, surrounded by a shield of braided copper wire, which is separated from the central wire by an insulating material. This type of cable is designed for transmission of electrical signals of frequencies higher than those supported by a simple pair of metallic wires. It is one of the key elements of hybrid networks for the distribution of CATV.

In the early years of the service's liberalization, this form of access allowed Cabovisão to acquire a significant share of accesses to the public telephone network at a fixed location.

- Fixed Wireless Access (FWA) – access technology which allows operators to supply customers with a direct connection to their telecommunications network through a fixed wireless connection at their premises to the operator's local exchange. Five providers in activity [AR Telecom – Acessos e Rede de Telecomunicações, S. A. (AR Telecom), Sonaecom, Vodafone Portugal – Comunicações Pessoais, S. A. (Vodafone), OniTelecom – Infocomunicações, S. A. (Onitelecom) and PTC) have licenses for FWA[17]. The wireless links are used to supplement the respective non-wireless access networks, typically for access to non-residential customers.

- Power Line Communications (PLC) – access technology that uses power lines for broadband transmission of voice and data. The technology enables the provision of high speed Internet access, telephone and fax. Onitelecom was the sole FTS provider enabling access through PLC. However, in October 2006, it suspended its offer,

- Optical fibre (FTTH – physical means of transmission (usually a cable with glass fibres) in which information is transported in the form of light pulses. This is a broadband support which, combined with appropriate equipment, can provide capacity for the transmission of large amounts of information over large distances and with a low level of signal loss. Both the new providers (Onitelecom, Sonaecom, Colt Telecom – Serviços de Telecomunicações, Unipessoal, Lda. (Colt Telecom), AR Telecom, Refer Telecom, Cabovisão), and PTC have deployed optical fibre in their access networks.

In 2007 and 2008 the first offers supported over optical fibre emerged, albeit with a very low level of penetration. However, operators have been investing in expanding their FTTH, especially during 2009, in parallel to government and regulatory initiatives associated with the development of NGN. As mentioned above, according to available data, at the end of 2009, the number of households cabled with optical fibre (FTTH/B) for all operators was reported at 1.2 million, approximately 21.2 % of total households. The number of customers whose products are supported over this type of access remains relatively low.

- Hertzian links – transmission system for the propagation of electromagnetic waves through the atmosphere using parabolic antennas. Hertzian links have a residual use given the high investment necessary for their maintenance.

- Access supported on frequencies allocated for the provision of MTS and Code Division Multiple Access (CDMA). ICP-ANACOM has permitted the use of frequencies assigned to GSM, UMTS and CDMA for the provision of FTS, imposing limits on the mobility of the equipment used to provide this service.

  This is a telephone service provided at a fixed location, supported on technologies and networks of GSM, General Packet Radio Service (GPRS), UMTS and CDMA for access to the final customer, with access via mobile terminals. The mobile terminals receive and make calls in a defined geographical area corresponding to the customer's address.

  By determination ICP-ANACOM, it is required that access to the service be ensured through a terminal connected to a single, pre-determined Base Transceiver Station (BTS) when making, receiving and maintaining calls. In exceptional cases, where technically justified and where recognized by
  ICP-ANACOM, the association of the terminal with two – or at the most three – pre-determined BTS is permitted. The provider is also required to inform the end-users as to the features of the service, making clear, *inter alia*, that access to the service is provided only at the address stated by the end-user and that there are limitations in terms of locating the caller in calls made to the single European Emergency Number (112).

  These solutions have given impetus to the market of access to the public telephone network at a fixed location since late 2004.

It is noted that with the exception of PLC whose supply was discontinued, virtually all major forms of access to the public telephone network at a fixed location are present in Portugal.

17 The rights of use were reconfigured by ICP-ANACOM in 2006. The reformulation of the system was achieved by transforming a national coverage system into a system made up of several geographic areas.

The following types of access are provided over these physical supports:

- Analogue accesses – accesses that provide a single 64kbit/s channel, in principle to carry voice and data up to 56 kbit/s.

- Basic digital accesses [basic Integrated Services Digital Network (ISDN) accesses] – accesses with two 64 kbit/s channels, for carrying voice and data, and one 16 kbit/s channel, for signalling.

- Primary digital accesses (primary ISDN accesses) – accesses in which 30-64 kbit/s channels are provided for voice or data, one 64 kbit/s channel for signalling and another channel for synchronizing, with a global bit rate of 2 Mbit/s.

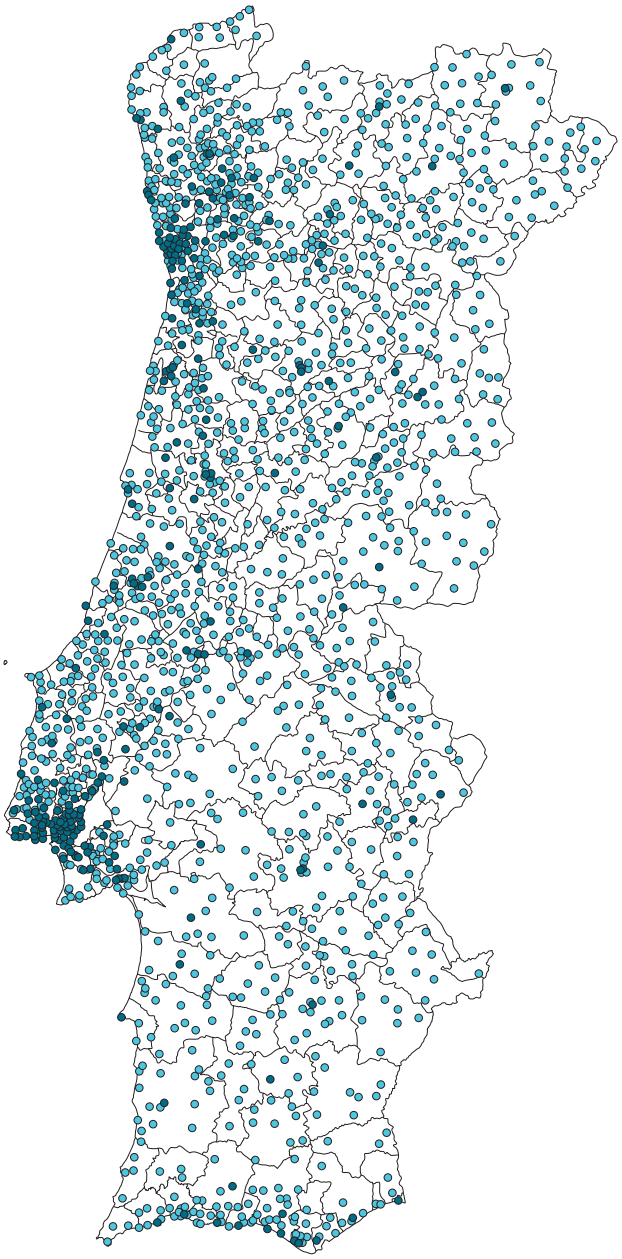
- Other types of digital access, namely those provided by the cable TV operators and by the mobile operators.

2.2.2. Geographic availability of the service

The fixed public telephone network operated by the incumbent operator is available throughout mainland Portugal. In the autonomous regions there is also strong deployment of the fixed network, with exchanges and telephone concentrator systems on all the Portuguese islands. The graph below also shows the distribution of Main Distribution Frames (MDF) with unbundled local loops, which are concentrated in the two main urban centres of mainland Portugal. The unbundling of the local loop has enabled the emergence of bundled offers from the alternative providers.

Distribution of PT exchanges and PT exchanges with unbundled local loops (Mainland Portugal)

Figure 2

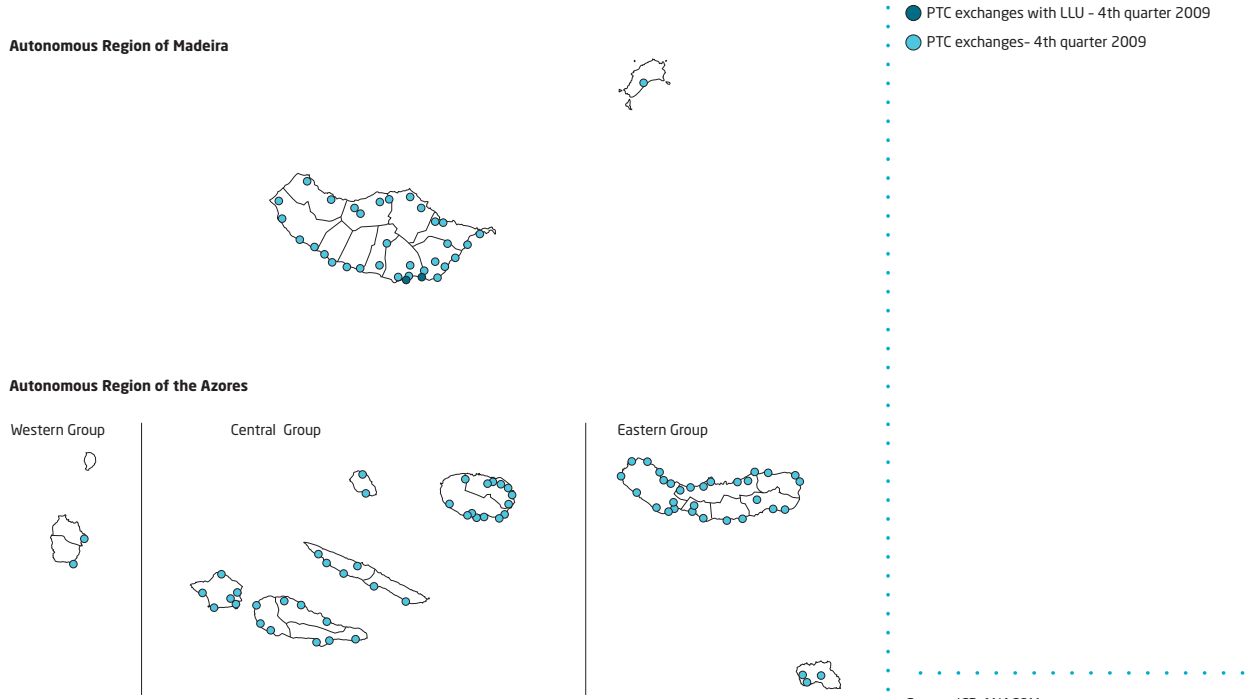


PTC exchanges with LLU - 4th quarter 2009

PTC exchanges- 4th quarter 2009

Source: ICP-ANACOM

Distribution of PT exchanges and PT exchanges with unbundled local loops (Autonomous Regions of Madeira and the Azores) | Figure 3



Source: ICP-ANACOM

It is also possible to access the service using the mobile networks, which cover most of the resident population, the cable TV distribution operators' networks, which provide reasonable coverage (see chapter 6), and the alternative networks, in particular those based on FWA and optical fibre accesses, which currently provide limited coverage (see chapter 2).

With respect to publicly available telephone services at a fixed location, it is possible to use the services of the alternative operators throughout Portugal via indirect access and, since 2006, VoIP offers (in the case of users with fixed broadband Internet access).

2.2.3. FTS and nomadic VoIP providers

The FTS providers are presented below. Details are also given of nomadic VoIP and public payphones providers.

FTS providers

At the end of 2009, there were 25 companies authorized to provide the fixed telephone service.

The following table shows the list of undertakings legally qualified to provide the FTS in 2009. The table includes data on the status of each provider at the beginning and end of the year, and also information on market entries and exits during this period.

FTS providers in 2009 | Table 38

Name	At start	Entries	Exits	At end
ADIANIS - Telecomunicações & Multimédia, S.A[18]	NA			NA
AR Telecom - Acessos e Redes de Telecomunicações, S.A.	A			A
BROADMEDIA - Comunicações Globais, S.A.	NA			NA
BT Portugal – Telecomunicações, Unipessoal, Lda.	NA			NA
CABOVISÃO – Televisão por Cabo, S.A.	A			A
COLT Telecom - Serviços de Telecomunicações, Unipessoal, Lda.	A			A
EQUANT Portugal, S.A. (ORANGE)[19]	A			A
G9 SA – Telecomunicações, S.A.	A			A
MEDIA CAPITAL – Telecomunicações, S.A.	NA			NA
ONITELECOM – Infocomunicações, S.A.	A			A
Porteuphony - Comunicações, Unipessoal, Lda		X		NA
PT Comunicações, S.A.	A			A
PT PRIME – Soluções Empresariais Telecomunicações e Sistemas, S.A.	A			A
RADIOMÓVEL - Telecomunicações, S.A.	A			A
REFER TELECOM – Serviços de Telecomunicações, S.A.	A			A
SONAECOM - Serviços de Comunicações, S.A.	A			A
T - SYSTEMS ITC IBERIA, S.A. (Sociedade Unipersonal) - (Sucursal em Portugal)	NA			NA
TELEMILÉNIO – Telecomunicações, Sociedade Unipessoal, Lda (TELE2)[20]	A		X	
TELSOCOMM - Telecomunicações, Marketing e Informática, Lda.	NA			NA
TMN – Telecomunicações Móveis Nacionais, S.A.	A			A
TRANSIT TELECOM, Sociedade Unipessoal, Lda.	NA			NA
UNITELDATA - Telecomunicações, S.A.	NA			A
VODAFONE PORTUGAL – Comunicações Pessoais, S.A.	A			A
ZON TV Cabo Açoreana, S.A.	A			A
ZON TV Cabo Madeirense, S.A.	A			A
ZON TV Cabo Portugal, S.A.	A			A
Total active	**17**	**–**	**–**	**17**
Total inactive	**8**	**–**	**–**	**8**
Overall total	**25**	**1**	**1**	**25**

Source: ICP-ANACOM
Legend: A – Active
NA – Non-active

18 Company with returned mail.
19 In Portugal, provision of the fixed telephone service of EQUANT (ORANGE) is done by NOVIS.
20 TELEMILÉNIO - Telecomunicações, S.A. (TELE2) was incorporated by merger into SONAECOM - Serviços de Comunicações, S.A. effective from 02-01-2009.

