Internet Access Service

This chapter contains the state of the Internet Access Service by the end of 2007 and describes, namely, this service's offer, its usage and user profiles, and its evolution over that year.

Below is a summary of the main items of this service's evolution during 2007.

Main items of the evolution in 2007

Several operations took place or were announced in 2007 that affected the structure of these services' offer. On one hand, there was PT Multimédia's (TV Cabo/ZON) spin-off, promoted by PT Group. On the other hand, TV Cabo/Zon announced the acquisition of companies Bragatel, Pluricanal Leiria, Pluricanal Santarém and TVTel. The acquisition of Tele 2 and of Onitelecom's residential business by Sonaecom should also be mentioned.

As a result of the above-mentioned spin-off, which took place in November 2007, PT Group's broadband customer share reached 40.3 per cent, 30.6 per cent less than a year before (if the spin-off effect was not considered, PT Group's share would have decreased 4.1 per cent in 2007).

Considering the spin-off's results, the incumbent operator's share in Portugal (40.3 per cent) became lower than the European average (46 per cent).

Also standing out is the 6.4 per cent increase in the customer share of Sonaecom, which, in order to increase its presence on these markets, has combined a policy of buying smaller-sized operators with the use of LLU.

There was also an exponential growth in mobile broadband during 2007. At the end of the year, mobile broadband Internet active access users totalled around 1.4 million, of which 660 thousand were actually used in December.

The evolution in the amount of this service's users was not only influenced by the operator's commercial policies, which provided flat-rate offers since the beginning of this service and actively promoted it, but also by Government policies fostering information society. Together with the operators, it made low-priced computers and mobile broadband Internet access available to students, teachers and trainees.

Portugal had the lowest growth in the fixed broadband's penetration rate among the EU15 countries, in 2007. As a result of the 2007 performance, Portugal fell 1 position in the ranking, and became 14th.

This evolution occurred in spite of the fact that the service is available practically in the entire country and given that the prices don't seem to be higher to those charged in the remaining countries. Explanations for this evolution may lay on the development of mobile broadband offers; the relatively low household PC penetration; differences regarding the EU in human capital and income levels[47], or macroeconomic conditions of a cyclical nature.

Consumers' perception of broadband service quality is generally positive.

The Internet Access Service Offer

The Internet Access service may be provided over different technologies. On the other hand, the service is provided at different bit rates, which translate into providing narrow band or broadband services.

According to the legal framework in force, the service is provided by the entities with a general authorization or, in the case of mobile broadband Internet, entities with a license for the provision of 3rd generation mobile services.

The services provided and their evolution in 2006 are described in detail below. The entities providing these services in Portugal are also listed.

The Internet Access Service

This service is mainly provided by means of dial-up access, dedicated access[48], ADSL access, cable modem access and access using 3rd generation mobile networks.

Below is a summarised description of the main Internet access modes:

47 According to the survey "Residential Internet and Broadband take-up in Portugal", available at http://www.anacom.pt/template20.jsp?categoryId=204042&contentId=452239 the "most important factors in adopting the Internet [are] age, education and income".
48 line Dedicated Connection – a connection in which there is, between a user and an ISP, a communication channel that is used for Internet connection only; the channel is always open, whether the user is online or not.

- Access using a dial-up connection – Packages within this mode have a maximum bit-transfer rate of 64 kbps (narrow band). This bit rate is also affected by the need to convert data between digital and analogue formats. Switched (dial-up) connections are available to any subscriber with a fixed telephone line and a modem, just sufficing that they become a customer of one (or several) ISP. ISDN access enables higher bit rates, and the integration of voice and data into one single access. ISDN accesses can be basic[49] or primary[50].

- Access using DSL technological suites (Digital Subscriber Lines or xDSL) – These technological suites use sophisticated modulation systems to increase data bit rate over copper wires and use frequencies that are not used by the voice signal. This type of accesses enables average bit rates quite above those of the dial-up connections over analogue telephone line and dial-up connections over ISDN. The fact that voice and data are carried in different frequencies gives these technological suites the ability to perform both these types of communication simultaneously, and the Internet connection is "always on". This technological suite is made available in pre-defined areas, where access to a connection with the minimum physical requirements is possible [51].

- There are different xDSL variations, of which the most common one is ADSL (Asymmetric DSL)[52]. Regarding data bit rates, ADSL offers available in Portugal vary between 256 kbps and 24 Mbps. Besides ADSL, there are also other modes, such as SDSL (Symmetric DSL)[53], HDSL (High-data-rate DSL) and VDSL (Very-high-speed DSL).

- Co-axial cable access – co-axial cable is the first type of cable used by the cable television distribution industry. Its composition enables a much larger data bit rate (larger bandwidth), and a smaller exposure to electrical and radio interferences. Internet access over cable television distribution networks, with the use of a cable modem and an expansion card for the PC, leads to higher access bit rates, if compared to those of the dial-up over copper wires. These connections' maximum bit rates are similar to those of an ADSL access, both downstream and upstream. In order for the Internet service to be provided over this type of network, the latter has to stand bi-directionality, i.e., it has to be able to both send and receive data.

- Access using third generation mobiles – The 3rd generation of mobile services was designed to materialize convergences between fixed communications and mobile communications, and between electronic communications and multimedia, thus drawing mobile networks closer to the capacity of fixed networks and giving mobile users access to broadband multimedia services. Among the third generation mobile systems, UMTS, in the 2 GHz band, stands out. It is identified with the European standard of the global standard family of international mobile communications systems (IMT2000). UMTS technology uses the WCDMA[54] transmission mode, which is based on multiple accesses by code division.

- Other access media – Other technological suites that can be used to access the Internet are worth mentioning, namely access over dedicated connections, access over fibre optics, access over FWA and CDMA radio links, access over power line cables (PLC), access over local radio networks and access over satellite links..

Internet Access Service Providers

At the end of 2007 there were 42 registered and entitled entities qualified to provide the fixed Internet Access Service and 3 entities licensed for the provision of mobile Internet access, in Portugal. These entities are also known as ISP – Internet Service Providers.

Of all ISPs legally entitled to provide the Internet access service, 34 were active.

The following table shows the evolution of the amount of entities with a license to provide this service, the entries and exists in/from the market place during the year standing out.

49 Basic Access (Basic Rate Access 2B+D) – Customer access to ISDN using a copper pair and providing two 64kbps channels (B1 and B2 channels) for voice and data transfer, and a 16kbps D channel for signalling, package data transfer and telemetry. The overall bit rate is 192kbps.
50 Primary Access - 30B+D Access to the ISDN, with a global 2Mbps throughput. Both the 30 B voice/data channels and the D signalling channel carry 64kbps..
51 All the national territory covered by the switched fixed telephone network has the potential for this type of service, except in the case with technical constraints.
52 Digital technology transforming analogue or ISDN telephone lines into greater capacity lines, making Internet Access possible at much higher speeds. Data transmission is made asymmetrically, i.e. the downstream is faster than the upstream, which is currently at around 1 Mbps, and bandwidth is managed in an intelligent way. It makes it possible to simultaneously use the Internet and the traditional telephone line (for voice, fax service). An ADSL line has three data channels: a downstream high bit rate channel. (1.5 to 8Mbps), a duplex upstream medium throughput channel (16 to 640kbps) and a channel for the telephone service.
53 Digital technology in which data transmission is made symmetrically.
54 Broadband Access system which access discipline to the various users shares the same frequency band through different codes assigned to each one of them.

Internet Access Service Providers in 2007- Fixed

Table 58.

Name	Beginning	Entries	Exits	End
Adianis - Telecomunicações & Multimedia, S.A.	NA			NA
AR Telecom - Acessos e Redes de Telecomunicações, S.A.	A			A
AT & T - Serviços de Telecomunicações, Soc. Unip., Lda. [1]	NA			NA
Bragatel - Comp. Televisão por Cabo de Braga, S.A.	A			A
Broadnet Portugal, S.A.	A			A
BT Portugal – Telecomunicações, Unipessoal, Lda. [1]	NA			NA
Cabo TV Açoreana, S.A.	-	X		A
Cabo TV Madeirense, S.A.	A			A
Cabovisão - Sociedade de Televisão por Cabo, S.A.	A			A
CATVP - TV Cabo Portugal, S.A.	A			A
Clara.net Portugal - Telecomunicações, S.A.	A			A
Colt Telecom - Serviços de Telecomunicações, Unipessoal, Lda.	A			A
Connex - Tecnologias de Informação, Lda.	A		X	-
Cyclop Net - Informática e Telecomunicações, Lda.	A			A
Equant Portugal, S.A. (ORANGE)	A			A
Fleximedia - Serviços e Meios Inf. e Comunicação, Lda.	A			A
Global Crossing PEC Espana S.A.	NA			NA
HSIA Hospitality Services Portugal, S.A.	A			A
IPTV TELECOM – Telecomunicações, Lda.	-	X		NA
Media Capital - Telecomunicações, S.A.	A			A
Netacesso - Serviços Internet e Multimédia, Lda.	NA			NA
Neuvex - Telecomunicações, Marketing e Inform., Lda.	NA			A
NFSI - Soluções Internet, Lda.	A			A
Nortenet - Sistemas de Comunicação, S.A.	A			A
Onitelecom - Infocomunicações, S.A.	A			A
Pluricanal Leiria - Televisão por Cabo, S.A.	A			A
Pluricanal Santarém - Televisão por Cabo, S.A.	A			A
PT Acessos de Internet WI-FI, S.A.	A			A
PT Comunicações, S.A.	-	X		A
PT Prime - Soluções Empresariais de Telecomunicações e Sistemas, S.A.	A			A
PT.Com - Comunicações Interactivas, S.A.	A			A
Radiomóvel - Telecomunicações, S.A.	NA			NA
Redsat - Projecto, Instalação, Venda e Aluguer de Novas Tecnologias, Lda.	NA		X	-
Refer Telecom - Serviços de Telecomunicações, S.A.	A			A
Robot - Telecomunicações, Projectos e Serviços, Lda.	A			A
Semcabo - Soluções em Redes Informáticas. Lda.	-	X		A
Sonaecom - Serviços de Comunicações, S.A. [2]	A			A
T – System ITC Iberia, S.A. (Sociedade Unipersonal) - (Sucursal em Portugal)	-	X		NA
TeleMilénio, Telecomunicações, Sociedade Unipessoal, Lda. (Tele2)	A			A
TVTel Comunicações, S.A.	A			A
Verizon Portugal, Sociedade Unipessoal, Lda.	A			A
Vipvoz - Serviços de Telecomunicações Digitais, Lda.	A			A
Vodafone Portugal - Comunicações Pessoais, S.A.	A			A
Worldbroker Telecomunicações - Sociedade de Telecomunicações e Multimédia, Lda.	A			A
TOTAL ACTIVE	**31**	**3**	**1**	**34**
TOTAL NON-ACTIVE	**8**	**2**	**1**	**8**
TOTAL	**39**	**5**	**2**	**42**

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

1 Entity entitled to provide the Internet access service, but with apparent activity in Other Data Transmission Services (ODTS) only.
2 Following the Novis/Optimus merger process, Novis Telecom, S.A. changed its name to Sonaecom - Serviços de Comunicações, S.A.

Among the above-mentioned providers, the following ones provide Internet Service using dial-up connections:

Internet Access Service Providers with dial-up offer

Table 59.

AR Telecom - Acessos e Redes de Telecomunicações, S.A.
Broadnet Portugal, S.A.
Fleximedia - Serviços e Meios Inf. e Comunicação, Lda.
Nortenet – Sistemas de Comunicação, S.A.
Media Capital - Telecomunicações, S.A.
Onitelecom – Infocomunicações, S.A.
PT.Com – Comunicações Interactivas, S.A.
Sonaecom - Serviços de Comunicações, S.A
TeleMilénio, Telecomunicações, Sociedade Unipessoal, Lda. (Tele2)
Verizon Portugal, Sociedade Unipessoal, Lda.
Via Net.Works Portugal – Tecnologias de Informação, S.A. (Clara.Net)
Vodafone Portugal – Comunicações Pessoais, S.A.

Source: ICP-ANACOM.

The following table lists the cable television distribution operators providing broadband Internet services using cable modems at the end of 2007.

Cable distribution network operators providing Internet Access Services

Table 60.

Bragatel – Companhia de TV por Cabo de Braga, S.A.
Cabo TV Açoreana, S.A.
Cabo TV Madeirense, S.A.
Cabovisão – Sociedade de Televisão por Cabo, S.A.
CATVP – TV Cabo Portugal, S.A.
Pluricanal Leiria – Televisão por Cabo, S.A.
Pluricanal Santarém – Televisão por Cabo, S.A.
TVTel Comunicações, S.A.

Source: ICP-ANACOM.

Providers offering broadband Internet services over ADSL accesses are shown on the table below.