Of the 25 entities legally qualified to provide these services, 17 were active at the end of 2009[21].

Of the 17 entities that were active at the end of 2009, six provided the service exclusively by direct access, two provided services through indirect access only and the rest provided service using the two types of access.

FTS providers | Table 39

	2004	2005	2006	2007	2008	2009
Qualified providers	21	22	23	24	25	25
Active providers	13	14	13	17	17	17
Providers with direct access and indirect access traffic	8	10	9	11	11	9
Providers with direct access traffic only	2	1	2	5	5	6
Providers with indirect access traffic only	3	3	2	1	1	2

Source: ICP-ANACOM

Nomadic VoIP providers

With regard to nomadic VoIP, there were 20 providers authorized to provide nomadic VoIP services in 2009.

21 Besides the 25 entities legally qualified to provide the FTS, there were also 8 entities qualified to provide VoIP.

Providers of nomadic VoIP [22] | Table 40

Name	At start	Entries	Exits	At end
AR Telecom – Acessos e Redes de Telecomunicações, S.A.	NA			NA
EPORTEL – Prestação de Serviços em Telecomunicações, Lda	NA			NA
G9 SA – Telecomunicações, S.A.	A			A
NACACOMUNIK – Serviços de Telecomunicações, Lda.	NA			A
ONITELECOM – Infocomunicações, S.A.		X		NA
PDM & FC – Projecto, Desenvolvimento Manutenção, Formação e Consultoria, Lda.	NA			NA
PT Comunicações, S.A.[23]	A			A
PT PRIME – Soluções Empresariais de Telecomunicações e Sistemas, S.A.	A			A
Refer Telecom – Serviços de Telecomunicações, S.A.		X		A
RADIOMÓVEL – Telecomunicações, S.A.	NA			A
SIPTELNET – Soluções Digitais, Unipessoal, Lda.[24]	NA			NA
SONAECOM – Serviços de Comunicações, S.A.	NA			NA
TRANSIT Telecom, Sociedade Unipessoal, Lda.	NA			NA
UNITELDATA – Telecomunicações, S.A.	NA			A
VODAFONE PORTUGAL – Comunicações Pessoais, S.A.	NA			NA
VOXBONE, S.A.	NA			NA
COMVOZ – Comunicações de Portugal[25]	A			A
ZON TV Cabo Açoreana, S.A.[26]	NA			NA
ZON TV Cabo Madeirense, S.A.[27]	NA			NA
ZON TV Cabo Portugal, S.A.[28]	A			A
Total active	**5**	**-**	**-**	**9**
Total non-active	**13**	**-**	**-**	**11**
Overall total	**18**	**2**	**0**	**20**

Source: ICP-ANACOM
Legend: A – Active
NA – Non-active

22 Companies allocated with range "30".
23 PT.Com – Comunicações Interactivas, S.A. disappeared following the merger with PT Comunicações as of 10-03-2008.
24 The company did not start its commercial operations. It only has a VOIP service pilot-project.
25 Ex-WEBMEETING – Internet e Consultoria Informática, Lda. (TNTVOIP)
26 A CABO TV Açoreana, S.A. changed its company name to ZON TV Cabo Açoreana, S.A.
27 A CABO TV Madeirense, S.A. changed its company name to ZON TV Cabo Madeirense, S.A.
28 A CATVP – TV Cabo Portugal, S.A. changed its company name to ZON TV Cabo Portugal, S.A.

Of the twenty operators authorised for the nomadic VoIP service, only nine were in operation.

Providers of public payphones

The providers of public payphones are listed below.

Providers of public payphones in 2009 | Table 41

Name	At start	Entries	Exits	At end
ADIANIS – Telecomunicações & Multimedia, S.A.	NA			NA
Amazing Life, Unipessoal, Lda		X		A
Bemaviada Unipessoal, Lda		X		A
BLUE CARD – Serviços de Telecomunicações e Informática, Lda.	A			A
Caltelcall, Lda		X		A
CGPT, Lda.	NA			NA
DIVAGAR Letras, Unipessoal, Lda.	NA		X	
EPORTEL – Prestação de Serviços em Telecomunicações, Lda.	NA			A
FLASHAD – Electrónica e Comunicações, Unipessoal, Lda.	A			A
G9 SA – Telecomunicações, S.A.	A			A
Luckyprice, Lda		X		A
MAGIC LASER, Lda.	NA			A
MINUT MIX – Comunicações, Lda.	A			A
MONEYCALL – Serviços de Telecomunicações, Lda.	A			A
MUNDIAL – Agência de Câmbios, Lda.	A		X	
Nipojasmim – Unipessoal, Lda		X		A
OPTION 1 – Serviços de Telecomunicações, Lda.	A		X	
PALCO DA VIDA– Telecomunicações Unipessoal, Lda.	A			A
PHONE ONE – Serviços de Telecomunicações, Lda.	A			A
PT Comunicações, S.A.	A			A
TELEMO Comunicaciones, S.L.	A			A
ULTRASERVE – Consultoria e Apoio Empresarial, Lda.	NA			NA
Wisevector – Telecomunicações, Lda		X		A
Total active	**11**			**17**
Total non-active	**6**			**3**
Overall total	**17**	**6**	**3**	**20**

Source: ICP-ANACOM
Legend: A – Active
NA – Non-active

At the end of 2009, there were seventeen providers of public payphones in operation, with the entry of six new operators, all active, and the exit of three operators, of which two were active.

2.2.4. Supply structure and operator switch

In 2009, Grupo PT's share of accesses installed at customer request declined 4.5 % points. Note that the accesses benefiting from the wholesale line rental offer (WLRO) were counted as direct accesses of the alternative providers.

Since late 2005, the Grupo PT has lost 24.9 % points in its share of accesses installed at customer request.

Grupo PT shares of accesses | Table 42

	2005	2006	2007	2008	2009
Total main accesses	89.2	78.5	72.0	69.4 %	64.7
Accesses installed at customer request	89.0	78.0	71.2	68.6 %	64.1
Analogue accesses	91.3	88.4	84.8	87.8 %	90.1
ISDN equivalent accesses	81.1	85.8	83.7	83.2 %	81.5

Unit: %
Source: ICP-ANACOM

The evolution of the share of direct access customers trended in line with the evolution in its share of accesses.

Accesses benefiting from active WLRO were counted here as direct accesses of the alternative providers.

Grupo PT shares of customers | Table 43

	2005	2006	2007	2008	2009
Direct access customers	88.9	76.3	68.3	63.8	57.6
Indirect access customers	0.8	1.2	2.0	19.8	41.0

Unit: %
Source: ICP-ANACOM

As the leading alternative operator in direct access, Grupo Sonaecom is reported with a share of 16.6 %, followed by Grupo ZON, which in the last year had a share of 13.6 %, an increase of 7.9 p.p. over the previous year.

Shares of direct access customers | Table 44

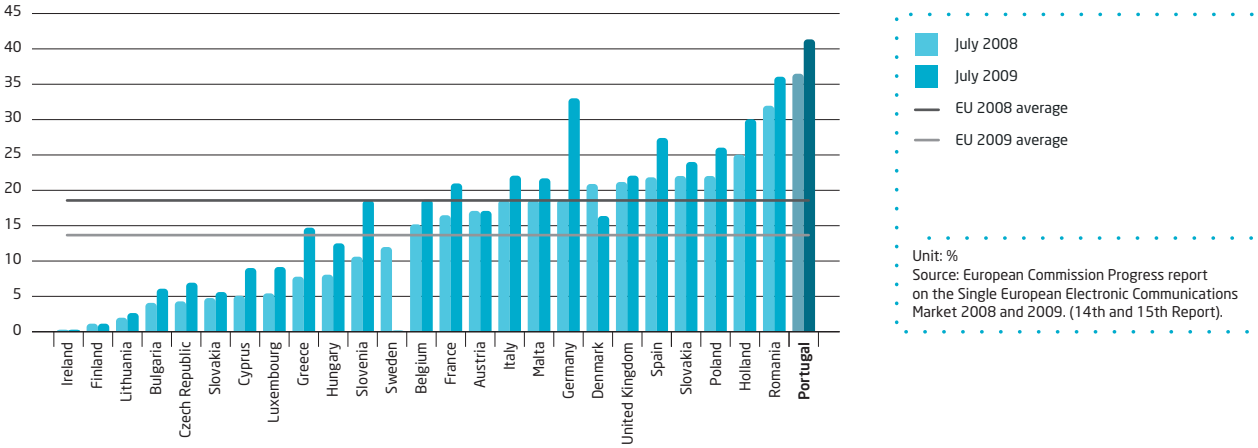
	4T08	4T09
Grupo PT	63.8 %	57.6 %
PT Comunicações	63.5 %	57.4 %
PT Prime	<0.05 %	<0.05 %
TMN	0.3 %	0.2 %
Alternative providers	36.2 %	42.4 %
Grupo Sonaecom	19.1 %	16.6 %
Novis	17.0 %	16.6 %
Tele 2	2.0 %	-
Grupo ZON/TV Cabo [1, 2]	5.7 %	13.6 %
ZON Portugal / TV Cabo	4.4 %	12.5 %
ZON Açores/ Cabo TV Açoreana	0.2 %	0.4 %
ZON Madeira/ Cabo TV Madeirense	0.4 %	0.7 %
TVTEL	0.3 %	-
Bragatel	0.2 %	-
Pluricanal Leiria	0.1 %	-
Pluricanal Santarém	0.1 %	-
Cabovisão	7.5 %	7.2 %
Vodafone	3.1 %	4.1 %
AR Telecom	0.8 %	0.8 %
Other alternative providers	0.1 %	0.1 %

Unit: %
Source: ICP-ANACOM

Note: There are certain operators which are active in specific market segments. The relative position of the operators in this table should in no way be taken as an indicator of the quality of the service which these operators provide or of their performance in the segments which they are active.

It is noted that, according to the EC, the share of direct access customers of alternative providers in Portugal is the highest, together with Romania, among the countries considered.

Share of direct access customers of alternative providers in the EU | Graph 28



Unit: %
Source: European Commission Progress report on the Single European Electronic Communications Market 2008 and 2009. (14th and 15th Report).

With regard to indirect access, it should be highlighted that Grupo PT increased its share of indirect access customers. This evolution is due to the large increase in the number of indirect customers of TMN – Telecomunicações Móveis Nacionais, S. A. (TMN).

Alongside this evolution of access and customer shares, number portability has also seen a surge in use. During 2009, ported geographic numbers maintained the trend in growth, increasing 25.2 %. In absolute terms, the volume of ported numbers reached about 1.15 million numbers, equivalent to 27.8 % of all accesses.

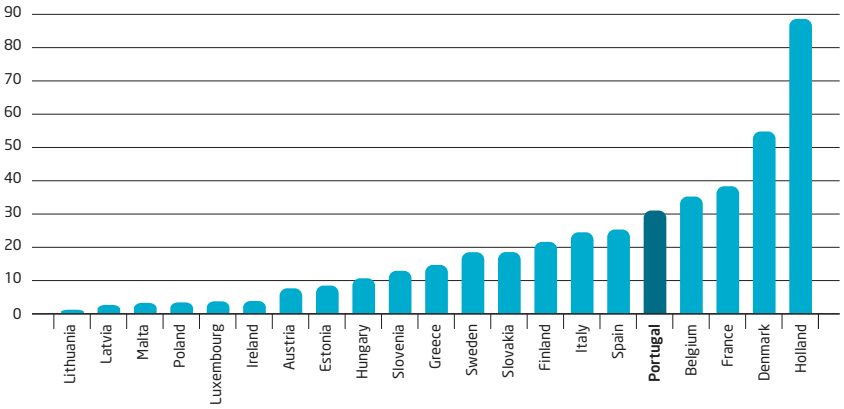
Ported numbers (stock at end of year) | Table 45

	2005	2006	2007	2008	2009
Geographic numbers	265,077	446,371	664,684	918,953	1,149,926
Non-geographic numbers	351	571	739	885	1, 066

Unit: 1 number
Source: ICP-ANACOM

At EU level, Portugal ranks 5th with regard to ported numbers.

Ported fixed numbers (October 2008) | Graph 29



Unit: %
Source: European Commission Progress report on the Single European Electronic Communications Market in 2008. (14th Report).

Regarding traffic shares, since the beginning of liberalization there has been a progressive decrease in the proportion of voice traffic routed by the incumbent operator. Along the same lines, in 2009, a decrease of 3.5 % in the share of voice traffic routed by the incumbent operator was reported in terms of minutes and 2.3 % in terms of calls.