Internet Access Service Providers using ADSL access offers

Table 61.

AR Telecom - Acessos e Redes de Telecomunicações, S.A.
CATVP – TV Cabo Portugal, S.A.
Colt Telecom – Serviços de Telecomunicações, Unipessoal, Lda.
Nortenet – Sistemas de Comunicação, S.A.
NFSI - Soluções Internet, Lda.
Onitelecom – Infocomunicações, S.A.
PT Acessos de Internet WI-FI, S.A.
PT Prime – Soluções Empresariais de Telecom. e Sistemas, S.A.
PT.Com – Comunicações Interactivas, S.A.
PT Comunicações, S.A.
Robot - Telecomunicações, Projectos e Serviços, Lda.
Semcabo - Soluções em Redes Informáticas. Lda.
Sonaecom - Serviços de Comunicações, S.A
Via Net.Works Portugal – Tecnologias de Informação, S.A. (Clara.Net)
Vodafone Portugal – Comunicações Pessoais, S.A.
Worldbroker Telecomunicações - Sociedade de Telecomunicações e Multimédia, Lda.

Source: ICP-ANACOM.

Regarding the FWA technology, Table 5.5 shows the licensed providers who provided Internet Access Services during 2007 using this technology.

Internet Access Service Providers with FWA offer

Table 62.

AR Telecom – Acessos e Redes de Telecomunicações, S.A.
Broadnet Portugal, S.A.
Novis Telecom, S.A.
Onitelecom – Infocomunicações, S.A.
Vodafone Portugal – Comunicações Pessoais, S.A.

Source: ICP-ANACOM.

There are also broadband internet access providers using other technologies.

Internet Access Service Providers - other technologies (fixed)

Table 63.

AR Telecom - Acessos e Redes de Telecomunicações, S.A.
Broadnet Portugal, S.A.
Colt Telecom – Serviços de Telecomunicações, Unipessoal, Lda.
Fleximedia - Serviços e Meios Inf. e Comunicação, Lda.
Nortenet – Sistemas de Comunicação, S.A.
NFSI - Soluções Internet, Lda.
Onitelecom – Infocomunicações, S.A.
PT Acessos de Internet WI-FI, S.A.
PT Prime – Soluções Empresariais de Telecom. e Sistemas, S.A.
PT.Com – Comunicações Interactivas, S.A.
Refer Telecom - Serviços de Telecomunicações, S.A.
Robot - Telecomunicações, Projectos e Serviços, Lda.
Sonaecom - Serviços de Comunicações, S.A
Verizon Portugal, Sociedade Unipessoal, Lda.
Via Net.Works Portugal – Tecnologias de Informação, S.A. (Clara.Net)
Vodafone Portugal – Comunicações Pessoais, S.A.

Source: ICP-ANACOM.

It is worth pointing out that, besides the mentioned providers, operators with national licenses for the International Mobile Telecommunications Systems (IMT2000/UMTS) are also active.

MTS providers

Table 64.

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

Source: ICP-ANACOM.

The structure of the Internet access offer (fixed)

Several operations took place or were announced in 2007 that affected the structure of these services' offer.

On one hand, PT Multimédia's (TV Cabo/ZON) spin-off, promoted by PT Group, took place. On the other hand, TV Cabo/Zon announced the acquisition of companies Bragatel, Pluricanal Leiria, Pluricanal Santarém and TVTel.

The acquisition of Tele 2 and of Onitelecom's residential business by Sonaecom should also be mentioned.

As a result of the above-mentioned spin-off, which took place in November 2007, PT Group's broadband customer share reached 40.3 per cent, 30.6 per cent less than a year before (if the spin-off effect was not considered, PT Group's share would have decreased 4.1 per cent in 2007).

PT Group's broadband customers shares

Table 65.

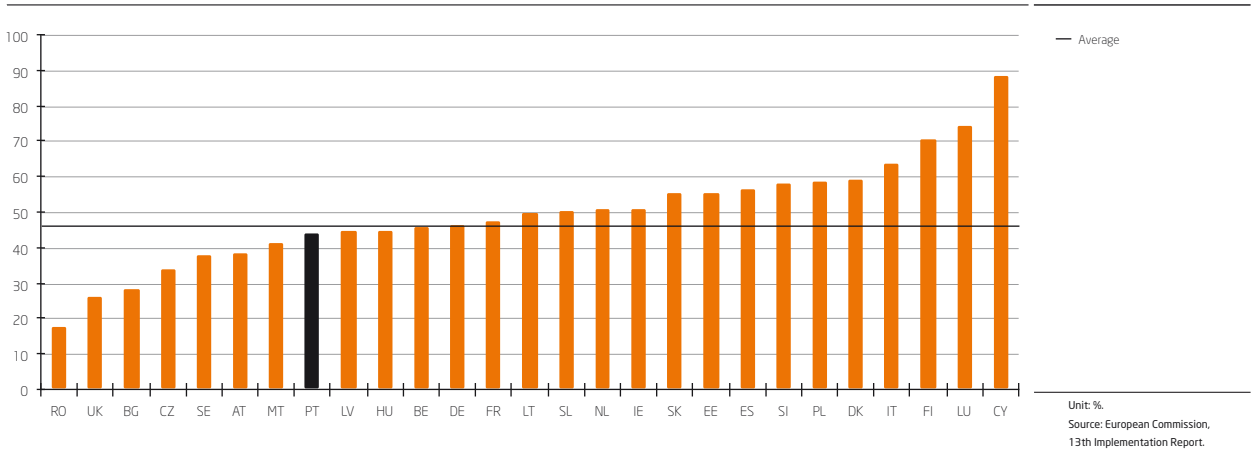
	2003	2004	2005	2006	2007
ADSL access customers	87,2	90,8	83,8	73,7	68,3
Cable modem access customers	73,8	73,6	70,8	66,7	0
Other access technology customers	41,1	44,9	45,3	19,7	6,9
Total customers	**78,5%**	**82,0%**	**78,2%**	**70,9%**	**40,3%**

Unit: %.
Source: ICP-ANACOM.

Considering the spin-off's results, the incumbent operator's share in Portugal (40.3 per cent) became lower than the European average (46 per cent).

Access shares in the Internet Access Service using broadband in the EU27, during the 4th quarter of 2007

Graph 80.



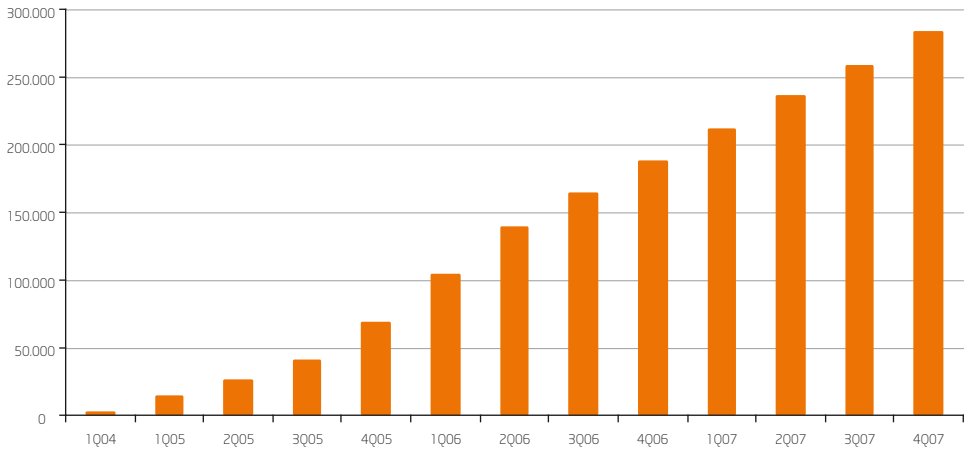
Unit: %.
Source: European Commission, 13th Implementation Report.

PT Group's share has not been constant over time. At a first stage, broadband was provided over cable modem, a period when Cabovisão and TV Cabo were the main operators. Further to the launch of ADSL, PT Group achieved an even greater predominance: PT Group's customer share increased about 16 per cent between 2001 and 2004.

This trend reversed in 2005, due to ICP-ANACOM's interventions in the Internet access wholesale offers, namely in LLU. About 69 thousand broadband loops were unbundled in 2005. In 2006 the amount was about 120 thousand, and in 2007 there were about 95 thousand new unbundled broadband loops. At the end of that year, the cumulative amount of unbundled broadband loops was 283 thousand unbundled accesses – about 30 per cent of all ADSL accesses. By using this means, new operators reached consumer's households directly and developed more competitive voice and broadband offerings.

Evolution in the amount of unbundled broadband accesses

Graph 81.



Unit: accesses.
Source: ICP ANACOM.

At the same time, the increasing coverage of the Rede ADSL PT wholesale offer (bitstream access) contributed, together with other factors, to a strong increase in broadband penetration, as well as to the launch of new offerings with higher bit rates. Rede ADSL PT stands for about 74 per cent of all ADSL accesses.

During 2007, evolution in the customer shares of the several market operators had considerable changes. Besides the effected of the previously mentioned spin-off, the 6.4 per cent increase in the customer share of Sonaecom also stands out. In order to increase its presence in these markets, Sonaecom combined a policy of buying smaller-sized operators with the use of LLU.

Evolution in broadband access customer shares

Table 66.

Service Providers	2006	2007
PT Group	**70,9**	**40,3**
PT.COM	45,3	38,4
1TV Cabo	23,8	-
PT Prime	0,3	0,5
CaboTV Madeirense	1,4	-
CaboTV Açoreana	0,0	-
PT Wi-Fi	0,0	0,1
PT Comunicações	0,0	1,3
TV Cabo Group/ZON	-	**26,5**
TV Cabo/ZON	-	24,2
CaboTV Madeirense	-	1,6
CaboTV Açoreana	-	0,5
Alternative Providers	**29,1**	**33,8**
Sonaecom	9,2	15,6
Cabovisão	10,3	10,9

Unit: %.
Source: ICP-ANACOM.

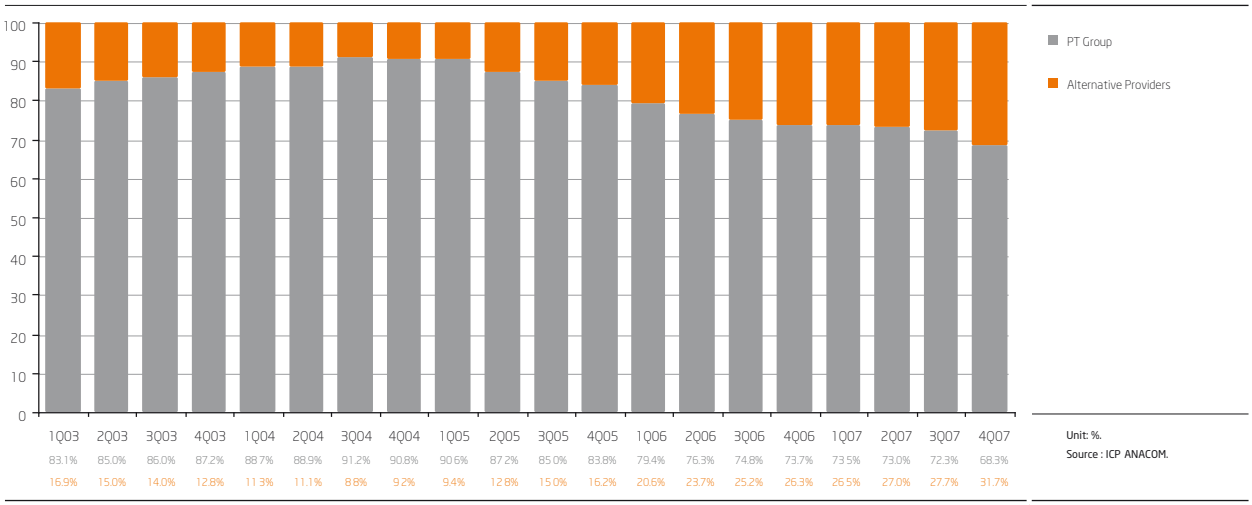
With the acquisitions promoted by TV Cabo/ZON, this group's broadband share increased in around 2.8 per cent.

Thus there are 4 entities operating in the (fixed) broadband Internet access services' markets with shares above 10 per cent: PT Group, Cabo TV/ZON Group, Sonaecom and Cabovisão.

Analysis of market shares by access technology shows that, in spite of the alternative providers' growth in ADSL, PT Group's customer share for this access technology - 69.3 per cent - is currently highly above the global average. In 2007, PT Group's ADSL customer share dropped 5.5 per cent.

Evolution in ADSL access subscriber shares

Graph 82.