Traffic shares of Grupo PT (minutes) | Table 46

	2005	2006	2007	2008	2009
Total traffic (voice + Internet)	78.2	73.4	69.8	67.0	63.5
Voice traffic	74.1	71.0	68.7	66.3	63.0
National traffic (voice)	74.2	70.6	68.3	65.9	62.6
National fixed-fixed traffic	74.4	71.0	69.0	66.4	62.9
National fixed-mobile traffic	72.9	68.2	64.6	63.0	61.0
Outgoing international traffic	73.0	76.4	74.2	71.3	68.1
Internet access traffic	**96.3**	**92.9**	**91.4**	**94.1**	**95.3**

Unit: %
Source: ICP-ANACOM

Traffic shares of Grupo PT (calls) | Table 47

	2005	2006	2007	2008	2009
Total traffic (voice + Internet)	74.8	71.1	68.4	66.6	64.3
Voice traffic	74.2	70.9	68.4	66.6	64.4
National traffic (voice)	74.3	70.8	68.3	66.7	64.4
National fixed-fixed traffic	74.3	71.2	69.0	67.7	65.2
National fixed-mobile traffic	74.3	69.2	65.6	63.4	61.4
Outgoing international traffic	72.1	72.5	70.2	64.8	64.4
Internet access traffic	**93.8**	**84.0**	**69.0**	**56.6**	**48.3**

Unit: %
Source: ICP-ANACOM

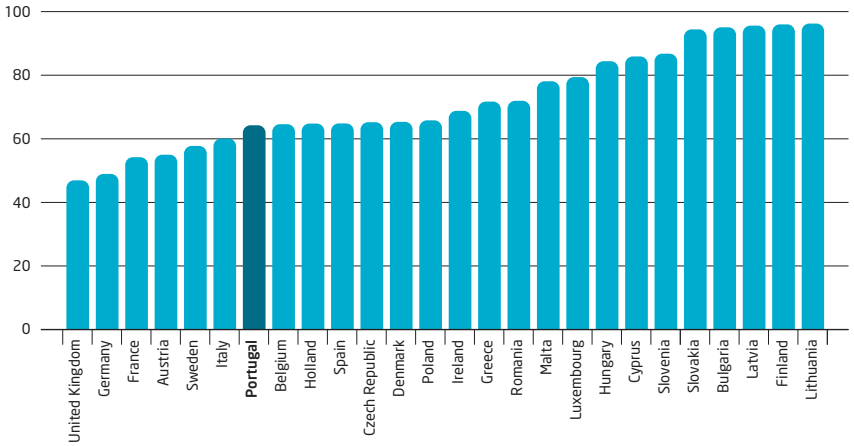
With respect to the traffic shares of the alternative operators, in line with direct access, Grupo Sonaecom and Grupo ZON are reported as having had the highest share (14.8 and 7.7 %, respectively).

Regarding the destinations of national voice traffic (mobile and fixed geographic), in 2009, the alternative providers were responsible for around 35.6 of traffic in terms of calls and 37.4 % in terms of minutes.

In relation to outgoing international traffic, in 2009 the share of the alternative providers was around 31.9 % in minutes routed and 35.6 % in originated calls.

The incumbent operator's traffic share in Portugal is the sixth lowest in the EU.

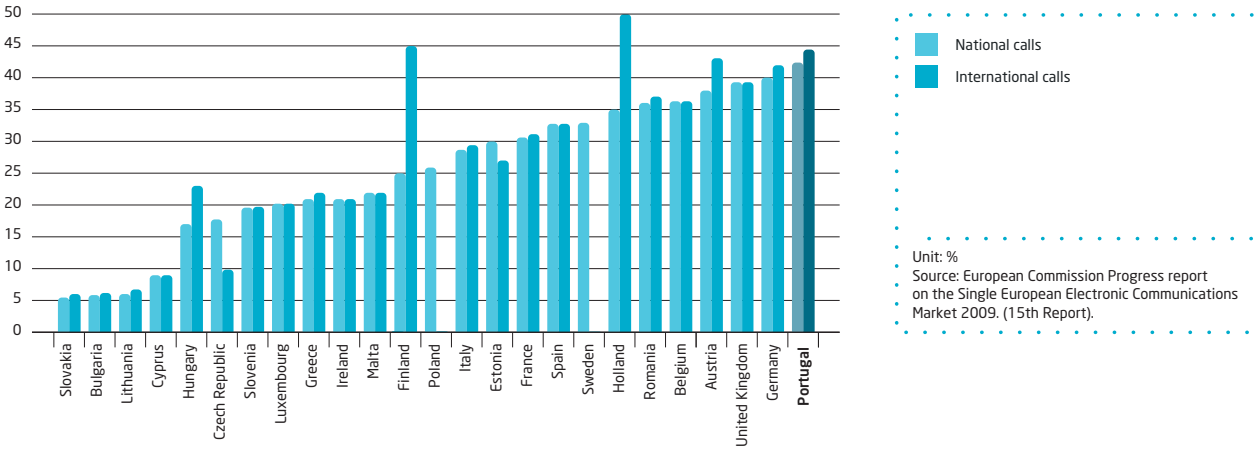
Incumbent operator's traffic share in December 2008 (minutes) | Graph 30



Unit: %
Source: European Commission Progress report on the Single European Electronic Communications Market 2009. (15th Report).

Regarding the proportion of customers that use alternative providers to make calls, compared to the other EU countries, Portugal is 1st in the rankings in terms of national calls and 3rd in terms of international calls.

Percentage of customers using alternative providers to make fixed voice calls, July 2009 | Graph 31



Unit: %
Source: European Commission Progress report on the Single European Electronic Communications Market 2009. (15th Report).

In terms of revenue, in 2009, Grupo PT's share reached 75.9 %, 0.9 % less than in the previous year.

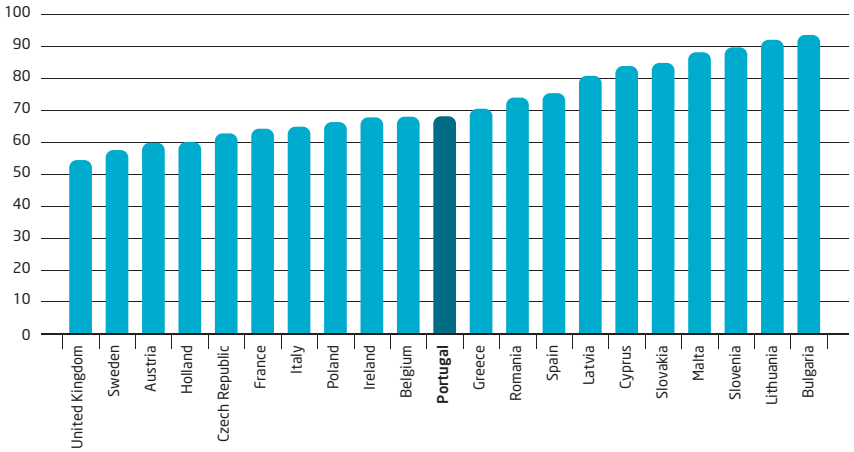
Grupo PT share of FTS revenues | Table 48

	2005	2006	2007	2008	2009
Total revenue	86.4	83.7	77.1	76.0	75.9

Unit: %
Source: ICP-ANACOM

In international terms, in December 2008, the revenue share of the incumbent operator in Portugal was above the average share of incumbent operators in the EU countries considered, which stood at 72.8 % points.

Incumbent operator's revenue share in December 2008 (revenues) | Graph 32



Unit: %
Source: European Commission Progress report on the Single European Electronic Communications Market 2009. (15th Report).

The evolution of the shares presented above is the result of factors explaining the underlying variables which will be detailed in the following sections. However, it is important here to cite the consumers' reasons for switching operator.

According to the *Inquérito ao Consumo das Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2009[29], about 5.9 % of households switched fixed telephone service operator in the preceding 12 months. In this context, it should be noted that the main reasons cited for switching operator relate to the pricing of the service.

29 *Inquérito ao Consumo de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2009. The universe is composed of individuals of 15 years or more who reside in private housing units located in Mainland Portugal or in the Autonomous Regions (Azores and Madeira). The sample is representative at the level of NUTS II (with sampling errors not exceeding 5.5 % points for the smaller regions – Alentejo, Algarve, A.R. Azores and A.R. Madeira and not exceeding 4.5 for the others) having been composed of 3106 interviews. Households were selected by means of proportional stratified random sampling according to the crossing of the NUTS II Region variables and the size of the household. Within each household one individual was selected by means of sampling by quotas guaranteeing the marginal totals of the sex, age class, level of education and employment status variables, according to the General Population Census (2001) of INE – Instituto Nacional de Estatística (Statistics Portugal). Information compilation was performed using CAPI – Computer Assisted Personal Interviewing between 6 November and 20 December 2009. The results regarding the Mobile Telephone Service are based on the universe of the individuals and present a maximum margin of error of less than 2 p.p. (with a degree of reliability of 95 %). The results regarding the Fixed Telephone Service, internet Service and paid Television Service are based on the universe of the households and present a maximum margin of error of less than 2.6 p.p. (with a level of reliability of 95 %). Fieldwork and data processing was performed by the company GFK Metris.

Reasons for switching fixed operator | Table 49

	Dec. 08[30]	Dec. 09[15]
Operator switching rate in previous 12 months	8.4 *	5.9 *
Base: Family households with access to fixed telephone service (non-responses not included)		
Reasons for switching operator	**Dec. 08[16]**	**Dec. 09[15]**
Dissatisfaction with prices	52.6 *	48.4 *
New operator does not charge monthly fee	19.0 #	11.4 #
The previous operator did not offer a bundle with access to other services	8.0 #	9.1 #
Dissatisfaction with the quality of the service	6.5 #	14.6 #
Other responses	12.9 #	13.4 #
Don't know/no response	1.0	3.1
Total	100	100

Source: ICP-ANACOM, *Inquérito ao Consumo das Comunicações Electrónicas*, December 2008 and 2009
Base: Family households which have switched operator

Note: The coefficient of variation is considered as sampling error indicator, based on the variance of the "proportion" estimator of a simple random sample and assuming a significance level of 95 percent. The following key is used:
(#) Coefficient of variation greater than or equal to 25 % (unreliable estimate)
(*) Coefficient of variation greater than or equal to 10 % and less than 25 % (acceptable estimate)
(no symbol) Coefficient of variation less than 10 % (reliable estimate)

In fact, the operators that launched offers with no monthly subscription fee (namely based on GSM, on cable TV distribution networks or multiple play), and the providers that advertised their offers, namely of indirect access, as being cheaper than the offers of the incumbent operator, are the main responsible parties for the decrease in the incumbent operator's share of accesses and traffic. Other relevant factors in this context will be the decline in the use of the service in its traditional form and the launch of bundled offers by alternative providers which include the FTS.

30 *Inquérito ao Consumo de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2008. The universe is composed of individuals of 15 years or more who reside in private housing units located in Mainland Portugal or in the Autonomous Regions (Azores and Madeira). The sample is representative at the level of NUTS I having been composed of 2,040 interviews on the Mainland and 780 interviews in each of the Autonomous Regions. Households were selected by means of proportional stratified random sampling according to the crossing of the NUTS II Region variables and the size of the household. Within each household one individual was selected by means of sampling by quotas guaranteeing the marginal totals of the sex, age class, level of education and employment status variables, according to the General Population Census (2001) of INE (Statistics Portugal). The gathering of information was by CAPI – Computer Assisted Personal Interviewing which took place between 5 November and 29 December 2008. The results regarding the Mobile Telephone Service are based on the universe of the individuals and present a maximum margin of error of less than 2 %. (with a degree of reliability of 95 %). The results regarding the Fixed Telephone Service, internet Service and paid Television Service are based on the universe of the households and present a maximum margin of error of less than 3 % (with a level of reliability of 95 %). The company TNS-Euroteste was responsible for the fieldwork and data handling.

2.2.5. Offers of access to the fixed telephone network and telephone services offered to the general public at a fixed location

The FTS enables the user to make and receive national and international voice calls and is usually provided together with several applications, characteristics and optional services.

Traditionally, telephone services were offered together (bundled) with access to the public telephone network at a fixed location. The service was provided via the fixed telephone network and the local access network was made up of copper wire pairs. The digits that made up the telephone number given to each subscriber line made it possible for the service user to associate that line to a given geographical area and a given service provider.

From the tariff viewpoint, two-part tariffs were normally charged, with a clear separation of the access item (installation and subscription) from the usage item (price of calls). Regarding call prices, there was peak-load pricing and call prices were proportionate to their distance.

This situation changed due to the regulatory, technological and commercial alterations which have occurred in recent years.

Indirect access

With the implementation of indirect access, the offer of access to the public telephone network at a fixed location was split from the telephone services provided to the general public at a fixed location.

As from 1 January 2000, the users of publicly available telephone services at a fixed location began being served by the indirect access service in call-by-call selection mode. This function allows FTS users to make telephone calls using the services of other FTS providers besides their access provider, by simply dialling the 10xy code of each operator. Initially, only long-distance and international calls were eligible for the provision of this indirect access service.

As from 1 July 2000, a new indirect access mode was launched: provider pre-selection. This function makes it possible for the calls made by any user to be routed to the provider that they prefer without the need to dial the selection codes. Initially, pre-selection was implemented through the installation of an auto-dialler device on the customer's phone. On 1 October 2000, pre-selection ended its interim stage in the networks of Porto and Lisbon, with the installation of an auto-dialler no longer being needed; pre-selection began to be programmed at the operators' exchanges. On that same date, calls originating from the fixed networks destined for a mobile network (fixed-mobile calls) became eligible for indirect access, both in call-by-call selection mode and in pre-selection mode. On 15 November 2000, pre-selection became available for customers in the rest of the country in its final format (without the installation of auto-diallers).

After 1 January 2001, local and regional connections also became eligible for indirect access.

Indirect access was initially the means preferred by most of the alternative operators for entering the markets of telephone services provided at a fixed location, allowing them to obtain relatively high shares in terms of national and international traffic.

Portability

The possibility of maintaining a telephone number after changing operator, in a framework of competition, is another modification to the traditional way of providing the service imposed by the regulation of the sector.

Portability, the function giving subscribers of publicly available telephone services the possibility, upon request, of keeping their number or numbers, within the scope of the same service, regardless of the company offering it, in the case of geographical numbers in a given location, and in the case of other numbers throughout Portugal, was introduced to fixed networks on 30 June 2001 and to mobile networks on 1 January 2002.

Law no. 5/2004 of 10 February – *Lei das Comunicações Electrónicas* (Electronic Communications Law) – (paragraph 5 of article 54 and paragraph 1 of article 125) empowers ICP-ANACOM to set the rules regarding the implementation of portability, which should take the form of a regulation.

In this context, ICP-ANACOM prepared Regulation no. 58/2005, published on 18 August, which established the principles and rules applicable to portability in the public telephone networks, and which is mandatory for all companies with portability obligations[31]. This regulation was subsequently amended in February (Regulation no. 87/2009) and July 2009 (Regulation no. 302/2009)[32].

It is only possible to switch within the same type of service; i.e. it is possible to change the provider of the telephone service accessible at a fixed location and maintain the same number, it is possible to change the provider of the mobile telephone service and maintain the same number, and it is also possible to change the provider of a given non-geographic service (ex. 800) and maintain the same number. However, it is not possible, for example, to port a number from a provider of the telephone service accessible at a fixed location to a mobile telephone service provider (or nomadic VoIP), or vice versa.

Tariff changes and changes to the marketing of the service

Regarding tariffs, there are constant innovations revolutionizing traditional tariff models. On the one hand, there is a trend towards creating tariff bundles where components of access and use are combined. This occurs by removing the component associated with access, with the prices for usage subsidizing access, or by formulating access prices that are convertible into calls or with an associated calling credit.

Multiple play bundled offers merging voice services, Internet access, TV distribution and content are sometimes associated with these tariff changes. These offers are provided via cable distribution networks or via the LLU – regulated offer, via FWA and optical fibre.

In cases where usage prices still exist, there is a phenomenon called postalization, which is the elimination of the proportionality between the price and the distance, and to a lesser extent, the elimination of the peak-load pricing. At the same time, optional tariffs and promotional offers have multiplied.

Apparently, these changes are contrary to the tariff principles put forward by economic theory, which would guarantee greater productive efficiency. However, the changes correspond to users' needs, namely the simplification of tariff structures, the existence of a single invoice, cost control and the elimination of fixed components, items that are also relevant in tariff theory. On the other hand, in a context of greater competition and decreasing usage of the service, and in an industry characterized by a high level of fixed costs and of operational leverage, this type of tariff offers will ensure the most appropriate level of revenue.

Single bill

With the introduction of indirect access, users began receiving two telephone invoices: one for access sent by the incumbent operator, and another for communications charged by the alternative providers.

By determination of 14 December 2004, the alternative providers were given the possibility of presenting the end customer with a single bill and a joint offer of access service and telephone services. This possibility is a result of the regulatory obligation of the Subscriber Line Resale Offer (SLRO).

The SLRO is available to companies that, duly qualified for the purpose by ICP-ANACOM, provide the following services via a given subscriber line of PTC:

i) Telephone service at a fixed location under a pre-selection, regardless of the type of pre-selected traffic; and/or regime.
ii) Broadband Internet access services, including services based on unbundled lines in the shared access mode.

Voice over Internet Protocol (VoIP)

Finally, mention should be made of the introduction of voice services based on broadband internet access offers, within the scope of the multiple play offers described above. These offers are based on the internet Protocol (VoIP) and for the most part have very low pricing levels.

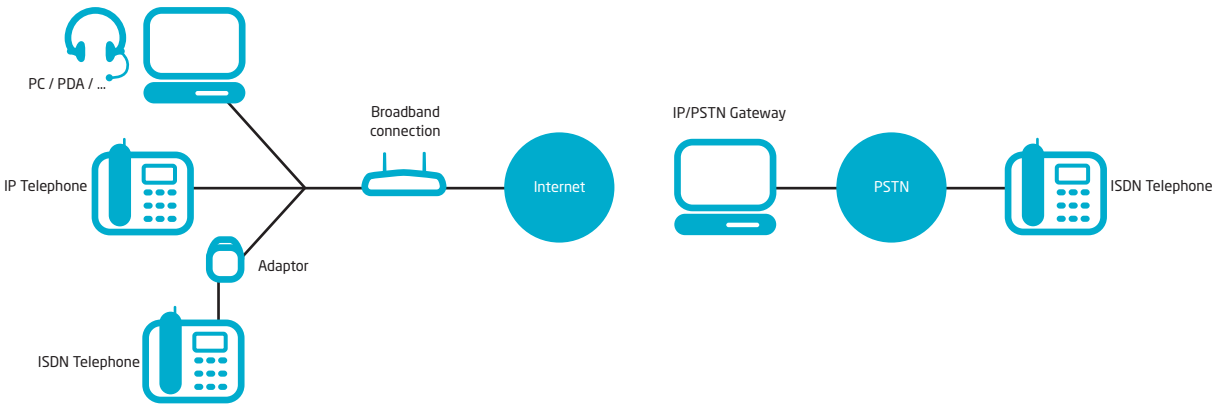
31 This regulation has been the object of successive amendments (See http://www.anacom.pt/render.jsp?contentId=940501). The most recent amendment occurred in February 2009.
32 Regulation available at http://www.anacom.pt/render.jsp?categoryId=328895.

VoIP technology enables users to establish telephone calls over a data network such as the internet, converting an analogue voice signal into a set of digital signals, in the form of IP address packages, which can be sent, namely, via an Internet connection (preferably broadband).

The increase in broadband accesses for internet use, together with the emergence of increasingly more stable protocols in terms of standardization, enable the current development of applications supporting video and voice interactive services, such as VoIP, assuring a voice quality seen by the user as being close to that of the traditional telephone service. Accordingly, the VoIP service is increasingly sought by end users.

There are currently several types of terminals (personal computers (PC), IP telephone, Personal Digital Assistants (PDA), etc...) enabled to make VoIP calls, while the physical access should preferably be broadband, since it is not yet viable to guarantee an adequate bandwidth for the operation of VoIP over a narrowband connection to the public Internet. Broadband access may be based on wired technologies, such as Asymmetric Digital Subscriber (ADSL), cable, optical fibre, and powerline, or on wireless technologies, such as 3G, satellite, FWA, Wi-Fi (Wireless fidelity) or worldwide interoperability for microwave access (WiMax).

Configuration of a typical network using VoIP as a publicly available electronic communications service
Figure 4



Within the scope of the FTS, these publicly available VoIP services, regulated by Law no. 5/2004, may be offered by an access provider, namely of broadband:

i) At a single fixed location and under conditions seen by the user as being equivalent to those of the traditional fixed telephone service. In terms of numbering and portability, ICP-ANACOM considers that VoIP offers provided at a fixed location may be assigned geographic numbers, it being the VoIP provider's responsibility to ensure the fulfilment of this requirement (use at one single location).

ii) Through nomadic use offers, able to be used at several locations, supported on third party accesses, i.e., without control of the access network (Skype-OUT/IN is an example of this kind of service), and being able to make and receive calls. It was considered appropriate to assign this nomadic VoIP mode a new range of non-geographic numbers[33] - "30" - distinguishing it from the telephone service provided at a fixed location.

33 It was decided, under article 17 no. 2, paragraph b) of the Electronic Communications Law (Law no. 5/2004 of 10 February), to open range "30" to host VoIP nomadic use services by ranges of 10,000 numbers to the providers entitled to provided nomadic VoIP services, under the terms defined by ICP-ANACOM. Taking into account paragraph g) of no. 1 of article 3 of the Portability Regulation, range "30" was included within the scope of portability.

The following table summarizes the main services (traditional voice services, characteristics, associated services, etc.) that the FTS providers may offer.

Products and services offered by the FTS providers | Table 50

Products/services	Brief description
Analogue telephone line (only applicable to direct access[34])	Corresponds to the traditional telephone service, for making and receiving voice calls at fixed locations. With the use of a modem it gives access to further services, namely data transmission and fax.
Service features (only applicable to direct access)	Features that modify or increase the basic features and characteristics of the basic telephone services (e.g.: call waiting, call re-routing, SMS – short message service – and MMS – multimedia messaging service, etc.).
Tariff services	Itemized billing.
Digital telephone line – ISDN (Integrated Services Digital Network) (only applicable to direct access)	Service also provided using a public telephone network enabling the integration of voice and data services into a single access. Currently available ISDN connections are as follows: – basic ISDN access: access to the ISDN with two 64 kbps voice and/or data channels and one 16 kbps signalling channel, which can be used for packaged-mode data; – primary ISDN access: access to the ISDN with 30 64 kbps voice and/or data channels and one 64 kbps signalling channel, and one 64 kbps synchronism channel, with a total throughput of 2 Mbps. Other supplementary services can be provided via ISDN lines, such as caller ID or its suppression, call re-routing, etc.
Operator services	Information and telephone directory services, operator assisted communications services, collect call services, SMS and MMS, etc.
Access to public services	Access to emergency services and other services.
Call-by-call selection and pre-selection	Feature making it possible to select an FTS provider other than the one owning the local loop. This choice is made by dialling a short code (the provider's 10xy prefix) when making the call – call-by-call selection – or further to a pre-selection contract.
Operator portability (only applicable to direct access)	Feature enabling a subscriber of a given service to choose to keep their telephone number when changing to another operator of the same service.
Public payphones for access to fixed telephone service	Terminal equipment for access to the FTS (telephone booths), installed at public locations, including those of restricted access, available to the general public as a paid service.

Source: ICP-ANACOM

34 Depending on whether the local access is held by the FTS provider or not, it can be direct access FTS, or indirect access FTS.

Due to increasing network convergence, integrated solutions offered by providers may include other types of service, enabling, in particular, the provision of voice, data and video in one single fixed access, with the proper equipment. These solutions are usually adapted to the segments they target (residential, self-employed professionals, companies, etc.).

2.2.6. Price level of the incumbent operator's offers

The evolution of the incumbent operator's prices and an international comparison of FTS prices in 2009 are presented below.

Evolution of the incumbent operator's price index

In 2009, and in average annual terms, the pricing of local calls and the pricing of national calls have declined by 2.9 % (2.1 and 2.0 % in real terms, respectively). In addition, a stabilisation has been seen in the monthly subscription and installation fees. It should be highlighted that, within the scope of the regulation of the prices of the universal service, a pricecap was established for the basket of prices of the service, with the operator being able to freely set the prices of the components of the basket so long as the overall limit and the principle of cost orientation is complied with. In this case, PTC decided to reduce the prices of then communications and maintain the installation and monthly subscription fee.

Compared to 2006, the incumbent operator's price basket remained the same in nominal terms. It should also be mentioned that in 2009, a local call cost almost 15 % less, in nominal terms, than a similar call in 2006.

Incumbent operator's nominal price index | Table 51

	2008	2009	Var. (%) 2008/2009	Average annual var. (%) 2006/2009	Accumulated var. (%) 2006/2009
Installation	100.0	100.0	0.0 %	0.0 %	0.0 %
Monthly fee	100.0	100.0	0.0 %	0.0 %	0.0 %
Local	87.6	85.0	-2.9 %	-5.3 %	-15.0 %
National	88.2	85.7	-2.9 %	-5.0 %	-14.3 %
Basket	**100,0**	**100,0**	**0,001 %**	**-0,002 %**	**-0,005 %**

Unit: base index (2006=100)
Source: ICP-ANACOM

In real terms, a general decline is reported in prices of calls to various traffic destinations since 2006. As such, the incumbent operator's basket of prices fell by 4.1 % in real terms between 2006 and 2009. Regarding the monthly service and installation charge a reduction in real terms was seen in the same period of 4 % in both indicators. However, in the last year the monthly charge and installation charge rose 0.9 %.

Incumbent operator's real price index | Table 52

	2008	2009	Var. (%) 2008/2009	Average annual var. (%) 2006/2009	Accumulated var. (%) 2006/2009
Installation	95.1	96.0	0.9%	-1.4%	-4.0%
Monthly fee	95.1	96.0	0.9%	-1.4%	-4.0%
Local	83.3	81.6	-2.1%	-6.6%	-18.4%
National	83.9	82.2	-2.0%	-6.3%	-17.8%
Basket	**95.1**	**95.9**	**0.9%**	**-1.4%**	**-4.1%**

Unit: base (2006=100)
Source: ICP-ANACOM

International comparisons of FTS prices

International comparisons of FTS prices are presented below[35].

Regarding the annual average invoice (basket), prices paid by FTS residential customers in Portugal are below the average prices charged in the countries under analysis, in all consumption profiles.

Portugal's relative position in the rankings, compared to last year, has improved only in terms of the medium consumption profile, whereas Portugal's has dropped by one place in the high consumption basket.

International comparisons of FTS prices - residential segment | Table 53

		Nov. 2006	Nov. 2007	Nov. 2008	Nov. 2009
Low consumption	Deviation from the average	3.0 %	-1.7 %	0.2 %	-0.9 %
	EU19 Ranking	13	9	11	11
Medium consumption	Deviation from the average	2.4 %	-8.0 %	-6.9 %	-7.1 %
	EU19 Ranking	11	4	7	6
High consumption	Deviation from the average	6.2 %	-7.1 %	-7.0 %	-5.5 %
	EU19 Ranking	13	6	7	8

Unit: %
Source: Teligen, OECD, ICP-ANACOM

In spite of the fact that, overall, the residential consumer's average annual bill in Portugal is below the average of the countries considered, there are certain components in the basket where it is above the average. This is the case of fixed-mobile and international calls.

It should be mentioned that, for the average and high consumption segments, a tariff option was selected with a subscription fee and free calls. As such, the installation and monthly subscription fee are relatively more expensive than the average. However, free national calls more than offset this effect and, also, the effect of the relatively more expensive fixed-mobile and international calls.