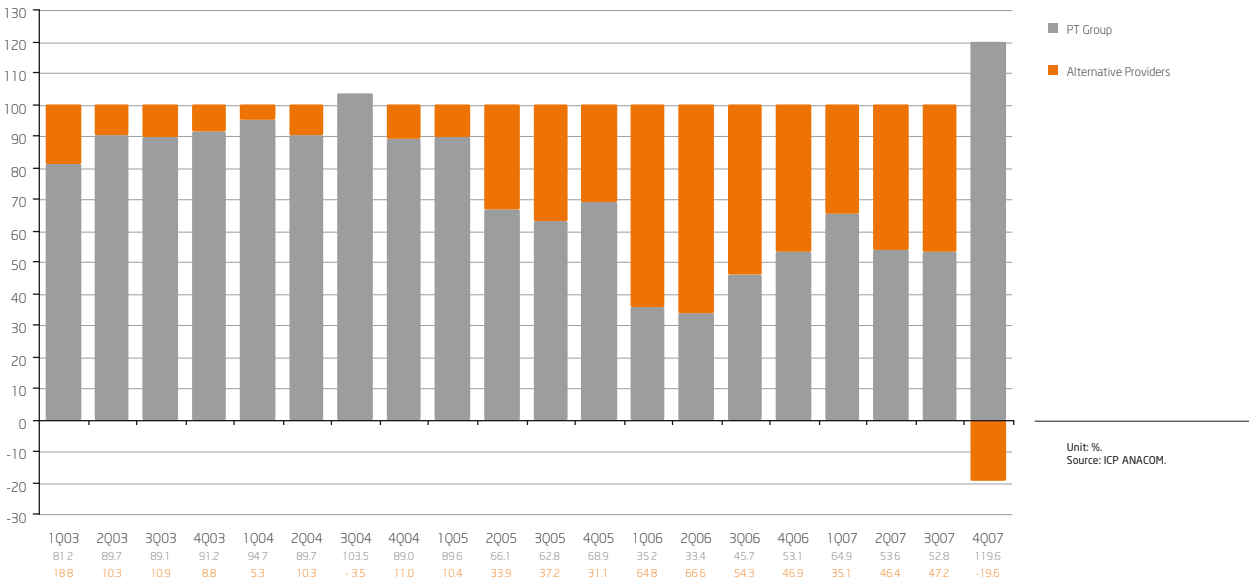
Unit: %.
Source : ICP ANACOM.

The competitive position of the companies operating this technology has however had rapid changes since the beginning of 2005. During this period, PT Group's share decreased 16 per cent, and during 2007 about 50 per cent of new customer chose the services of alternative operators.

The graph below shows the evolution of the ADSL access customer quarterly marginal shares. The figures given to the 4th quarter of 2007 result from the reduction in the amount of access subscribers that took place during the 4th quarter of 2007.

Evolution in ADSL access subscriber quarterly marginal shares

Graph 83.



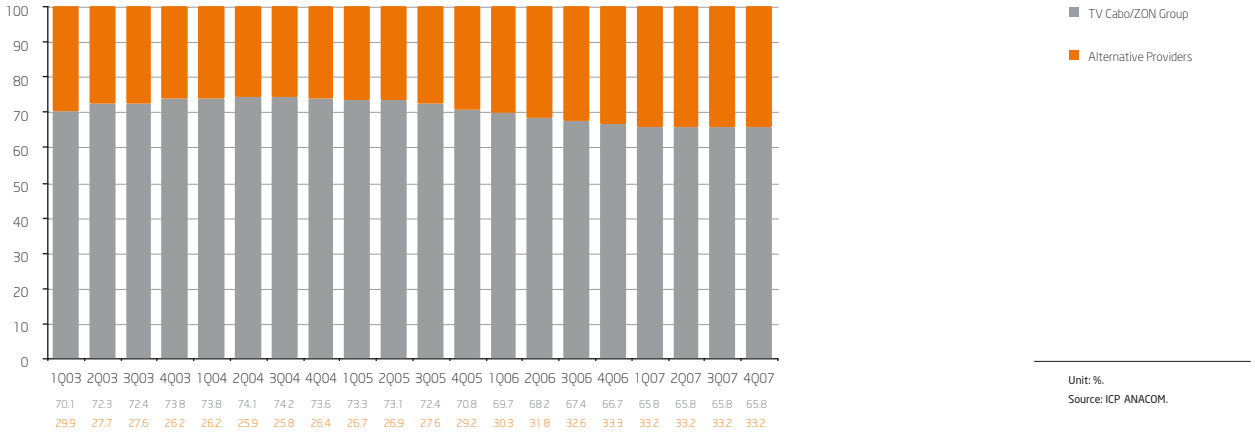
Unit: %.
Source: ICP ANACOM.

Concerning cable modem access, TV Cabo/ZON Group's share in 2007 was 65.8 per cent, 0.9 per cent less than at the end of the previous year.

About 6 out of each 10 new customers using this technology chose TV Cabo/ZON Group's operators. Cabovisão attracted 1 out of each 4 new customers.

Evolution in the cable modem access subscriber shares

Graph 84.



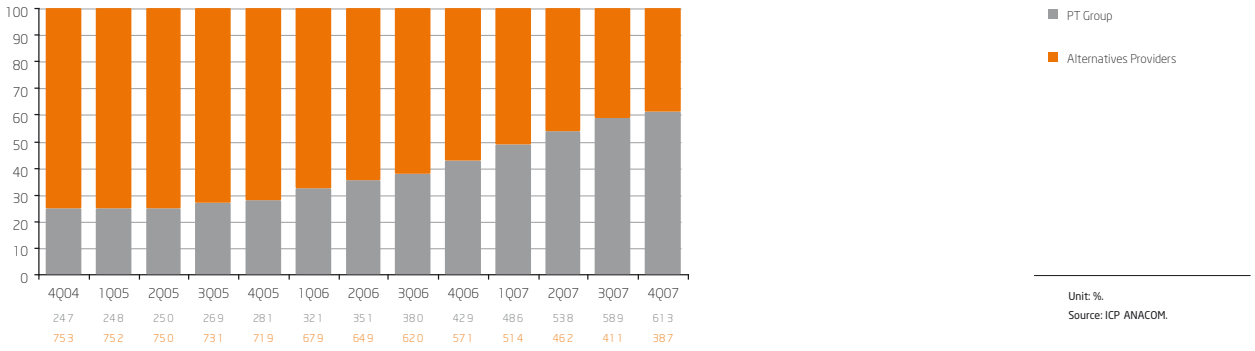
Unit: %.
Source: ICP ANACOM.

Concerning dial-up, PT Group's share at the end of 2007 reached about 61 per cent, 18 per cent more than in 2006. This share's increase mainly reflects the fast reduction in the amount of customers of this type of access, and the operators' stake on LLU-based business models.

Regarding other technologies – namely leased lines and FWA – PT Group's share has considerably decreased. In fact, these accesses' small amount, together with the considerable growth of FWA, implies that currently PT Group's share in only 6.9 per cent.

Evolution in dial-up access customer shares

Graph 85.



Unit: %.
Source: ICP ANACOM.

Internet Access Service's user and usage profile

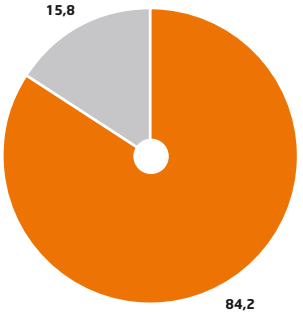
Below are some features of the Internet user and usage..

The Internet Access Service customer's profile

Residential customers[55] are the great majority of the Internet Access Service's customers, standing for about 84 per cent of the overall amount of customers.

Characteristics of Internet Access Service Customers according to their customer segment-2007

Graph 86.

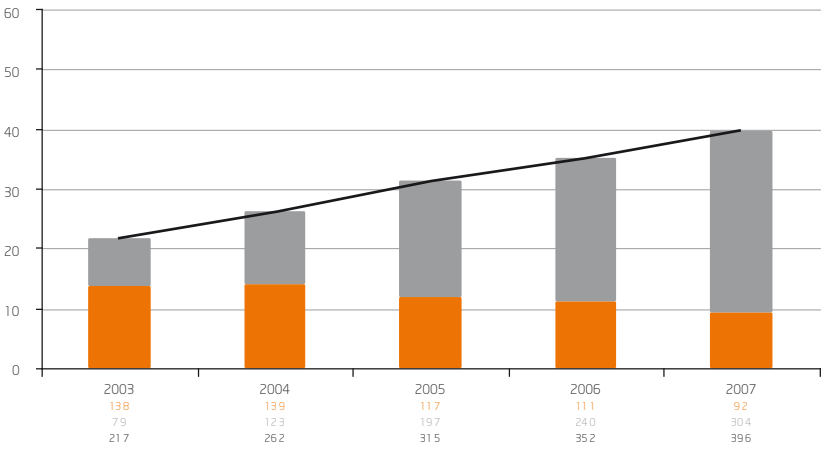


Unit: %.
Source: ICP ANACOM.

During the 1st quarter of 2007, about 40 per cent of Portuguese households had an Internet connection, 4.4 per cent more than a year before.

Evolution of the Internet Access Service's residential penetration rate

Graph 87.



Unit: %.
Source: INE, Survey on the use of information and communications technologies by families 2007.

55 Any customer use the service mainly as a means to pursue their economic activity is considered a residential customer.

In the residential segment, data disclosed by the Surveys on the use in broadband Internet access in Portugal, promoted by ICP-ANACOM, show regional differences regarding Internet penetration. Lisbon and Tagus Valley continues to be the region with the highest Internet access service penetration. On the contrary, Internet penetration in the Azores, Alentejo and Algarve regions stand below the national average.

Possession of Internet connection by domestic households, by NUTS II

Table 67.

Regions	Mar-07
North	32,7
Centre	41,8
Lisbon	46,4
Alentejo	37,1
Algarve	42,0
R. A. of the Azores	39,9
R. A. of Madeira	40,9

Unit: %.
Source: INE, Survey on the use of information and communications technologies by families - 2007.

The geographical distribution of ADSL subscribers makes it possible to verify the above mentioned conclusions.

According to the Survey on the use of broadband – 2007[56], the Internet access service residential customer has an above-the-average income.

Profile of households with Internet

Table 68.

Social Class[57]	
A	86,2
B	73,7
C	54,6
D	22,7
E	29,1

Unit: %.
Source: ICP-ANACOM, Survey on the use of broadband in Portugal, December 2007.

56 The Universe defined for this survey was made up of users 15 years old or older, living in Mainland Portugal and in the Autonomous Regions of Madeira and the Azores. The sample was made up of 3504 interviews, with a semi-proportional distribution by NUT II region. Households were selected randomly from a stratified matrix including the Region (7 NUT II regions) and the Habitat/Size of the population aggregates (5 groups). Crossing these variables ensured a proportional distribution of the sample by region regarding the Portuguese population in general. Results were later weighted in order to grant each region its real weight within the Portuguese population. Quotas were defined with base on the General Population Census (2001) by Instituto Nacional de Estatística (I.N.E.). Interviewees at each household were selected using the quota method, based on the crossing of variables Sex, Age (3 groups), Education (3 groups: primary education or less, more than primary education and less than higher education, and more than higher education – according to the categorization requested by ICP-ANACOM), and Occupation. Data was collected by telephone interviews, made to fixed network numbers and mobile phone numbers, using the CATI (Computer Assisted Telephone Interview) system. The fieldwork was conducted between 1 November 2007 and 17 December 2007. The results obtained for each of the four services considered (fixed telephone service, mobile telephone service, Internet access service, and paid TV service) have a maximum error of 4 per cent (for a confidence level of 95 per cent). The fieldwork and handling of data was carried out by company GFK Metris.
57 A variável classe social é o resultado do cruzamento da instrução dos membros do agregado inquirido com as respectivas ocupações profissionais e estima indirectamente a classe de rendimento do agregado. A classe A tem os rendimentos mais elevados e a classe E tem os rendimentos mais baixos.

The fact that Internet penetration is higher in lower age groups also stands out.

Internet penetration per age group (%)

Table 69.

Age groups	
15 - 17	64,3
18 - 24	70,2
25 -34	61,8
35- 44	59,9
45 - 54	50,4
55 - 64	34,3
>65	11,0

Unit: %.
Source: ICP-ANACOM, Survey on the use of broadband in Portugal, December 2007

Regarding the non-residential service, about 90 per cent of companies had Internet access, and about 77 per cent use broadband. Regarding company size, the larger it is, the greater the probability of having broadband Internet access.

Internet penetration by company size

Table 70.

	Internet	Broadband
10 to 49 employees	88,4	74,3
50 a 249 employees	97,8	88,8
250 or more employees	100,0	97,1
Total	**89,8**	**76,6**

Unit: %.
Source: INE, Survey on the Use of Information and Communications Technologies by Companies 2007.