35 OECD's usage profiles/bundles were taken into account. Values are in Euros and correspond to annual invoices, without VAT, and purchasing power parity was not used. The currency rates are collected by the OECD. The figures for the residential segment do not include discounts and promotions, while these were included in the business segment. The average is calculated with the results of the 19 EU countries taken into account by the OECD.

International comparison of FTS prices (II) - residential segment | Table 54

		Low consumption	Medium consumption	High consumption
Installation and monthly subscription	Annual expenses with installation and monthly subscription	196,3 €	284,8 €	284,8 €
	Deviation from the average	-4.6 %	23.7 %	6.9 %
	EU19 Ranking	7	17	14
National calls	Annual expenses with national calls	57,3 €	0 €	0 €
	Deviation from the average	-15.8 %		
	EU19 Ranking	6		
Fixed-mobile calls	Annual expenses with fixed-mobile calls	44,6 €	107,8 €	290,0 €
	Deviation from the average	13.0 %	11.9 %	12.4 %
	EU19 Ranking	14	14	14
International calls	Annual expenses with international calls	44,4 €	35,5 €	141,9 €
	Deviation from the average	37.9 %	37.3 %	41.1 %
	EU19 Ranking	16	16	16

Unit: euros, %.
Source: Teligen, OECD, ICP-ANACOM

Concerning the business segment, in the SOHO (Small Office, Home Office) segment the prices charged in Portugal are 3.1 % below average.

In the SME segment, the results are less favourable. In this case, the prices charged in Portugal rank 13th, and the average invoice of these customers is 9.1 % higher than the average of the other countries under analysis.

International comparisons of FTS prices - business segment | Table 55

		Nov. 2007	Nov. 2008	Nov. 2009
SOHO	Deviation from the average	2 %	0.2 %	-3.1 %
	EU19 Ranking	12	12	9
PME	Deviation from the average	13.5 %	11.3 %	9.1 %
	EU19 Ranking	15	14	13

Unit: %
Source: Teligen, OECD, ICP-ANACOM

In the business segment, the prices charged in Portugal are below the European average in terms of installation, monthly subscription and calls to mobile numbers, and above the average in the calls to fixed numbers and calls to international numbers items.

It is important to note that in the business segment, the prices charged in Portugal for calls to mobile networks are the most competitive in the EU19.

International comparisons of FTS prices (II) - business segment | Table 56

		SOHO	PME
Installation and monthly subscription	Annual expenses with installation and monthly subscription	184,1 €	5,523,4 €
	Deviation from the average	-13.9 %	-26.3 %
	EU19 Ranking	6	4
National calls	Annual expenses with national calls	131,1 €	6,490,4 €
	Deviation from the average	16.9 %	30.4 %
	EU19 Ranking	12	15
Fixed-mobile calls	Annual expenses with fixed-mobile calls	93,0 €	2,979,1 €
	Deviation from the average	-32.9 %	-36.5 %
	EU19 Ranking	2	2
International calls	Annual expenses with international calls	55.4 €	5,170,1 €
	Deviation from the average	54.4%	74.8%
	EU19 Ranking	17	18

Unit: euros, %.
Source: Teligen, OECD, ICP-ANACOM

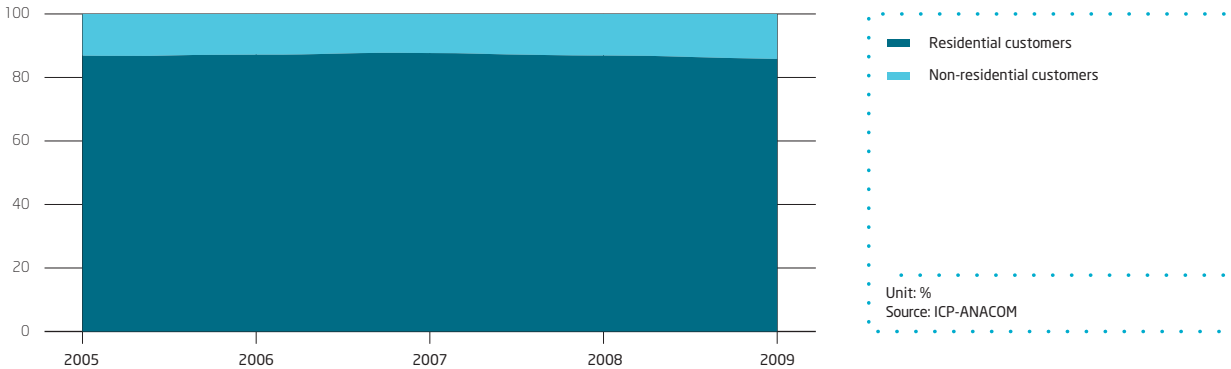
2.3. Profile of the customer and FTS usage

The main characteristics of FTS users and usage are presented below, in addition to the users' evaluation of the services provided. The main reasons reported by non-users for not subscribing to the service are also detailed.[36]

2.3.1. Characterization of the FTS user

FTS users are mostly residential customers. Only around 14 % of FTS customers are non-residential customers. As the following graph shows, these proportions have not varied significantly over the last five years.

Residential and non-residential customers | Graph 33



36 The results presented here contain differences in size in relation to the surveys of previous years. This is due to a change in the methodology for gathering information. Previously subscribers of the FTS and the MTS were interviewed. This year physical interviews were used.

Among residential customers, penetration is above average in the case of the population over 55 years of age[37] and in households with at least two individuals.

FTS penetration by age group | Table 57

Age group	Dez. 2009
15-24	55.6
25-34	44.2
35-44	47.5
45-54	57.0
55-64	64.9
65-more	61.8

Unit: %
Source: ICP-ANACOM, *Inquérito ao Consumo dos Serviços de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2009[38]
Base: Households according to age group of the respondent.

Note 1: The coefficient of variation is considered as sampling error indicator, based on the variance of the "proportion" estimator of a simple random sample and assuming a significance level of 95 %. The following key is used:
(#) Coefficient of variation greater than or equal to 25 % (unreliable estimate)
(*) Coefficient of variation greater than or equal to 10 % and less than 25 % (acceptable estimate)
(no symbol) Coefficient of variation less than 10 % (reliable estimate)
Note 2: The proportions highlighted in blue indicate those that are significantly different (column) in accordance with the test of two samples for proportions. Higher proportions are highlighted in light blue and lower proportions in dark blue.

FTS Penetration by family size | Table 58

Family size	Dec. 2009
1 individual	34.7 *
2 individuals	61.0
3 individuals	57.4
4 or more individuals	59.2

Unit: %
Source: ICP-ANACOM, *Inquérito ao Consumo dos Serviços de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2009[38]
Base: Households according to size.

Note 1: The coefficient of variation is considered as sampling error indicator, based on the variance of the "proportion" estimator of a simple random sample and assuming a significance level of 95 % The following key is used:
(#) Coefficient of variation greater than or equal to 25 % (unreliable estimate)
(*) Coefficient of variation greater than or equal to 10 % and less than 25 % (acceptable estimate)
(no symbol) Coefficient of variation less than 10 % (reliable estimate)
Note 2: The proportions highlighted in blue indicate those that are significantly different (column) in accordance with the test of two samples for proportions. Higher proportions are highlighted in light blue and lower proportions in dark blue.

37 It is concluded that the existence of the fixed telephone service i9n the home is statistically correlated with the respondent's age group (V Cramer coefficient 0.148).
38 *Inquérito ao Consumo de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2009. The universe is composed of individuals of 15 years or more who reside in private housing units located in Mainland Portugal or in the Autonomous Regions (Azores and Madeira). The sample is representative at the level of NUTS II (with sampling errors not exceeding 5.5 % points for the smaller regions – Alentejo, Algarve, A.R. Azores and A.R. Madeira and not exceeding 4.5 for the others) having been composed of 3106 interviews. Households were selected by means of proportional stratified random sampling according to the crossing of the NUTS II Region variables and the size of the household. Within each household one individual was selected by means of sampling by quotas guaranteeing the marginal totals of the sex, age class, level of education and employment status variables, according to the General Population Census (2001) of INE – Instituto Nacional de Estatística (Statistics Portugal). Information compilation was performed using CAPI – Computer Assisted Personal Interviewing between 6 November and 20 December 2009. The results regarding the Mobile Telephone Service are based on the universe of the individuals and present a maximum margin of error of less than 2 p.p. (with a degree of reliability of 95 per cent). The results regarding the Fixed Telephone Service, internet Service and paid Television Service are based on the universe of the households and present a maximum margin of error of less than 2.6 p.p. (with a level of reliability of 95 per cent). Fieldwork and data processing was performed by the company GFK Metris.

Residents in the region of Lisbon and Vale do Tejo and the Autonomous Region of Madeira subscribe to the FTS to a greater extent than residents in other regions of the country. It is concluded, however, that although there is correlation between NUTS II region and the existence of fixed telephone service at home, this is not of great intensity (Cramer V coefficient of 0.076, very small).

FTS penetration by NUTS II | Table 59

Region	Dez. 2009
North	51.2
Centre	54.7
Lisbon and Vale do Tejo	58.6
Alentejo	56.0
Algarve	54.9
Madeira	72.4
Azores	52.5 *

Unit: %
Source: ICP-ANACOM, *Inquérito ao Consumo dos Serviços de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2009
Base: Family households according to NUTS II region

Note 1: The coefficient of variation is considered as sampling error indicator, based on the variance of the "proportion" estimator of a simple random sample and assuming a significance level of 95 %. The following key is used:
(#) Coefficient of variation greater than or equal to 25 % (unreliable estimate)
(*) Coefficient of variation greater than or equal to 10 % and less than 25 % (acceptable estimate)
(no symbol) Coefficient of variation less than 10 % (reliable estimate)
Note 2: The proportions highlighted in blue indicate those that are significantly different (column) in accordance with the test of two samples for proportions. Higher proportions are highlighted in light blue and lower proportions in dark blue.

2.3.2. Barriers to service subscription

According to the data compiled from the *Inquérito ao Consumo das Comunicações Electrónicas* (Electronic Communications Consumer Survey) 2009, and as illustrated in the following table, the main reason for not subscribing to the FTS is the use of the mobile phone.

Tariff issues also play an important role. Around 25 % of those who have not subscribed to the service consider it to be too expensive (14.2 %) or state that they would prefer a service with no monthly subscription fee (10.2 %).

Reasons for not having a fixed network telephone | Table 60

	Dez. 2009
Uses mobile phone	53.0
Doesn't need / Doesn't need to communicate this way	18.8 *
Too expensive	14.2 *
Prefers not to pay monthly subscription fee	10.2 *
Other responses	2.6 #
Don't know/no response	1.2
Total	100

Unit: %
Source: ICP-ANACOM, *Inquérito ao Consumo dos Serviços de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2009
Base: Households without access to fixed telephone service

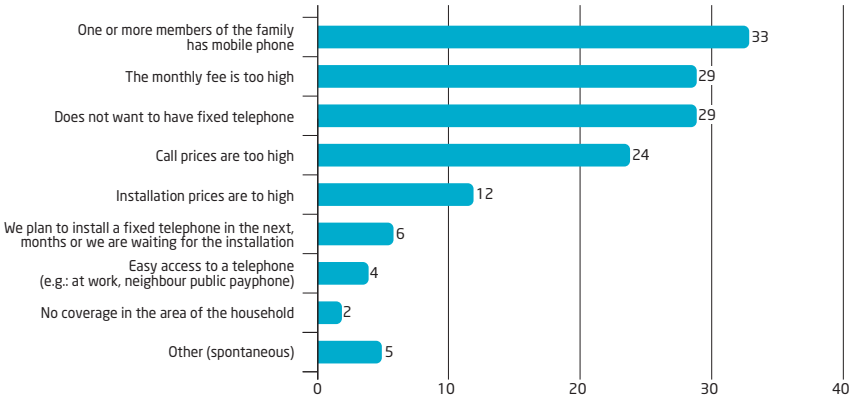
Note: The coefficient of variation is considered as sampling error indicator, based on the variance of the "proportion" estimator of a simple random sample and assuming a significance level of 95 %t The following key is used:
(#) Coefficient of variation greater than or equal to 25 % (unreliable estimate)
(*) Coefficient of variation greater than or equal to 10 % and less than 25 % (acceptable estimate)
(no symbol) Coefficient of variation less than 10 % (reliable estimate)

It should be noted that according to compiled data, about 44 % of households that currently do not have the fixed telephone service had subscribed to the service previously.

It is of note that the reasons given by Portuguese consumers for not subscribing to the FTS are the same as those mentioned in previous years and very similar to those stated by their European counterparts.

According to the EC [39], the reason most cited for not having fixed network is that at least one person in the family possesses a mobile phone. The costs associated with a fixed telephone line are also indicated as a reason for not having a fixed telephone. One in three homes without a fixed telephone mentioned the amount of the monthly subscription fee as an obstacle to subscription. One in four considered the price of calls to be high and 12 % of the respondents stated they could not afford the installation cost.

Reasons for not having a fixed telephone in the EU | Graph 34



Unit: %
Source: European Commission, E-Communications Household Survey, June 2008.

Note: Multiple choice question.

It is noted that the barriers to joining the service related to tariffs are apparently lower in Portugal than in the EU, where together they make up the majority. On the other hand, the influence of the MTS is much greater in Portugal, in line with the greater penetration of this service (see Chapter 4).

With regard to indirect access, most residents do not use this form of access, either in call-by-call selection or pre-selection, being unaware of the service.

39 EC, E-Communications Household Survey, Special Eurobarometer June 2008.

Reasons for not using indirect access | Table 61

	Call-by-call selection	Call pre-selection
Unaware of service	45.7	47.2
Prefer to keep all services with current operator	14.1 *	15.0 *
Lack of information on how to proceed	7.5 *	6.6 *
Complexity of procedures	4.0 *	4.4 *
High costs	3.6 #	4.5 *
Other reason	7.6 *	7.8 *
Don't know/no response	17.5	14.6
Total	100	100

Unit: %
Source: ICP-ANACOM, *Inquérito ao Consumo dos Serviços de Comunicações Electrónicas* (Electronic Communications Services Consumer Survey), December 2009 (see footnote 38)
Base: Households with access to fixed telephone service which do not use indirect access

Note: The coefficient of variation is considered as sampling error indicator, based on the variance of the "proportion" estimator of a simple random sample and assuming a significance level of 95 %. The following key is used:
(#) Coefficient of variation greater than or equal to 25 % (unreliable estimate)
(*) Coefficient of variation greater than or equal to 10 % and less than 25 % (acceptable estimate)
(no symbol) Coefficient of variation less than 10 % (reliable estimate)

2.3.3. Characterization and level of FTS usage

The level of subscription to the service and the consumption of FTS accesses and calls is characterized below.

Number of customers

In 2009 there was a 6.8 % increase in the number of direct access customers in relation to 2008. Meanwhile, the number of indirect access customers, fell 17.5 % in the case of pre-selection, and 74.2 % in the case of call-by-call selection.

The number of customers of the nomadic VoIP service decreased by about 15.7 %.

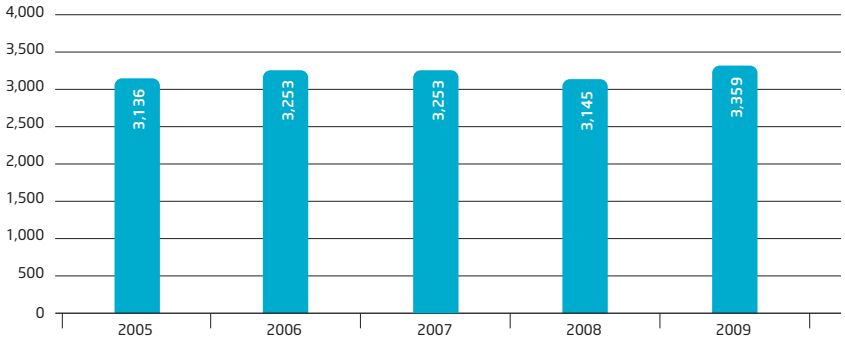
Number of FTS and Nomadic VoIP customers | Table 62

	2008	2009	Var. (%) 2008/2009	Average annual var. (%) 2005/2009	Accumulated var. (%) 2005/2009
Direct access customers [1]	3,144 ,668	3, 358, 486	6.8 %	1.7 %	7.1 %
Pre-selection customers	171, 817	141,703	-17.5 %	-25.9 %	-69.9 %
Call-by-call selection customers	22 ,697	5,862	-74.2 %	-51.0 %	-94.2 %
Nomadic VoIP customers	133, 878	112,818	-15.7 %		

Unit: 1 customer, %
Source: ICP-ANACOM
[1] Includes Direct Access customers with active WLRO.

The increase in the number of direct access customers – the first increase reported since 2006 – was due in great part to the bundled offers which include fixed telephony, subscription television and/or Internet and to the offers of alternative providers based on GSM/UMTS. It is noted that the increase in the number of customers occurred at the same time as the number of direct access customers of Grupo PT declined.

Evolution in the number of direct access customers | Graph 35



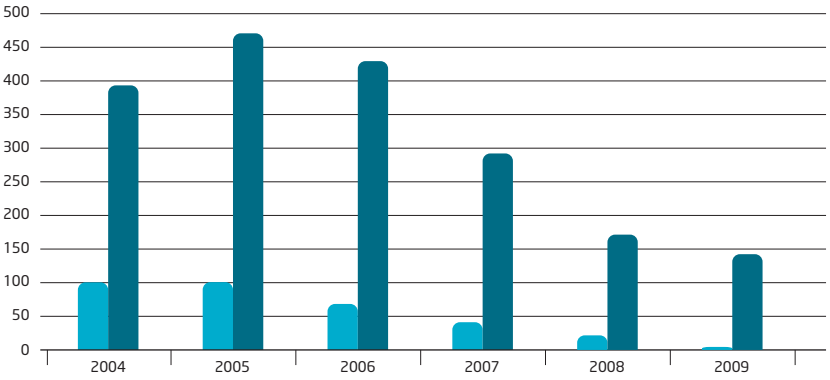
Unit: thousands of customers
Source: ICP-ANACOM

On the other hand, indirect access customers fell significantly between 2001 and 2003, after a significant increase in the first two years after liberalization – when this means of access was the one preferred by the new providers in order to enter these markets. This evolution has been explained by the new providers' emphasis on other business models with better prospects in terms of profitability (for example, bundled offers based on direct access, particularly based on the RUO, and development of their own networks).

At the end of 2003, Tele2 entered these markets, boosting the offer of indirect access. From that time, the number of customers increased significantly.

In 2006, a reversal was seen in this trend, and from 2007 the falling trend in the number of indirect access customers steepened to the downside. These variations are explained by the growth in offers from alternative operators in the direct access mode. The development of the SLRO (in the case of call-by-call selection), and the new optional price plans launched by the incumbent operator may have affected this evolution.

Evolution in the number of indirect access customers | Graph 36



Unit: thousands of customers
Source: ICP-ANACOM

In this context, it should be mentioned that at the end of 2009, around 56 thousand customers were benefiting from the SLRO, with one single alternative operator, Sonaecom, responsible for about 93 % of the customers with active SLRO. However, in relation to the previous year, a 27 % decrease has been reported in the number of customers with this type of access. Between second quarter 2007, when it reached its peak, and the end of 2009, the number of customers with active SLRO fell by 68 %.

Accesses

The vast majority of FTS direct accesses consist of analogue accesses (55 % of all accesses installed at customer request). However, since the beginning of the liberalization process, the proportion of ISDN accesses has increased significantly. At the end of 2009, they made up about 19.4 % of all accesses installed at customer request. On the other hand, since 2005-2006, accesses using GSM networks have acquired increasing importance within the scope of the FTS, and at the end of 2009 represented around 10 % of total accesses installed at customer request. Other accesses, which include those associated with voice services via the Internet provided at a fixed location and in conditions perceived by the user as being equivalent to those of the traditional FTS and the cable telephony accesses, have seen significant growth during the last year and now represent 17.6 % of total accesses. This trend is mostly due to the commercial strategies of the alternative operators that have invested in these types of offer, particularly the CATV operators.

At the end of 2009 around 4.3 million main accesses were installed, 3.5 % more than reported at the end of the previous year. This overall growth was driven by an increase of around 63.5 % in the number of other accesses and by an increase of 6.2 % in the accesses based on GSM technology. These increases outpaced the declines seen in ISDN accesses (-8.1 %) and in the number of installed public payphones (-8.5 %).

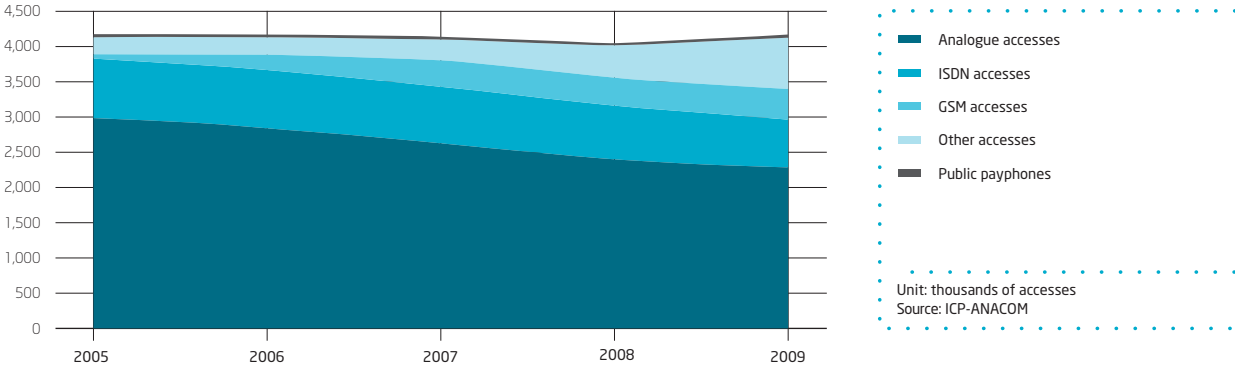
Number of equivalent accesses installed | Table 63

	2008	2009	Var. (%) 2008/2009	Average annual var. (%) 2005/2009	Accumulated var. (%) 2005/2009
Total main accesses [1]	4,110,493	4,254,942	3.5 %	0.1 %	0.5 %
Accesses installed at customer request	4,004,387	4,133,034	3.2 %	0.0 %	0.1 %
Analogue accesses	2,396,944	2,280,053	-4.9 %	-8.3 %	-29.2 %
ISDN accesses	763,290	701,689	-8.1 %	-4.3 %	-16.1 %
GSM accesses	399,520	424,149	6.2 %	56.0 %	>100 %
Other accesses [2]	444,633	727,143	63.5 %	34.3 %	>100 %
Public payphones	36,391	33,304	-8.5 %	-7.4 %	-26.5 %

Unit: 1 access, %
Source: ICP-ANACOM
[1] Includes accesses installed at client request, own stock and public payphones.
[2] Includes accesses associated with voice services over the internet provided at a fixed location in conditions perceived by the user as being equivalent to those of the traditional FTS, accesses associated with voice services via the internet in conditions which may be seen by the user as being equivalent to those of the traditional FTS and cable telephony accesses

Since 2001, there has been a slight trend towards a reduction in the number of accesses installed at customer request which may be associated with some of the barriers to the service outlined above. However, in 2009 there appears to have been a reversal in this trend due to the factors already described.

Evolution in the number of accesses installed at customer request | Graph 37

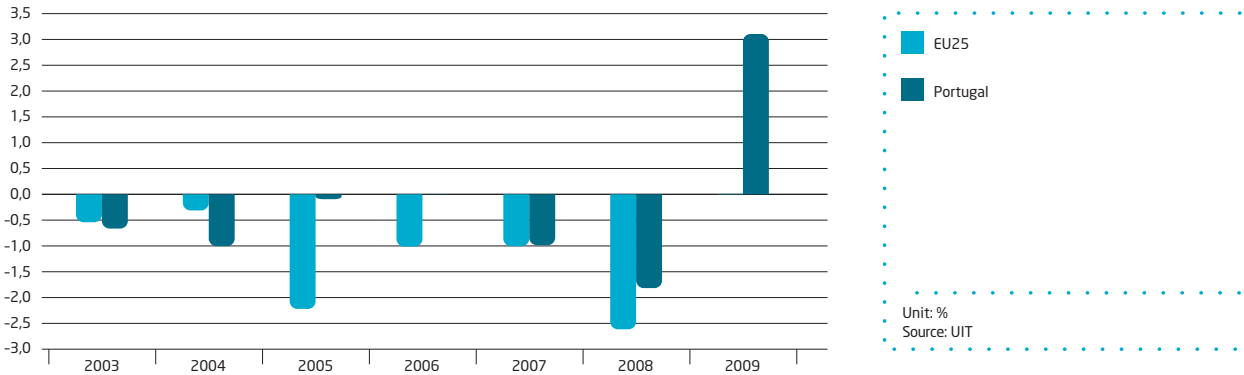


Unit: thousands of accesses
Source: ICP-ANACOM

Until last year, the investment made by the alternative operators at the level of the local network was not sufficient to reverse the falling trend in the number of accesses. The new providers decided for the most part to enter the market using the regulated offers of indirect access or local loop unbundling. The exception was Cabovisão, which from a relatively early stage focused on a multiple play strategy using its cable TV network, and which until recently was the second largest provider of access service to the fixed telephone network. There is currently a significant increase being reported in offers based on services of voice over Internet provided at a fixed location and a progressive increase in offers based on mobile networks that appears to have halted and even reversed the decline in the service.

The decrease in the number of accesses in Portugal was, until 2004, more pronounced than in the other EU countries. Since then, firstly due to the effect of the offers based on mobile networks and, now, due to the offers mentioned in the previous paragraph, the decrease in the number of accesses in Portugal has been lower or in line with the trend reported in Europe. In 2009, there was a reversal of the trend, with an increase reported in the number of accesses in Portugal.

Evolution in the number of accesses in the EU and in Portugal | Graph 38



Unit: %
Source: UIT

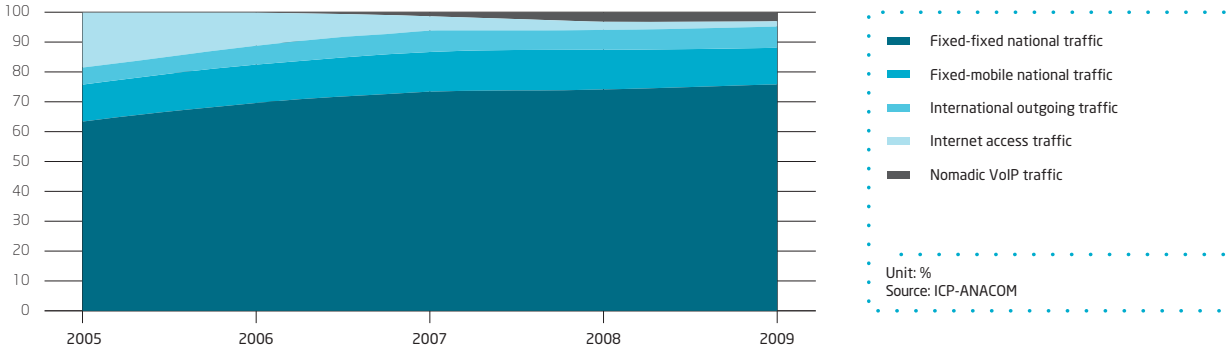
Note: Information on the EU25 not available for 2009.