By activity, on the other hand, only the construction industry shows an Internet penetration rate considerably below 90 per cent (80.5 per cent). In the case of broadband, only the construction industry (64.9 per cent) and the transforming industry (71.6 per cent) have penetrations that are considerably below 75 per cent.

Internet penetration by activity sector

Table 71.

	Internet	Broadband
D - Transforming Industries	89,0	71,6
F - Construction	80,5	64,9
G - Wholesale and retail; Repair of Automobile Vehicles, Motorcycles, and Goods of Personal and Domestic Use	94,7	86,6
H - Lodging and Restaurants	96,6	89,3
I - Transports, Warehousing and Communications	90,8	89,4
J - Financial Activities	99,3	94,7
K - Real-Estate Activities, Leasing, and Services Provided to Companies	96,6	81,3
O - Other Collective, Social and Personal Service Activities	100,0	98,9
Total	**89,8**	**76,6**

Unit: %.
Source: INE, Survey on the Use of Information and Communications Technologies by Companies 2007.

The Internet Access Service's usage profile

Most Internet Access Service users use broadband. At the end of 2007, the ratio of broadband customers versus the overall amount of customers was 94 per cent. The growing weight of broadband mainly reflects the popularity of applications and contents requiring larger bandwidths and the coming about of always-on offerings at a fixed monthly rate that also give users a more economic and cost-controlled use.

On the other hand, and according to the previously-mentioned data from INE, at the end of the 1st quarter of 2007 89.8 per cent of companies with more than 10 employees had Internet, and 76.6 per cent used broadband[58].

Distribution of Internet Access Service Customers by bandwidth - 2007

Graph 88.

Unit: %.
Source: ICP ANACOM.

Among the main goals of Internet use, in 2007, the most important ones are sending/receiving e-mail, searching information on goods and services, downloading games, images or music and reading/downloading online newspapers and magazines.

The analysis of the Internet usage patterns, considering the evolution between the two inquiries, shows that the above-mentioned goals are stable, despite the relevant growth of the goal of getting information through sites of bodies within the general Government and downloading official forms.

Goals of Internet use

Table 72.

Activities	2007
Using a search engine (e.g. Yahoo, Google, Sapo, etc.) to search for information	42,2
Sending an e-mail with attached files (documents, images, etc.)	37,0
Placing messages on chats, newsgroups or participating in an online discussion forum	23,7
Using the Internet to make phone calls	11,5
Using a file-sharing software (peer-to-peer) to exchange movies, music, etc.	11,4
To create a web page	7,5
To search, download and install software	21,4
To protect the computer from viruses, spyware and adware	22,4

Unit: %.
Source: INE, Survey on the use of information and communications technologies by families - 2007.

58 Cf. INE, Inquérito à Utilização de Tecnologias da Informação e da Comunicação pelas Famílias - 2007.

Barriers to joining the service

In 2007, as in the previous years, the main reason that was pointed out for not joining the Internet was lack of interest or lack of usefulness (53.6 per cent). Computer-related issues come second (18.9 per cent). The price of the service is also a barrier to joining the service (12.4 per cent).

Mains reasons for not having an Internet access at home

Table 73.

	2006	2007
None of the individuals in the household has interest on the Internet	38	54
The costs of buying a computer and modem are to high	12	21
The monthly fee is too high	16	12
Household members access from other locations rather than home (which is enough)	9	16
Doesn't really know what the Internet is	16	5
Intends to have access within 6 months	7	4
Household is worried about access to sites with improper or unsafe contents	1	0

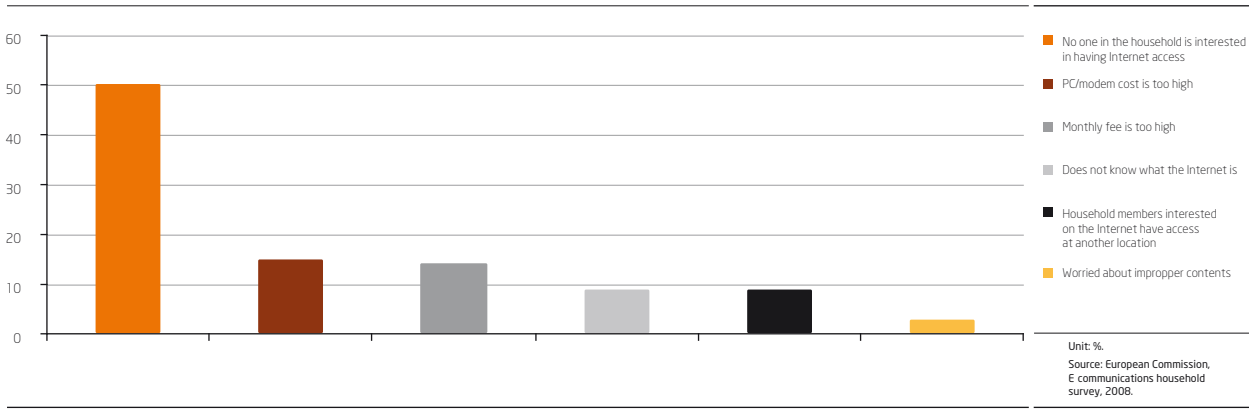
Unit: %.
Source: E-Communication Household Survey, 2006 e 2007.
Note: multiple answering.

Mention should be made to the fact that the above-mentioned main reasons are identical to those pointed out by EU consumers for not joining the Internet.

However, barriers "no interest", "PC/modem cost" and "doesn't know what the Internet is" stand out (in this case, Portugal shows the maximum figures among the E.U.27 countries).

Main reasons for not having Internet at home in the EU 27

Graph 89.



The evolution of the Internet Access Service in 2007

Below is the evolution of the service in 2007, in terms of service penetration, usage level, prices, and consumer evaluation.

Geographic availability of this service

In 2007, the Internet Access Service was available in practically the entire Portuguese territory. Dial-up Access, particularly, is available in the entire public switched telephone network.

The availability of the broadband offers depends on the availability of the public switched network's exchanges with DSLAMs (digital subscriber line access multiplexers), on the availability of broadband-enabled cable TV distribution networks, or on existing 3G network coverage.

Concerning ADSL, at the end of the fourth quarter of 2007, there were 1,853 exchanges equipped with DSLAMs in Mainland Portugal, corresponding to the entire coverage of possible areas for ADSL provision, such as in the 4th quarter of 2006.

These infrastructures are concentrated in the Greater Lisbon and Greater Porto areas, in the northern coastline and in Algarve. Inland, exchanges density is lower, as occurs with population density.

Distribution of exchanges with DSLAM per municipality - 2007 (Mainland Portugal)

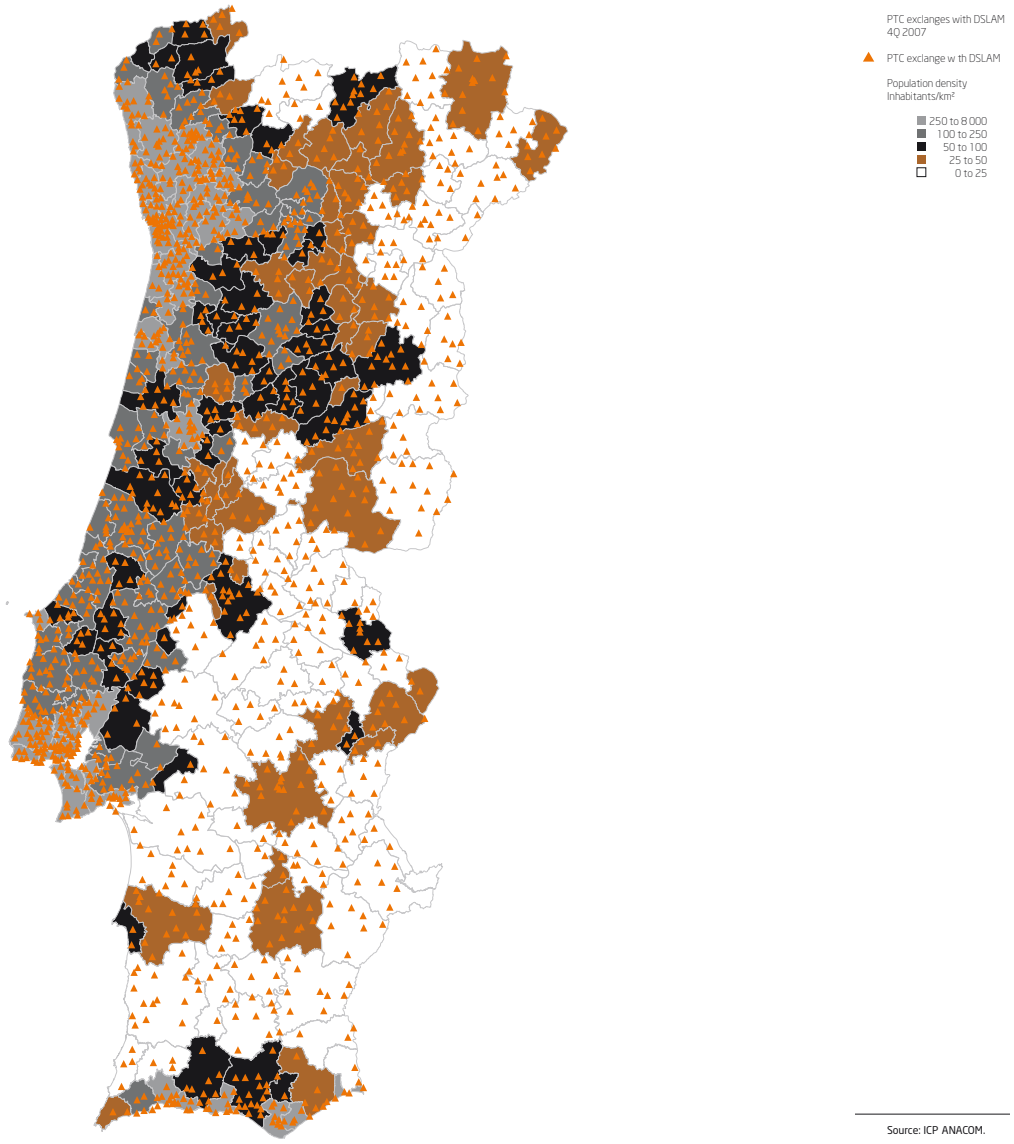
Graph 90.

Source: ICP ANACOM.

It should be underlined that there are exceptional cases when it is not possible to provide ADSL services over a given loop, due to its physical characteristics (namely its length, section and its state of conservation).

Distribution per municipality of exchanges with DSLAM and population density (Mainland Portugal)

Graph 91.



Source: ICP ANACOM.

Distribution per municipality of exchanges with DSLAM and population density (Autonomous Regions)

Graph 92.

Source: ICP ANACOM.

In 2007, according to the European Commission, the DSL coverage – service availability - in Portugal was the 9th highest among the 27 EU countries. In rural areas, DSL coverage in Portugal is ranked 10th.

It should also be mentioned that coverage in Portugal (94 per cent) is above the EU27 average, which is 89.3 per cent. The EU 27 average in rural areas is 71.7 per cent, while in Portugal it is 84 per cent.

DSL coverage in the EU27

Graph 93.

Unit: %.

Source: IDATE, Development of broadband Acess in Europe, DGINFSO, October 2007.