Traffic

In 2009, switched traffic carried on the fixed network was, considering the number of minutes, mostly made up of fixed-fixed calls (76.3 %). This was followed by fixed-mobile traffic (12.2 %), outgoing international traffic (6.7 %), traffic associated with the nomadic VoIP service (3.4 %) and, lastly, traffic associated with the internet (1.5 %).

The weight of internet access switched traffic (dial-up), which was initially a significant part of total traffic due to the increasing popularity of the Internet and the introduction of offers from alternative operators (free Internet), has experienced a rapid decrease due to migration to broadband offers. This fact has contributed to the increase in the weight of the other traffic destinations. Traffic associated with the nomadic VoIP service began to be noted in 2007.

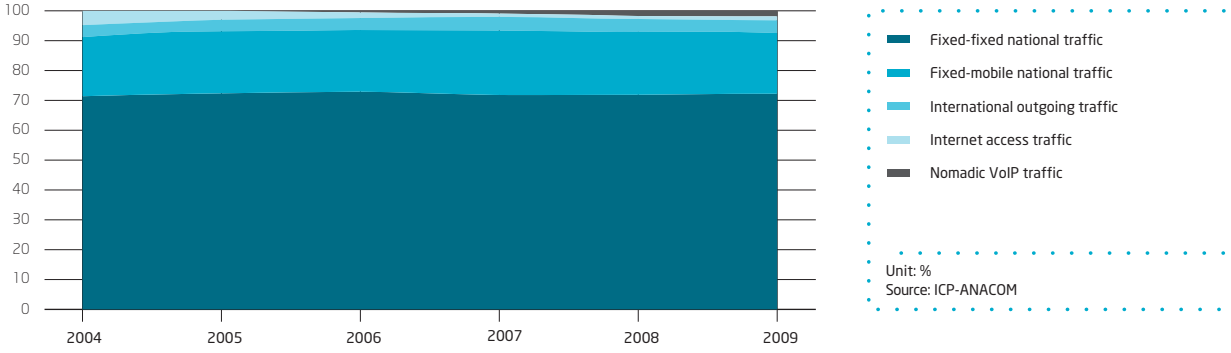
Distribution of traffic by destination (minutes) | Graph 39



The distribution described above alters significantly if the number of calls is considered. This is explained by the fact that the number of minutes associated with Internet access calls is much greater than the number of calls (i.e. Internet access calls are much longer than other calls). In terms of the number of calls, fixed-fixed traffic represents around 72 % of the total, while fixed-mobile traffic and international calls are responsible for around one 5th and 4 % of traffic, respectively. Internet access calls represent only 0.6 % of the total calls and those related to the nomadic VoIP service make up around 2.2 % of the total.

The phenomenon of migration to broadband Internet access has also affected the distribution of traffic over time in this case.

Distribution of traffic by destination (calls) | Graph 40



2009 was characterized by a reversal in the downward trend in fixed-fixed voice traffic originating on the fixed network, which increased by 2.1 % in terms of the number of minutes. This trend, which clearly contradicts the historical trend recorded to date, may result from the fact that there are certain price tariff offers which include free calls – and that result in longer call durations (as can be seen below) – and also from the increase the number of customers.

Traffic originating on the fixed network (minutes) and forecast range | Graph 41

Notes: * Projection range with a significance level of 95 %.

A log-linear regression model was used estimated with the following significant independent variables at a 95 % confidence level: trend (t), dummy on the change in structure from the fourth quarter of 2007 and seasonal dummy for the 3rd quarter. Model adjusted R^2 at 0.953

Nomadic VoIP traffic also increased 5.1 %.

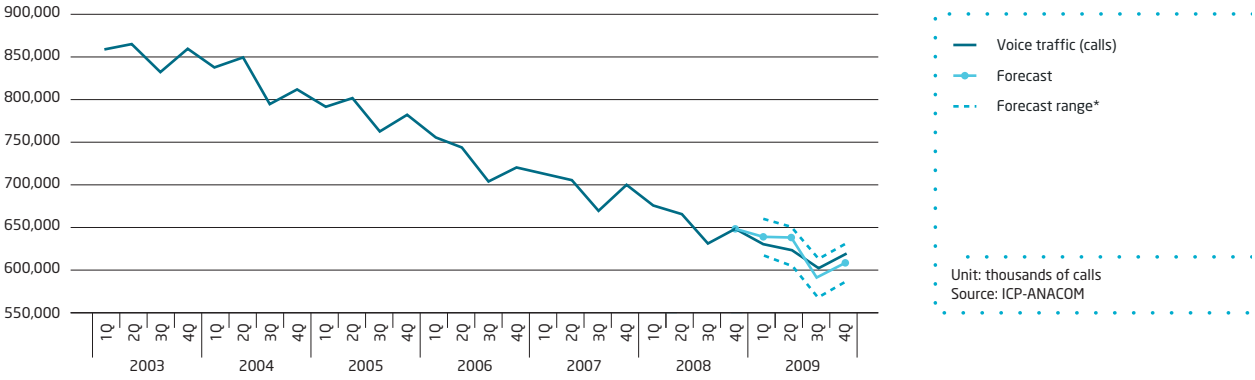
Traffic originated on the fixed network (minutes) | Table 64

	2008	2009	Var. (%) 2008/2009	Average annual var. (%) 2005/2009	Accumulated var. (%) 2005/2009
FTS Voice traffic	7,755	7,760	0.1 %	-1.9 %	-7.5 %
National traffic (voice)	7,196	7,215	0.3 %	-1.9 %	-7.4 %
Fixed-fixed national traffic	6,101	6,222	2.0 %	-1.4 %	-5.4 %
Fixed-mobile national traffic	1,096	992	-9.4 %	-5.0 %	-18.6 %
Outgoing international traffic	558	545	-2.3 %	-2.0 %	-7.8 %
Internet access traffic	202	120	-40.5 %	-49.8 %	-93.6 %
Nomadic VoIP traffic	263	276	5.1 %	–	–

Unit: millions of minutes, %
Source: ICP-ANACOM

In terms of calls, a general decline has been reported in traffic originated on the fixed network. The trend fits in with recent evolution seen with this variable.

Traffic originated on the fixed network (calls) and forecast range | Graph 42



Note: * Forecast range with a 95 % significance level

A linear regression model was used with the following significant independent variables at a 95 % confidence level: linear trend (t) and seasonal dummy for the 3rd quarter. Model adjusted R^2 at 0.983.

The sharpest fall was recorded in the Internet access traffic (-40 % in minutes and -17 % in calls), for the reasons already mentioned above.

Traffic originated on the fixed network (calls) | Table 65

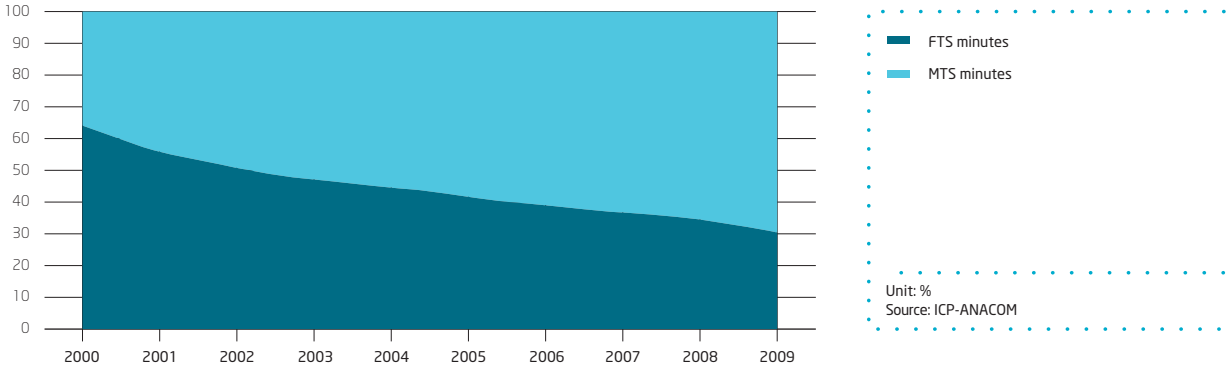
	2008	2009	Var. (%) 2008/2009	Average annual var. (%) 2005/2009	Accumulated var. (%) 2005/2009
Voice traffic	2,623	2,480	-5.4 %	-5.7 %	-20.9 %
National traffic (voice)	2,515	2,369	-5.8 %	-5.7 %	-21.0 %
Fixed-fixed national traffic	1,943	1,852	-4.7 %	-5.7 %	-20.8 %
Fixed-mobile national traffic	572	517	-9.6 %	-5.9 %	-21.7 %
Outgoing international traffic	108	111	2.9 %	-4.6 %	-17.2 %
Internet access traffic	20	17	-17.4 %	-35.0 %	-82.1 %
Nomadic VoIP traffic	54	55	3.0 %	–	–

Unit: thousands of calls, %
Source: ICP-ANACOM

Voice traffic has been declining since 2000. In cumulative terms, the volume of minutes decreased 7.5 % and the volume of calls fell around 21 %, between 2005 and 2009. It should be mentioned that the fall in traffic during this period is sharper than the fall in accesses and direct customers.

This downward trend in traffic is associated with the phenomenon known as fixed-mobile substitution, as mentioned above. This factor results in an intensification of voice traffic on mobile networks, at the expense of the fixed network. Mobile traffic already represents about 69 % of total voice traffic, 33 % points more than in 2000.

Distribution of voice traffic originating on the fixed and mobile networks | Graph 43



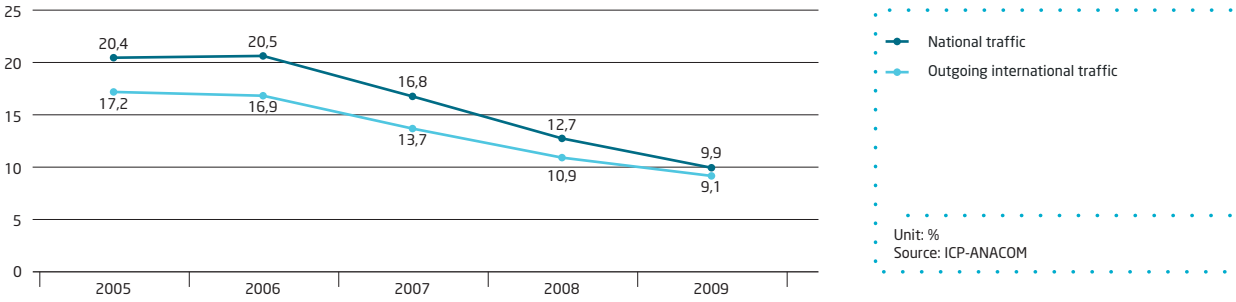
Indirect access traffic

In 2009 there was a reduction of indirect access traffic (-21.7 % in calls and -21.9 % in minutes).

The general decline in indirect access traffic is in line with the reduction in the number of customers of these offers, the search for new business models by some of the main alternative operators and the incumbent operator's emphasis on optional tariffs.

Indirect access traffic represents about 10 % of total national traffic.

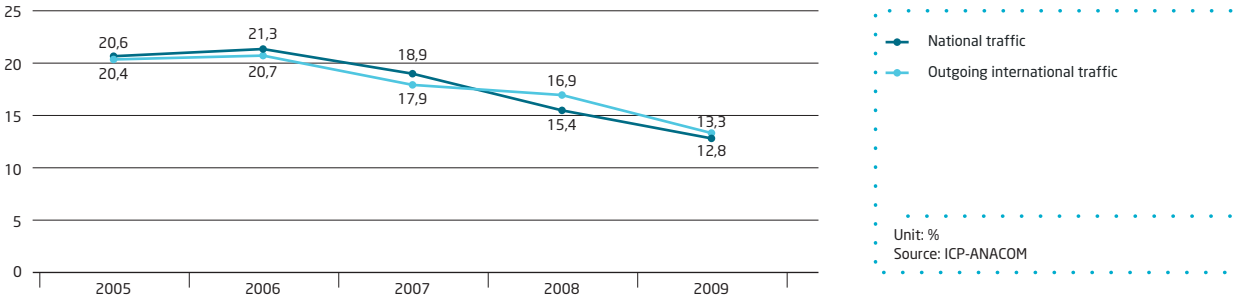
Evolution in the percentage of traffic carried by indirect access modes (minutes) | Graph 44



Meanwhile, indirect access outgoing international traffic represented about 9.1 % of total minutes of conversation time in 2009 and 13.3 % of total calls.

The evolution of indirect access international traffic is similar to the evolution in the number of customers of this type of access and is affected by the factors described in the section on indirect access customers.

Evolution in the % of traffic carried by indirect access modes (calls) | Graph 45



Traffic: average duration of calls

Voice calls originated and terminated on the fixed network have a duration of around three minutes and are approximately one minute and 15 seconds longer than fixed-to-mobile calls. These differences may possibly be explained by the differences in the prices of the calls in question.

On the other hand, in 2009 international calls had a duration of around five minutes.

The average duration of Internet access calls reached about seven minutes in 2009. This reduction is explained by the migration of intensive Internet access users to broadband solutions.