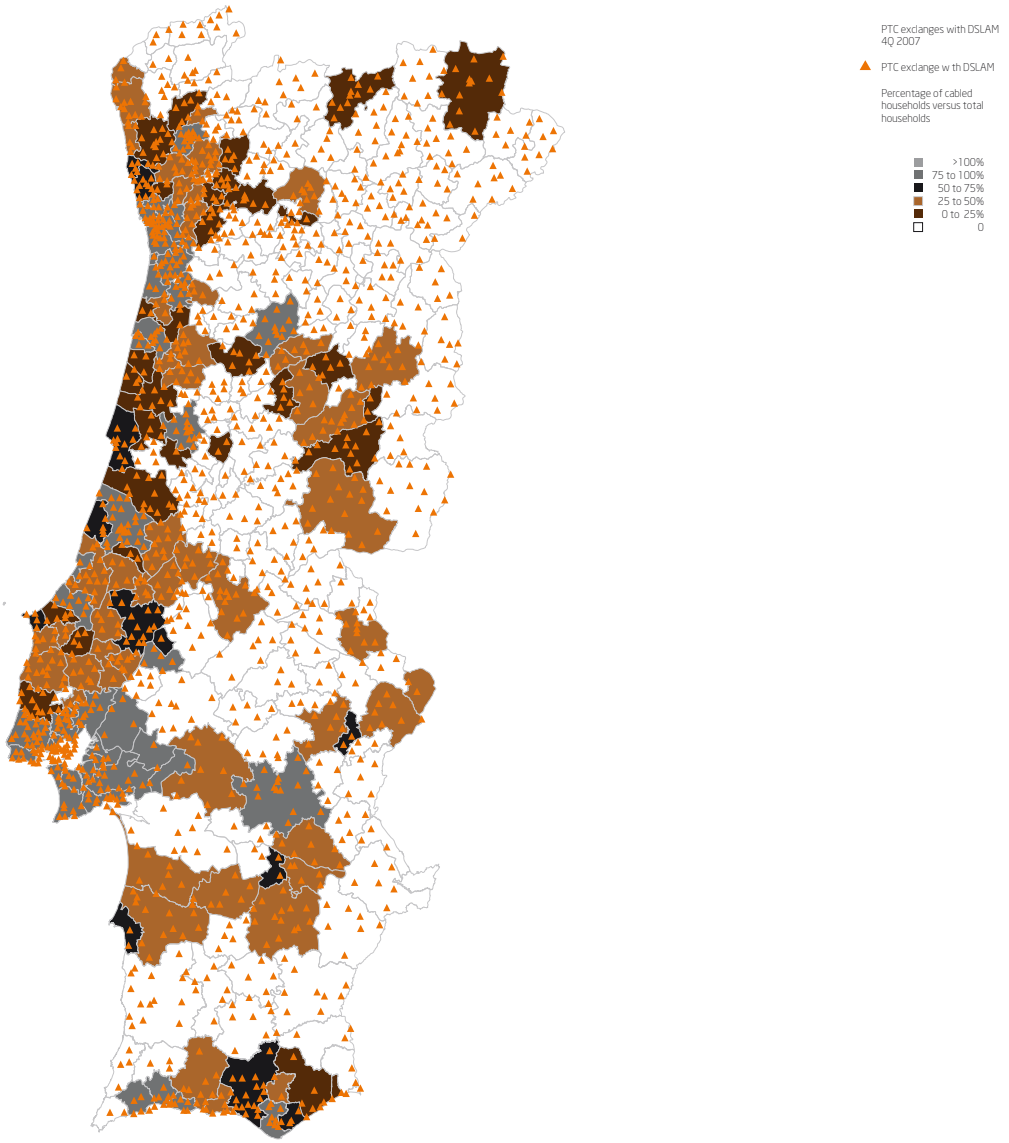
Regarding broadband Internet access using cable modem, cable distribution networks in Mainland Portugal are focused on the Greatest Lisbon and Greatest Porto regions.

Regarding the autonomous regions, Madeira had a ratio of cabled households above 90 per cent, whereas in the Azores this indicator reaches 60 per cent. These figures can be explained by the protocols among the Government of the Republic, the Regional Governments, ICP-ANACOM and the only cable television distribution network operator in both the autonomous regions. These protocols aim at ensuring the necessary conditions for the citizens of the autonomous regions to have access, for free, to the broadcasts of the general free-to-air channels available in Mainland Portugal, namely RTP1, RTP2, SIC and TVI, besides RTP Açores and RTP Madeira, respectively in each of the autonomous

regions. The protocol in force in Madeira was signed on 6 August 2004 and the protocol regarding the Autonomous Region of the Azores was signed on 5 November 2005, and remained in force for a year.

Distribution per municipality of exchanges with DSLAM in the 4Q07 and the sum of all operators' cabled households (Mainland Portugal)

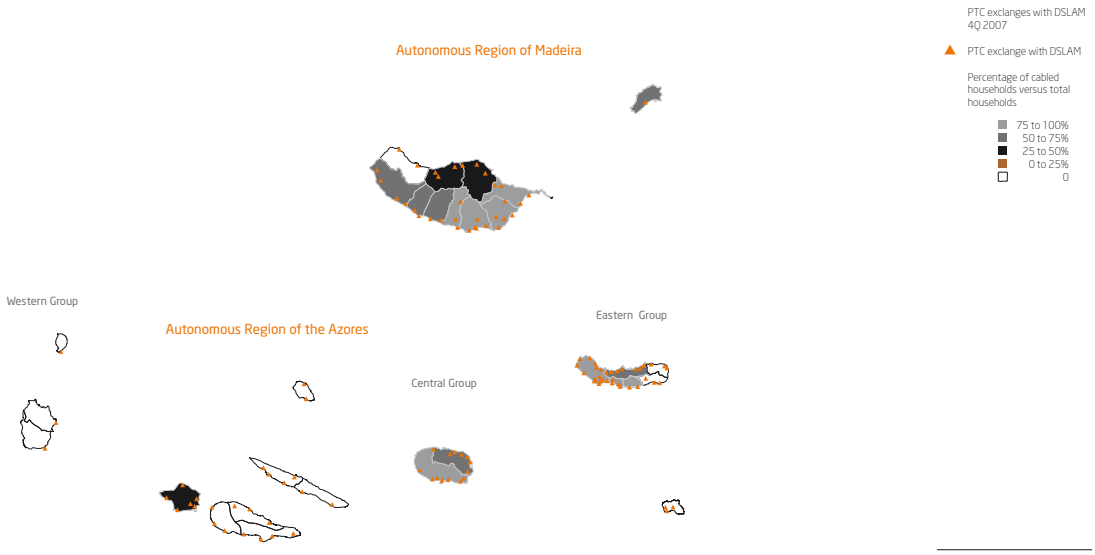
Graph 94.



Source: ICP ANACOM.

Distribution per municipality of exchanges with DSLAM in the 4Q07 and ratio of the sum of all operators' cabled households vs. the total amount of households (Autonomous Regions of the Azores and Madeira)

Graph 95.

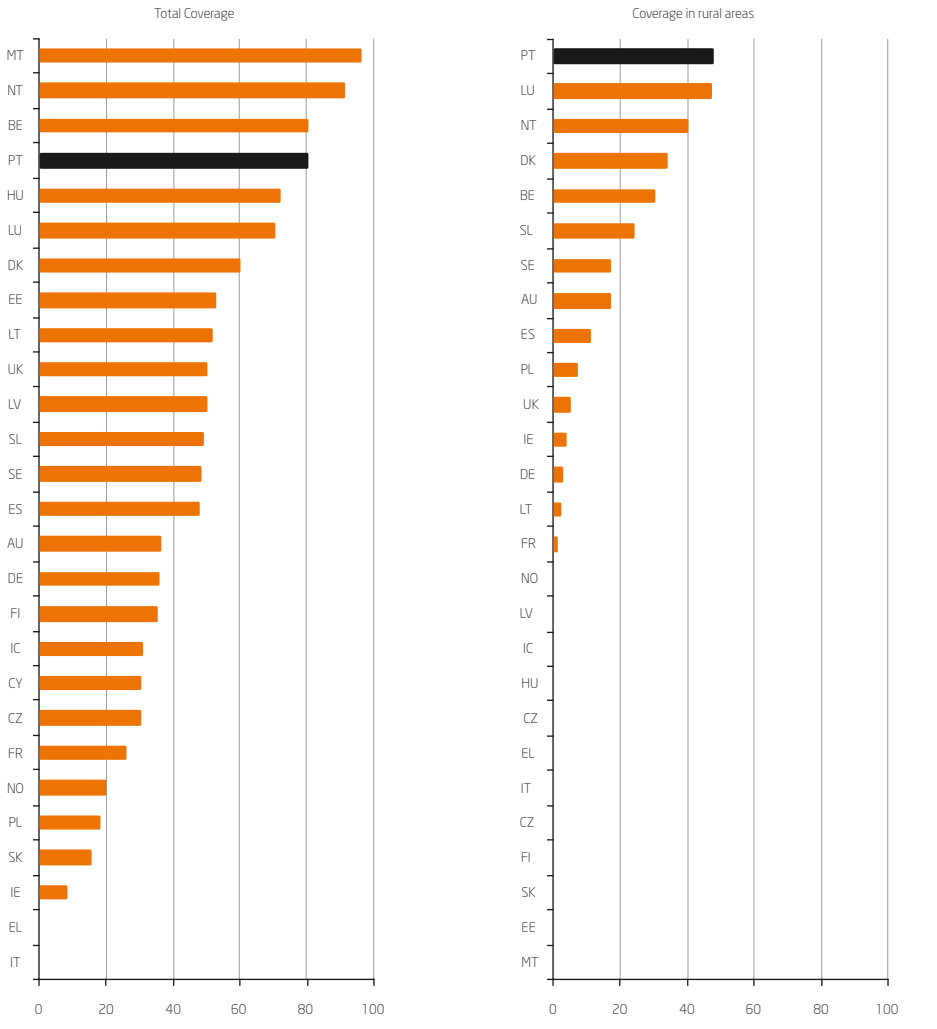


Source: ICP ANACOM.

According to the European Commission, cable TV network coverage in Portugal (80.1 per cent) stands clearly above the EU average (35.5 per cent). In rural areas, Portugal even has the highest coverage of all the EU27 (48 per cent versus a 7.2 per-cent average).

Cable modem's coverage in the UE27

Graph 96.



Unit: %.

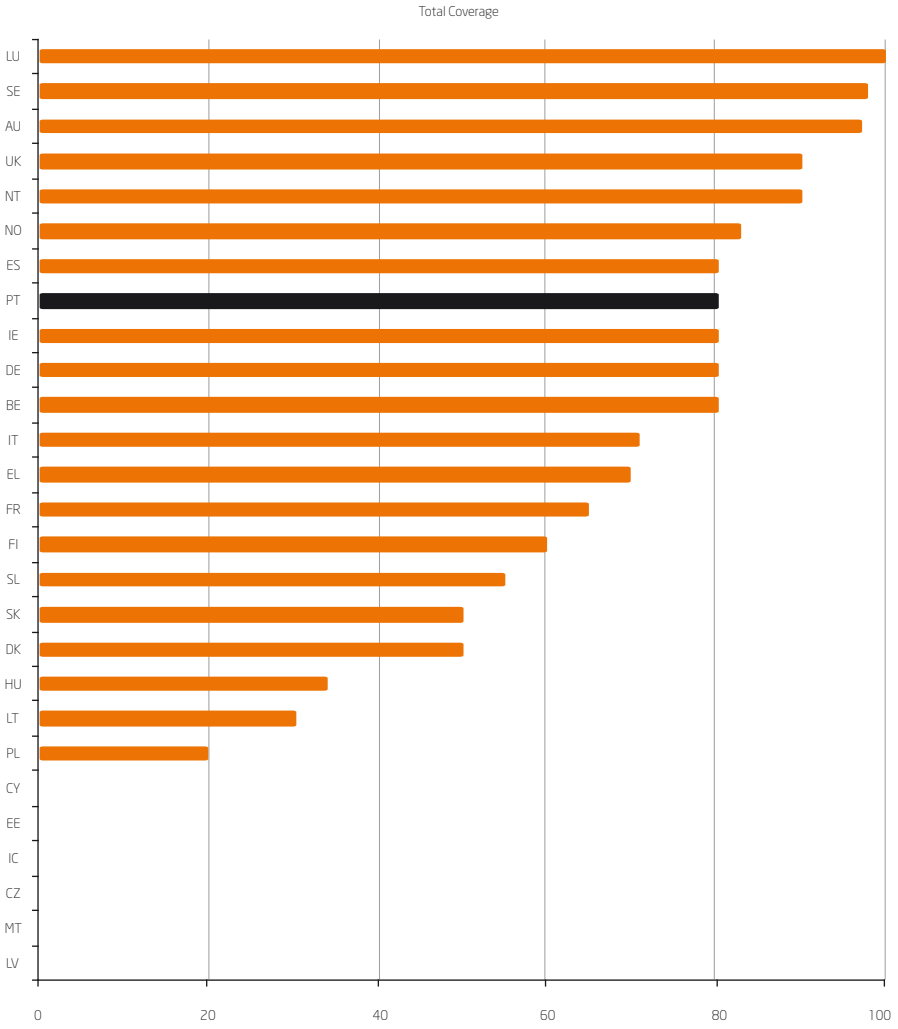
Fonte: IDATE,
Development of broadband Acess in Europe,
DGINFSO, October 2007.

Considering the previously-presented data, fixed broadband coverage density follows the territory's population density.

Mobile broadband is available in areas where 3rd generation mobile networks are available. According to the European Commission, 2006 coverage in Portugal was 80 per cent, above the EU27 average (71.3 per cent) and the UE15 average (78 per cent).

3G coverage in the EU27

Graph 97.



Unit: %.

Source: IDATE, Development of broadband Acess in Europe, DGINFSO, October 2007.

Service usage level: Evolution in the amount of customers and revenues

Below is the evolution regarding the service's usage level, measured in terms of customers, accesses and revenues.

Internet access customers: narrow band/broadband

At the end of 2007, there were 1.6 million registered Fixed Internet Access Service customers, about 2 per cent more than in the end of 2007.

Mobile broadband users reached 1.5 millions, 660 thousand of which were active in the last month of 2007. Between 1Q07 and 4Q07 the amount of broadband users increased 592 thousand.

Amount of customers

Table 74.

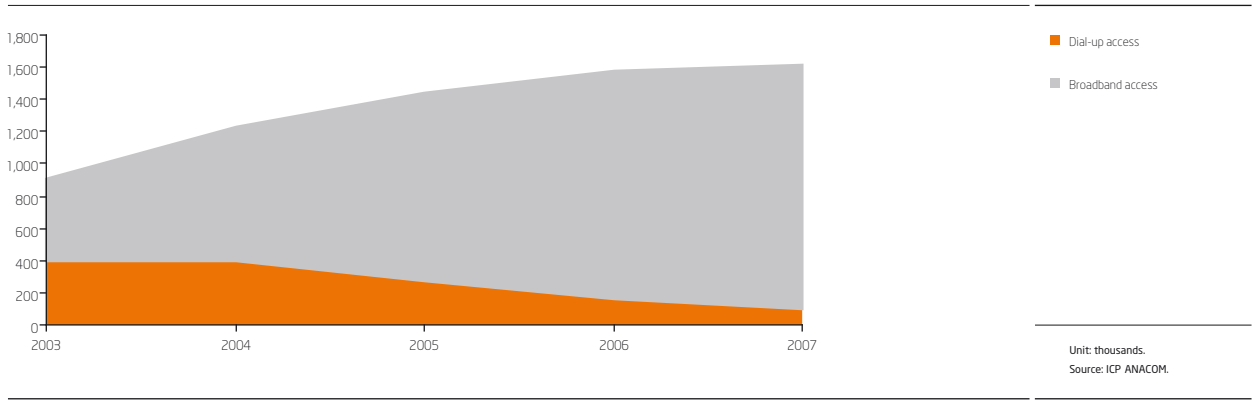
	2006	2007	2006/2007 Var. (%)7	2003/2007 Annual average var. (%)	2003/2007 var. (%)
Total fixed Internet customers	1.580.050	1.611.848	2,0	15,6	78,3
Dial-up access	156.403	99.326	-36,5	-29,5	-75,3
Fixed broadband access	1.423.687	1.512.547	6,2	31,7	201,3
Mobile broadband users		1.454.574			

Unit: 1 customer, %
Source: ICP-ANACOM.

The migration trend from narrow band to broadband remains. The amount of fixed broadband customers grew 6.2 per cent in 2007, while dial-up access customers decreased by 37 per cent. The ratio of broadband customers versus the overall amount of customers reached 93.8 per cent, 3.7 per cent more than in 2006.

Internet Access Customers (cumulative figures)

Graph 98.



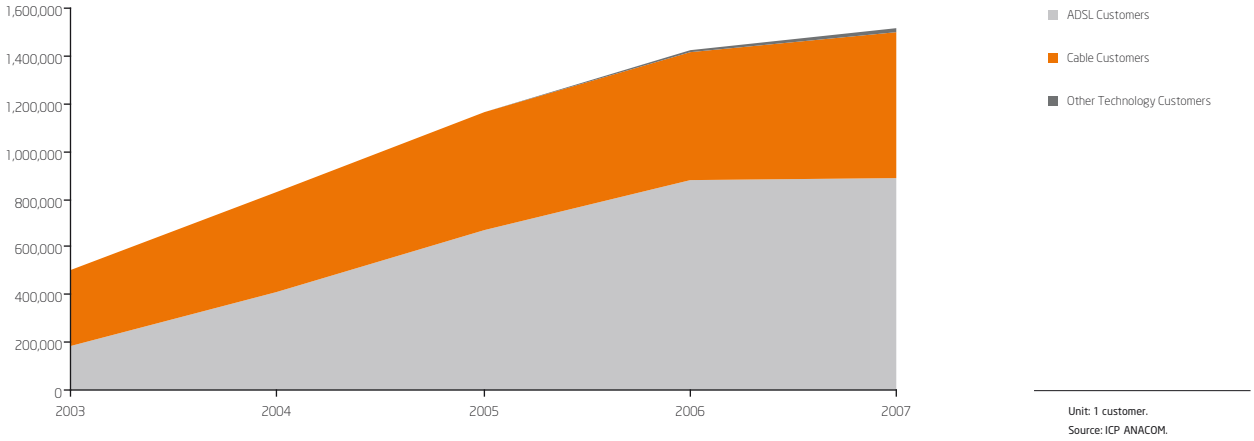
Unit: thousands.
Source: ICP ANACOM.

Fixed Broadband Customers

In spite of its growth (+23 per cent), the amount of new broadband customers was once again below that of the previous year. In 2007, there were about 89 thousand new fixed broadband customers, 169 thousand less than in the previous year. The growth rate was about 5.1 times lower than de average growth rate for the 2003/2007period. This slowing down may be explained by the previously-mentioned factors concerning the evolution of fixed broadband penetration.

Evolution in the amount of fixed broadband customers

Graph 99.



Unit: 1 customer.
Source: ICP ANACOM.

Broadband growth in Portugal continued to be fuelled by ADSL, which kept its stand after becoming the prevalent access technology by the end of 2004. Between the end of 2006 and the end of 2007, 6 in every ten new broadband customers chose ADSL access, thus resulting in a yearly growth of about 1.2 per cent. ADSL's prominence is explained by the broader geographic availability of this type of access, and by the development of offerings based on local loop unbundling.

Amount of customers per fixed broadband access modes

Table 75.

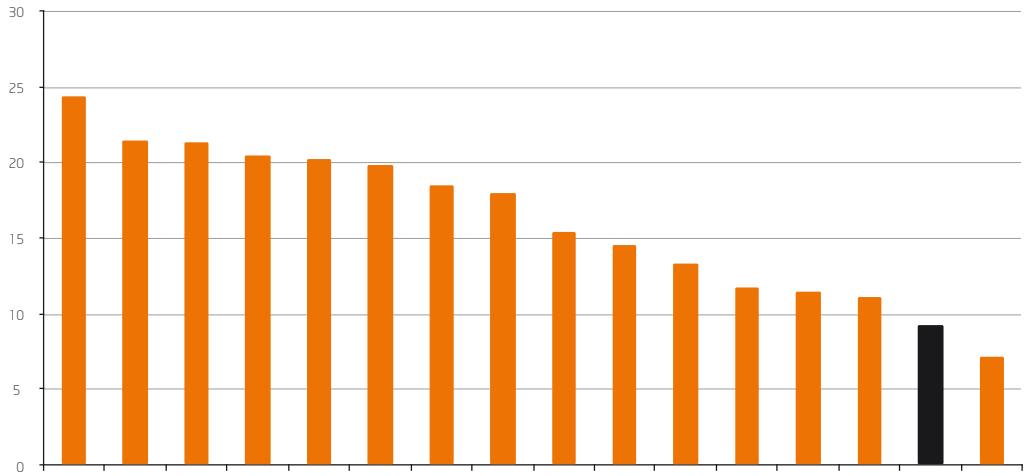
	2006	2007	2006/2007 Var. (%)	2003/2007 Annual average var. (%)	2003/2007 var. (%)
Total fixed Broadband customers	1.423.687	1.512.574	6,2	31,7	201,3
DSL access	881.512	892.092	1,2	48,3	383,9
% of total fixed broadband	62%	59%			
Cable modem access	537.552	605.799	12,7	17,8	92,6
% of total fixed broadband	38%	40%			
Other Access Technologies	4.623	14.656	217	46,3	358
% of total fixed broadband	0%	1%			

Unit: 1 customer; %.
Source: ICP-ANACOM.

In spite of the registered evolution, DSL penetration in Portugal is third lowest in the EU15, having dropped one position in the ranking since the previous year. As previously mentioned, concerning the evolution of penetration, ADSL growth in Portugal was the lowest one within the EU15.

Amount of broadband access using DSL per 100 inhabitants in the EU15 - 2Q07

Graph 100.



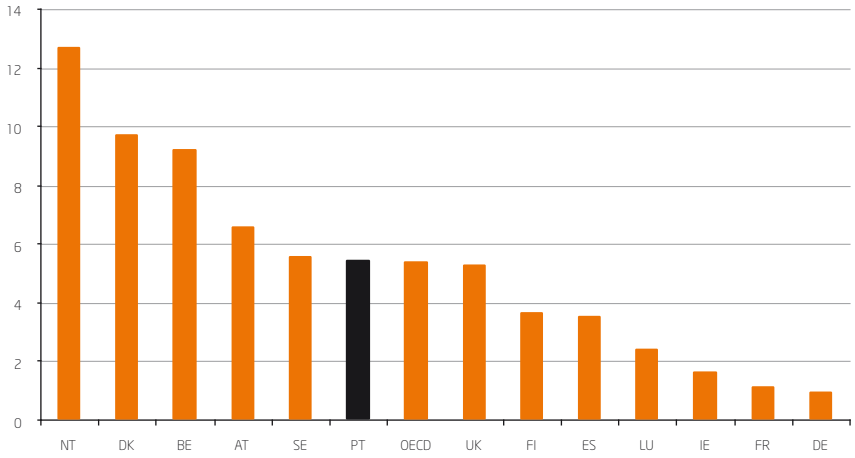
Unit: Access per 100 inhabitants.
Source: OCDE.

Internet Access by cable modem had an annual growth rate close to 12.7 per cent, about 4 per cent below the average of the previous years, but a growth rate above DSL. Cable modem access penetration is relatively high in Portugal, about 2.5 points above the EU15 average. Portugal ranks 6th in this group.

In spite of its small weight within the overall amount of fixed broadband customers, other access technologies grew about 217 per cent regarding the previous year, from a relatively low base (lower than 1 per cent of broadband accesses). This growth is mainly explained by the evolution of the offer of Internet access using the FWA technology.

Amount of cable modem accesses per 100 inhabitants in the EU15 - 2Q07

Graph 101.



Unit: Access per 100 inhabitants.
Source: OCDE.

Mobile broadband users

The amount of mobile broadband users grew exponentially during 2007. The amount of active mobile broadband users is already above the amount of cable modem Internet access users.

Evolution in the amount of mobile broadband users

Table 76.

	1Q07	2Q07	3Q07	4Q07
No. of users with mobile broadband Internet access	862.202	983.743	1.182.555	1.454.574
Active during this period	315.230	359.369	478.017	659.812
% do total	**37%**	**37%**	**40%**	**45%**

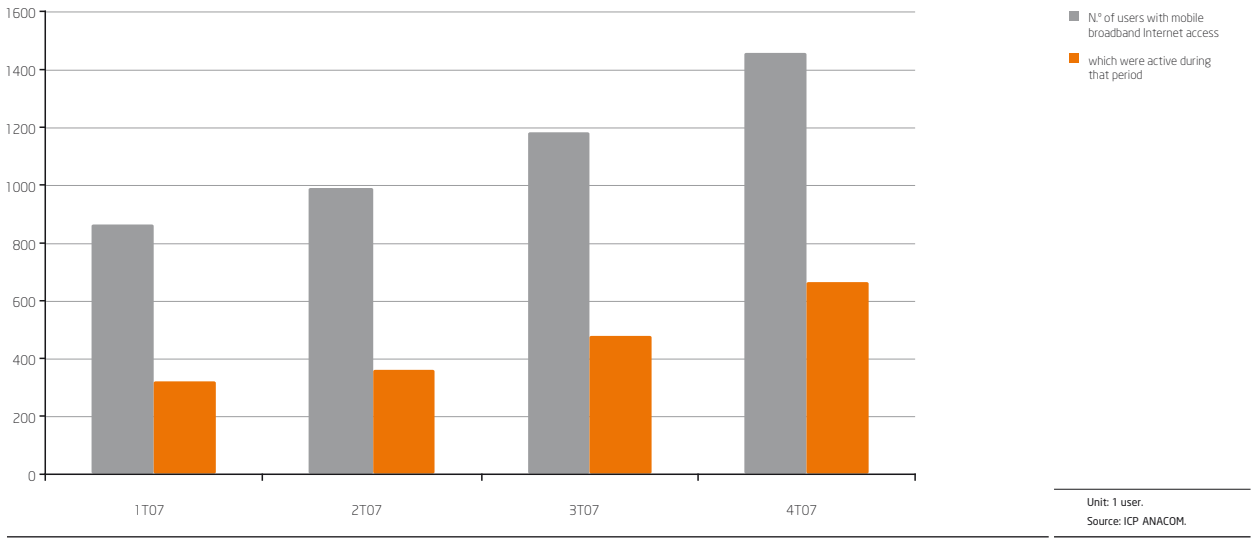
Unit: 1 user; %.
Source: ICP-ANACOM.

Between 1Q07 and 4Q07, the amount of users grew 69 per cent and the amount of active users increased 109 per cent.