Average duration of calls | Table 66

	2005	2006	2007	2008	2009
Voice traffic	2.68	2.76	2.85	2.96	3.13
National traffic (voice)	2.60	2.68	2.77	2.86	3.05
Fixed-fixed national traffic	2.81	2.91	3.03	3.14	3.36
Fixed-mobile national traffic	1.85	1.88	1.90	1.91	1.92
Outgoing international traffic	4.42	4.43	4.37	5.18	4.92
Internet access traffic	20.08	17.14	13.64	9.91	7.15
Nomadic VoIP traffic	-	n.a.	4.72	4.89	4.99
Total traffic (voice + Internet + nomadic VoIP)	**3.18**	**3.04**	**2.98**	**3.05**	**3.20**

Unit: minutes
Source: ICP-ANACOM

Average traffic per customer

Average traffic per direct access customer has decreased considerably since the early years of the sector's liberalization. In particular, in the last five years, voice traffic has fallen around 28 %. All the traffic categories have seen large reductions, with the average of Internet access traffic reported as having the largest reduction (94 % in the last five years).

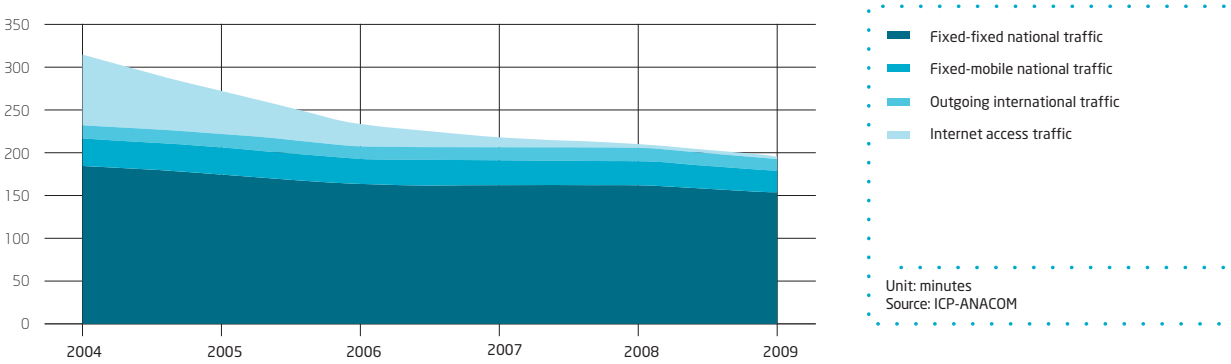
In 2009, it was found that voice traffic has seen a larger reduction than the average of previous years. The increase in customers exceeded the increase in traffic (in minutes) indicated above.

Monthly traffic per direct access customer | Table 67

	2008	2009	Var. (%) 2008/2009	Average annual var. (%) 2005/2009	Accumulated var. (%) 2005/2009
Voice traffic	205	193	-6.3 %	-3.6 %	-13.6 %
National traffic (voice)	191	179	-6.1 %	-3.6 %	-13.6 %
Fixed-fixed national traffic	162	154	-4.5 %	-3.0 %	-11.6 %
Fixed-mobile national traffic	29	25	-15.2 %	-6.6 %	-24.0 %
Outgoing international traffic	15	14	-8.6 %	-3.7 %	-13.9 %
Internet access traffic	5	3	-44.2 %	-50.6 %	-94.1 %
Total traffic (voice + Internet)	**211**	**196**	**-7.3 %**	**-8.0 %**	**-28.4 %**

Unit: minutes, %
Source: ICP-ANACOM

Evolution in monthly traffic per customer | Graph 46



Unit: minutes
Source: ICP-ANACOM

Revenues

The sharp drop in traffic, the fall in prices and the reduction in the number of customers are the factors responsible for the downward trend in FTS revenues.

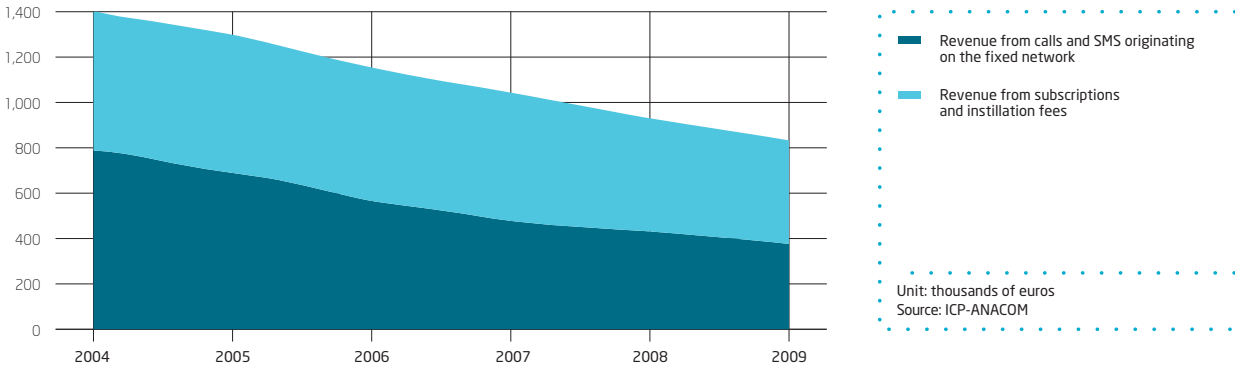
In 2009, total revenues fell 11 %, with traffic revenues falling 12 % and revenues from installation and monthly subscription fees falling 9.8 %.

FTS revenues | Table 68

	2008	2009	Var. (%) 2008/2009	Average annual var. (%) 2005/2009	Accumulated var. (%) 2005/2009
Total revenues [40]	933,724	832,958	-10.8 %	-10.4 %	-35.6 %
Revenue from monthly subscriptions and installation fees	498,614	449,580	-9.8 %	-7.1 %	-25.5 %
Revenue from calls and SMS originating in the fixed network[41]	435,109	383,100	-12.0 %	-13.7 %	-44.5 %

Unit: thousands of euros, %
Source: ICP-ANACOM

Evolution of FTS revenues | Graph 47



During the period being reported, total revenues from the fixed telephone service was in a downward trend. In relation to 2005, there was a decrease of around 36 % in total revenues, with revenues from monthly subscriptions and installation fees falling around 25.5 % and revenues from calls falling 45 %.

2.3.4. Consumer satisfaction

In general the FTS derives high levels of satisfaction. According to the most recent *Inquérito ao Consumo das Comunicações Electrónicas* (Electronic Communications Consumer Survey), around 73 % of users were satisfied with the overall quality of the service. The proportion of consumers that gave the quality of the service a medium or high positive rating rose by around 9 % compared to 2008. The number of consumers who consider the quality of service as "negative" or "not positive" fell compared to the previous year.

40 Does not include revenue from virtual calling cards.
41 Includes revenue from local, regional and national traffic, fixed-to-mobile calls (originating in the fixed network), outgoing international traffic originating in the fixed network, public payphones and SMS originating in the fixed network.

Evaluation of the overall quality of the FTS | Table 69

	Dec. 08[31]	Dec. 09[30]
Negative (1 to 4)	3.8 *	4.2 *
Low positive (5 and 6)	28.1	22.9
Medium positive (7 and 8)	54.8	50.4
High positive (9 and 0)	13.4 *	22.5
Total	100	100

Unit: %
Source: ICP-ANACOM, *Inquérito ao Consumo de Comunicações Electrónicas*, December 2008 and 2009
Base: Households with access to fixed telephone service (excluding non-responses).

Note 1: Original measuring scale: 1: very dissatisfied; 10: Very Satisfied
Note 2: The coefficient of variation is considered as sampling error indicator, based on the variance of the "proportion" estimator of a simple random sample and assuming a significance level of 95 %. The following key is used:
(#) Coefficient of variation greater than or equal to 25 % (unreliable estimate)
(*) Coefficient of variation greater than or equal to 10 % and less than 25 % (acceptable estimate)
(no symbol) Coefficient of variation less than 10 % (reliable estimate)

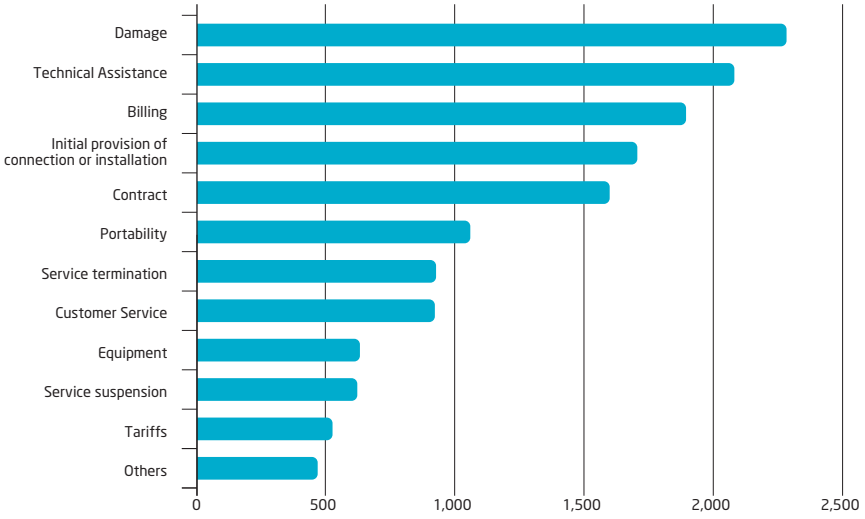
Another indicator of consumer satisfaction is the number of complaints.

In 2009, ICP-ANACOM received around 8,116 complaints, in writing, regarding the FTS and respective providers, and over 2,595 through ICP-ANACOM's public attendance services. 122 requests for information were also received in writing and 509 through ICP-ANACOM's public attendance services.

According to the following graph, which presents the complaints in writing by area, it can be seen that some of these complaints refer to issues related to faults technical assistance. These are followed by issues related to the supply of the initial connection or installation and contract.

The "others" category includes complaints related to geographic portability, selection and pre-selection, infrastructure, local loop unbundling, telephone directories and information services, numbering, complaint books, municipal fee for rights of way and transfer of loops.

Distribution of written complaints received by ICP-ANACOM (FTS) - 2009 | Graph 48

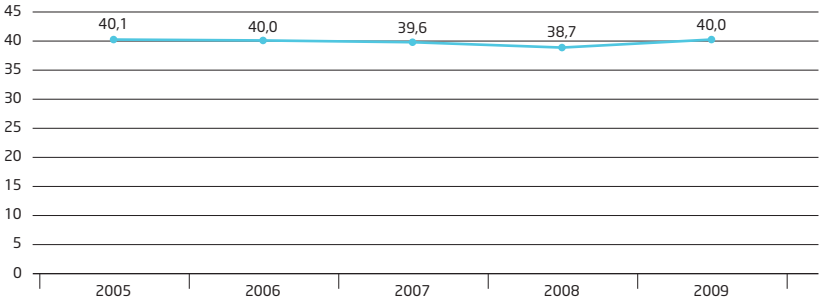


Unit: number of complaints
Source: ICP-ANACOM.

2.4. FTS penetration

Although the service is available in a generalized manner throughout the country, between 2004 and 2008 there was a fall in the penetration rate which may be linked to some of the factors outlined in section 3.3.3. In 2009, the penetration rate increased, due to the increase in the number of accesses, as previously explained.

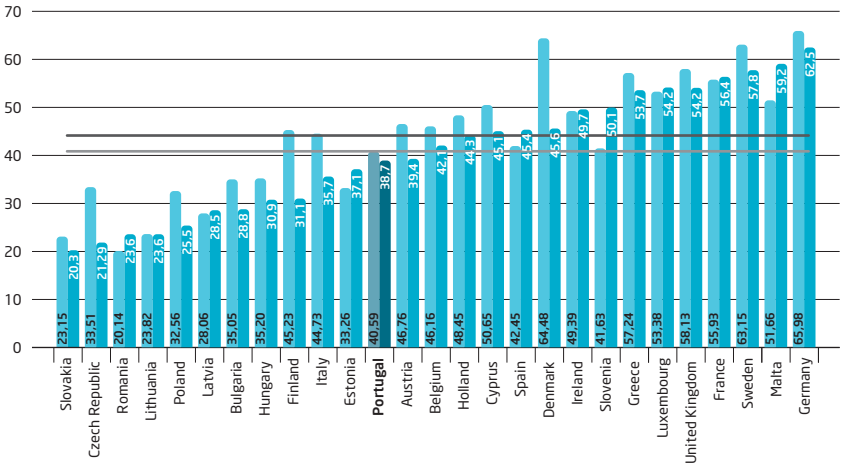
Evolution in telephone penetration | Graph 49

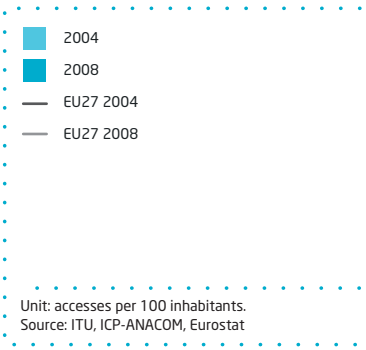


Unit: total main accesses per 100 inhabitants.
Source: ICP-ANACOM

In 2008 telephone penetration in Portugal (38.9 accesses per 100 inhabitants) was lower than the European average (40.9 in 2007). It should be mentioned that a decline in the penetration of this service was also reported in the EU: -3.2 % points between 2004 and 2007, a greater reduction than that reported for the same period in Portugal (1.4 % points).

International comparison of access penetration rates | Graph 50





Unit: accesses per 100 inhabitants.
Source: ITU, ICP-ANACOM, Eurostat