The amount of new users in each quarter was always above the amount of new users recorded in the previous quarter.

Evolution in the amount of mobile broadband users

Graph 102.



Unit: 1 user.
Source: ICP ANACOM.

The evolution in the amount of this service's users was not only influenced by the operators' commercial policies, which provided flat-rate offers since the beginning and actively promoted this service, but also by Government policies fostering information society that, together with the operators, provided low-priced computers and mobile broadband Internet access to students, teachers and trainees.

The service's usage also increased gradually along the year. At the end of 2007 almost half of the potential users actually used the service.

On the other hand, traffic per session and monthly traffic per active user also increased gradually, the second indicator reaching figures close to the traffic limits established by some of the offers..

Evolution of traffic per session and per user

Table 77.

	1Q07	2Q07	3Q07	4Q07
MB per session	16	19	19	22
MB per active user (monthly)	775	928	957	991

Source: ICP-ANACOM.

Service revenues

(Fixed) Internet Access Service's revenues in 2007 increased about 5.5 per cent.

Fixed broadband revenues grew at considerable rates, between 9 and 10 per cent, although at declining rates, regarding the average of previous years.

Fixed Internet Access Service Revenues

Table 78.

	2006	2007	2006/2007 var. (%)	2003/2007 annual average var. (%)	2003/2007 var. (%)
Internet Access (fixed)	454 598	479 611	5,5	12,3	58,8
Dial Up Access	29 632	12 699	-57,1	-43,0	-89,4
ADSL Access	260 381	287 067	10,2	51,5	426,9
Cable Modem Access	136 237	148 583	9,1	21,8	119,9
Other means (fixed)	26 160	28 602	9,3	-2,6	-10,1
Other revenues	2 188	2 660	21,6	-44,4	-90,5
Internet Access (mobile)		131 872			

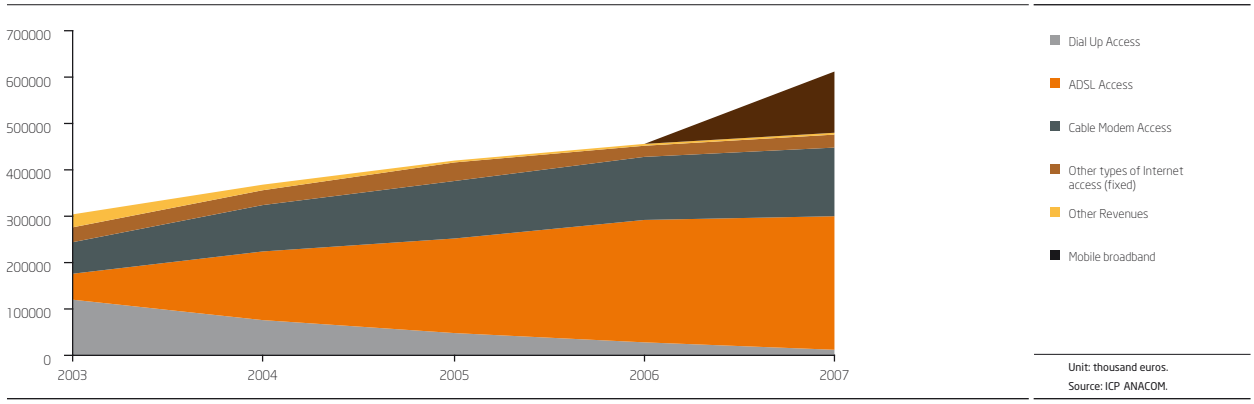
Unit: Thousand Euros, %.
Source: ICP-ANACOM.

ADSL revenues stood for about 60 per cent of fixed broadband, 3 per cent more than in the previous year, while cable modem stands for about 31 per cent, 1 per cent more than in 2006. Dial-up revenues, after a 50 per cent growth for 3 years, in the launching phase of the service, influenced by the service's dissemination and the introduction of free Internet offerings, began to decrease with the migration to broadband. In 2007, it represented only 2.6 per cent of fixed Internet.

Mobile Internet revenues already stood for 22 per cent of total Internet revenues.

Evolution of Internet Access Service Revenues

Graph 103.



Unit: thousand euros.
Source: ICP ANACOM.

Broadband penetration

At the end of 2007, the broadband Internet access penetration rate (in terms of customers) stood at 14.2 per 100 inhabitants for fixed accesses, and 13.7 per 100 inhabitants for mobile accesses.

Evolution of broadband penetration rates

Table 79.

	4Q06	1Q07	2Q07	3Q07	4Q07
No. of fixed Broadband Customers / 100 Inhabit.	13,4	13,8	14,3	14,7	14,2
No. of ADSL Customers/100 Inhabit.	8,3	8,5	8,7	9,1	8,4
No. of Cable Modem Customers/100 Inhabit.	5,1	5,2	5,4	5,5	5,7
No. Other Type of Access Customers/100 Inhabit.	0,0	0,1	0,1	0,1	0,1
No. of mobile Broadband Customers / 100 Inhabit.[59]	1,6[60]	8,1	9,3	11,2	13,7

Source: ICP-ANACOM.

Although the amount of available accesses is being considered for both fixed and mobile broadband, in the latter there is a greater difference in the type of access, due to the terminal equipment used (mobile phones, PDAs, cards for portable PCs, USB connection cards), in connection with different Internet usage patterns. This fact makes it advisable to collect additional data in order to better understand those differences.

ICP-ANACOM predicts that, by the end of 2007, 75 per cent of these accesses corresponded to PCMCIA cards or USB modems used for Internet access in Desktop and Laptop computers. Estimates indicate that the amount of users that had this type of equipment increased 40 per cent between March 2007 and December 2007.

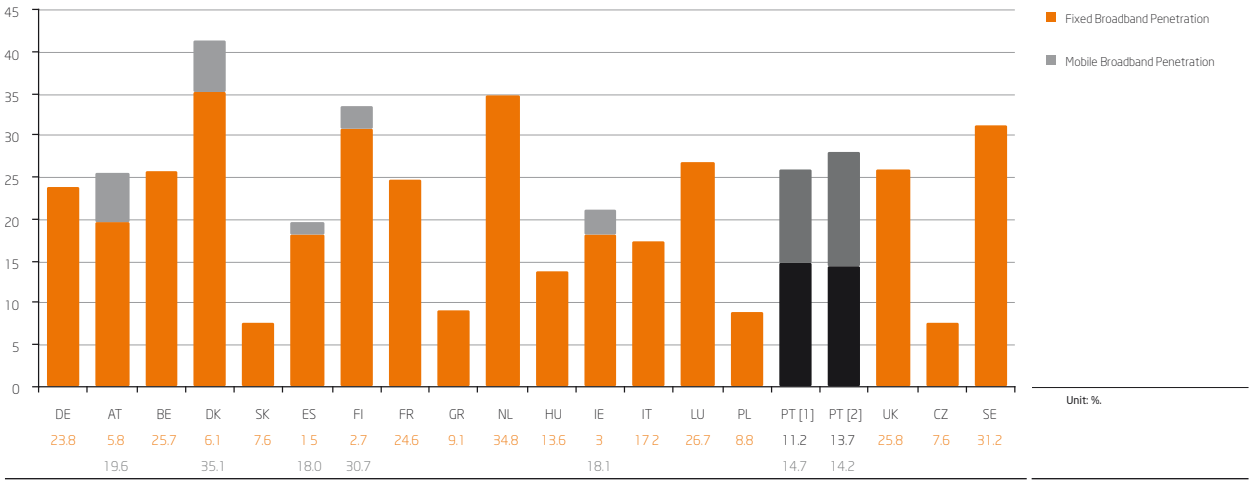
ICP-ANACOM was one of the first European regulators to collect information on mobile broadband access (since January 2007), and has also promoted all the effort in fostering international comparisons to include it.

The information available at the end of 2007 is shown on the graph below, which identifies fixed and mobile accesses.

59 Mobile operators' customers can access mobile broadband Internet, which they did at least one time, per 100 inhabitants, since the service was launched.
60 This figure is an estimate of the mobile broadband figure.

Information on broadband penetration in some E.U. countries - December 2007

Graph 104.



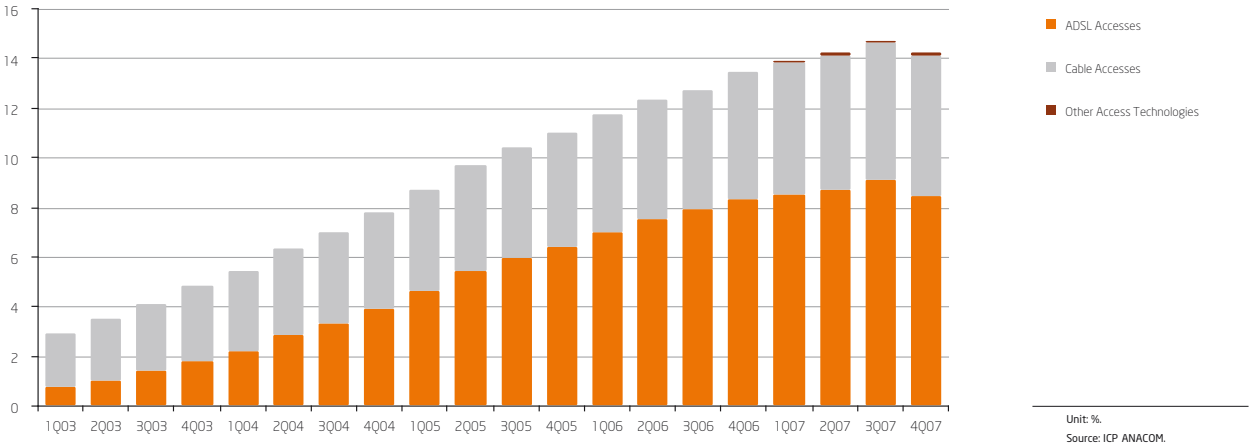
Sources: OCDE Broadband Statistics 4Q07. ICP-ANACOM – penetrations for Portugal 3Q07 and 4Q07. NRAs - 4Q07 mobile broadband penetrations for Denmark, Spain, Finland, Ireland, Lithuania and Austria (3Q07). ITSD (penetration for Denmark, mobile broadband 4Q07). Definition of mobile broadband: No. of EDGE, UMTS and CDMA subscriptions that have been used by advanced data services (excluding voice, SMS and MMS), in the last 3 months. Comisión del Mercado de las Telecomunicaciones (penetration for Denmark Spain, mobile broadband 4Q07). Definition of mobile broadband: Total amount of lines that have been used for own 3G network services, at least once during the last 90 days. Own 3G network services are: the Internet Access Service, mobile TV, video calls, and music downloads. Commission for Communications Regulation (penetration for Ireland, mobile broadband 4Q07). Definition of mobile broadband: No. of mobile broadband subscriptions that combine HSPA and GSM/ EDGE. RRT (penetration for Lithuania mobile broadband 4Q07). Definition of mobile broadband: No. of subscribers who connect to the Internet using the public mobile telephone network, using flat rate plans to pay the Internet access services, provided through a computer. FICORA (penetration for Finland, mobile broadband 4Q07) RTR (penetration for Austria mobile broadband 3Q07)
[1] 3Q07
[2] 4Q07

Concerning mobile broadband, the penetration rate increased 12 per cent during the last year.

As for fixed accesses specifically, broadband penetration is about 0.8 per cent above the end of the previous year.

Evolution in the amount of fixed broadband accesses per 100 inhabitants

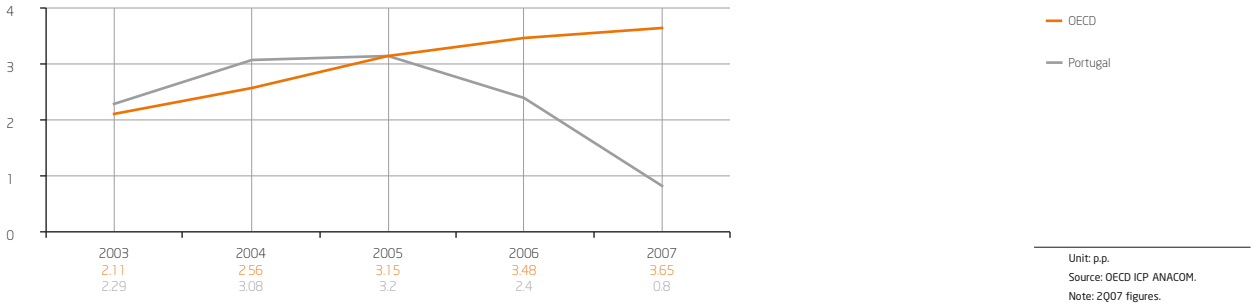
Graph 105.



Broadband penetration growth recorded in Portugal was, however, below the one registered in the OECD countries. The gap between broadband penetration growth recorded in the OECD and broadband penetration growth registered in Portugal increased, reaching 2.8 per cent.

Variation in the Broadband access Penetration Rate - Fixed

Graph 106.

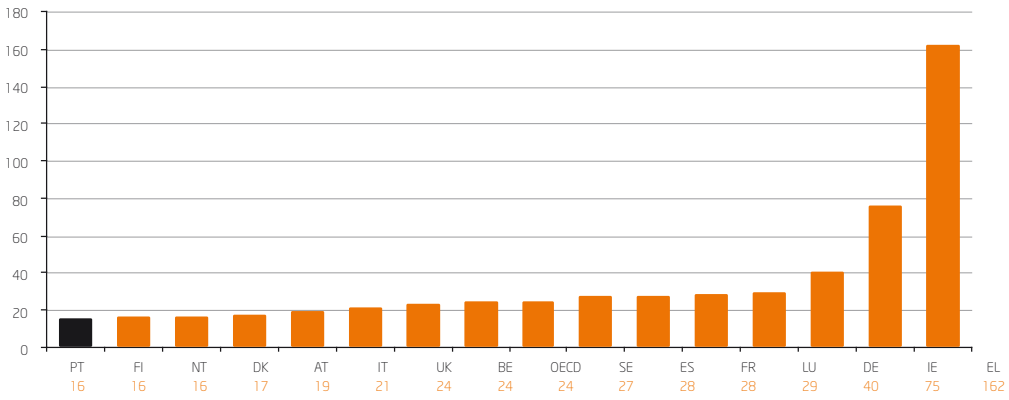


Unit: p.p.
Source: OECD ICP ANACOM.
Note: 2Q07 figures.

Portugal was the country in the EU15 where the fixed broadband penetration rate less grew during 2007. Broadband penetration in Portugal increased about 16 per cent regarding 2006, while in the OECD the average growth rate was 24 per cent.

Growth rate of fixed broadband penetration in 2Q07 regarding 2Q07

Graph 107.

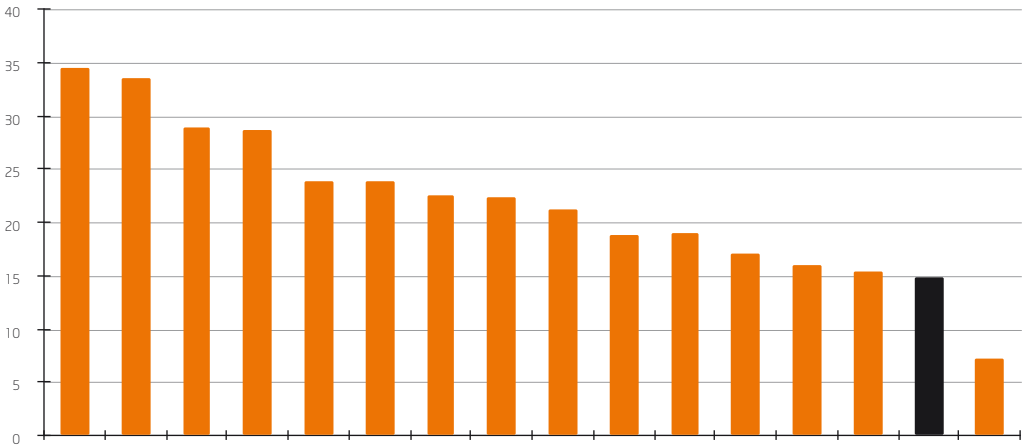


Unit: %.
Source: OECD.

As a result of the performance registered in 2007, Portugal fell one position in the ranking, now standing in the 14th place.

Amount of fixed broadband customers per 100 inhabitants in the EU15 in 2Q07

Graph 108.



Unit: %.
Source: OECD.

This evolution may have been influenced by the following factors:

- The launch of mobile broadband offers. It is possible that fixed broadband consumption has been partially re-routed to mobile broadband. Mobile broadband has been marketed as a fixed broadband replacement for some market segments. Additionally, younger population groups, individuals living alone and those with higher social status are more likely to have mobile broadband[61].

- The relatively low PC penetration in households. As previously mentioned, the lack of a PC is a barrier to joining the Internet. The European Commission, among others4, even mentions that:

  "... The correlation between PC rate... and Internet rate (Y-axis) is almost linear (Pearson equals 0.97). It can thus be said that the lack of PCs is an obstacle to Internet access."[62]

  The rate of domestic households in Portugal with a PC was 48 per cent, while in the EU27 it was 60 per cent[63].

  It is thus possible for the lack of PC to partially justify the lower take up of broadband that occurred in Portugal during 2007.

- Human capital level below average. The lack of interest shown by consumers may be connected to the relatively low human capital level. Statistics on the education level and the digital literacy level, in this scope, are quite explanatory. It is even possible to conclude that the highest the education level, the more likely it is to have Internet access5. Additionally, as previously mentioned, Internet penetration is already high among population groups with higher education levels and among younger population groups.

61 In order to characterize the choice of access provider, a model was estimated with a dependent variable equal to 1 when the chosen operator is a mobile Internet access operator, and equal to 0 when the interviewee is the customer of a fixed Internet access provider. It used the replies given during the electronic communications consumer survey. The theoretical model used for the estimate was the simple logit.
62 Vide. The Broadband Performance Index: A Policy-Relevant Method of Comparing Broadband Adoption Among Countries, Phoenix Center for Advanced Legal and Economic Public Policy Studies, July 2007.
63 European Commission, E-Communications Household Survey, April 2007.
64 In order to characterize the Internet, three models were estimated with base on the data collected during the 2007 electronic communications consumer survey. The theoretical model used for the estimate was the simple logit. Several independent variables were introduced in the models concerning the interviewee's sex, age, education level, social status, the presence of individuals aged between 7 and 24 years old in the household, and the NUTS II region where the interviewee lives. This data is included in the current model via binary variables, with value 1 in the positive cases, and values 0 for the opposite.

- Service's price levels. Some consumers indicate the price level as a barrier to joining the service. The international comparisons shown below seem to lead to the conclusion that the service's price level isn't considerably higher than in other countries. However, considering the income levels of each country, it is possible for the existing price level to be, in fact, a barrier to joining the service.

  Initiatives launched by ICP-ANACOM, such as, for example, Naked ADSL and the wholesale offers connected to service provision, will foster a reduction in the service's overall price;

- Macroeconomic conditions of a cyclical nature.

Broadband Internet Access Service's price level

Regarding fixed broadband price level, and according to the collected data, it is possible to conclude that[65]:

- In November 2007, the minimum broadband price in Portugal stood 32.6 per cent above the average of the considered countries and was similar to the price charged in Austria, Sweden and Denmark, which have a higher broadband penetration. The minimum price charged by the incumbent operator in Portugal was the 4th lowest one.

Minimum Broadband Monthly Fee - November 2007

Table 80.

Broadband monthly fee	Minimum Price		Minimum Price - Incumbent operator	
	Price	Ranking	Price	Ranking
Germany	12.06	6	15.03	3
Austria	8.25	2	8.25	1
Belgium	14.05	10	26.07	13
Denmark	5.37	1	17.09	7
Spain	20.00	13	21.90	10
France	12.46	8	20.82	9
Netherlands	12.56	9	16.76	6
Ireland	15.66	11	16.52	5
Italy	8.29	4	8.29	2
Luxembourg	17.39	12	22.61	11
Portugal	8.26	3	15.28	4
United Kingdom	12.35	7	22.78	12
Sweden	8.57	5	17.23	8
Total/Average Portugal excluded	**12.25**		**17.78**	
% deviation of Portugal vs. average	**-32.6%**		**-14.1%**	

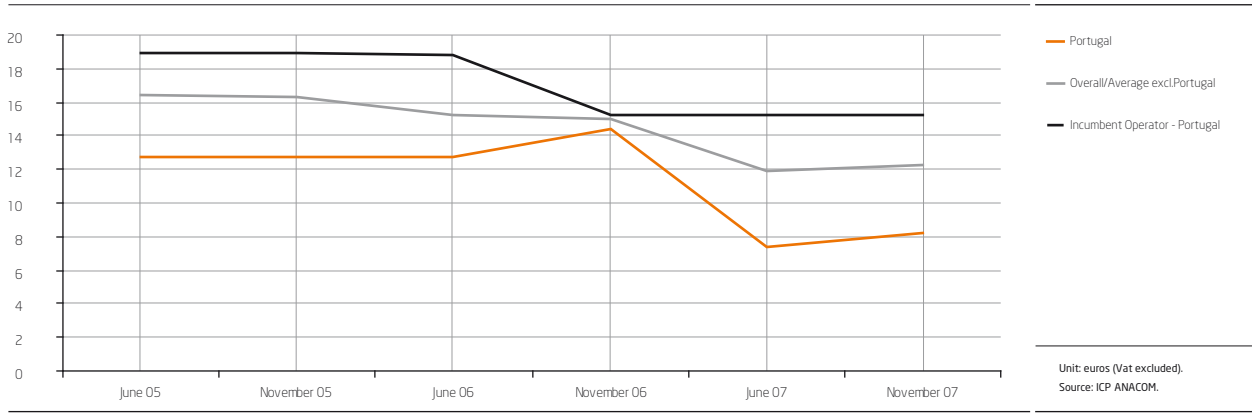
Unit: Euros VAT excluded.
Source: ICP-ANACOM.

65 Methodology: sample made up of 650 offerings by 83 ISPs in an analysis of 13 EU15 countries. This analysis did not include Greece, due to the low implementation of the service in this country, and Finland, due to difficulties in collecting data. For each of the analyzed countries, the ISPs standing for at least 70-80 per cent of the market were identified. This was made further to consultation of European Commission documents, national regulators' sites, reports and accounts of some operators and press articles. In some cases, the ISPs' market shares were impossible to determine and Internet search engines were then used. All items of the selected offerings were collected. However, it was assumed that the decision to join broadband would be incremental (i.e. the cable modem broadband subscriber already has CATV, the ADSL broadband subscriber already is a FTS customer, etc.), and that the new subscriber would pick the options that would lower its monthly fee (i.e. if there are discounts for payment by wire transfer, the subscriber would chose to pay by wire transfer). During the result reckoning procedure, offerings with downstream bit rates below 256 kbps and were excluded. It should be mentioned that the results presented regard only the monthly subscription fee (non-promotional figures).Besides discounts and promotions, the survey also did not take into account the following variables: installation and subscription prices; equipment prices (not included in the offering), traffic limits; upstream bit rate, number of mailboxes, space for mailbox, space for own site, software offers, equipment offers (e.g. MP3 player); offer of multimedia applications; training courses; offers linked to PC sales. The data collection procedure was carried out in November 2007.

- During the 2 latest years there was a decreasing trend of the minimum broadband prices in the countries under review. In Portugal, after a drop in June 2007, minimum prices recorded a slight increase.

Evolution in the (fixed) Broadband Monthly Fee

Graph 109.



Unit: euros (Vat excluded).
Source: ICP ANACOM.

The lowest minimum price charged in Portugal during the three previous years was of different offerings by the same alternative operator, using cable modem. In November 2006 this operator terminated its 1 Mbps offer (considered the minimum price offering in June 2006) and created a new 2-Mbps offering. For this reason, the minimum price in Portugal had a slight increase. By June 2007, this operator launched a lower bit rate offer, at lower prices, which was terminated in November 2007.

At the end of 2007, the minimum price charged in Portugal was the ADSL offering of an alternative provider.

- Considering the average of the minimum prices charged by the several ISP for the several transmission speeds, Portugal stands above the average for the offers with maximum download speeds of 1 Mbps and 24 Mbps.

Average of the minimum broadband prices per access speed - November de 2007

Table 81.

Broadband monthly feed in November 2007	256 Kbps		1 Mbps		2 Mbps		4 Mbps		8 Mbps		24 Mbps	
Germany	-		16.93	3	21.21	6	21.53	2	-		-	
Austria	-		8.25	1	22.02	7	33.25	9	41.58	8	-	
Belgium	-		33.11	10	-		25.46	5	29.75	4	-	
Denmark	13.87	3	20.25	6	24.93	9	30.81	7	45.40	10	-	
Spain	-		22.93	9	36.00	10	120.00	11	150.57	11	-	
France	-		20.82	7	-		-		27.09	3	-	
Netherlands	25.15	4	-		-		22.37	4	43.24	9	-	
Ireland	-		17.44	5	24.06	8	71.86	10	35.12	7	-	
Italy	-		-		16.58	1	19.74	1	-			2
Luxembourg	-		-		19.71	4	29.57	6	34.13	6	-	
Portugal	13.35	2	21.95	8	19.15	3	21.86	3	31.36	5		3
United Kingdom	-		16.45	2	18.14	2	31.65	8	19.72	1	-	
Sweden	12.25	1	17.23	4	20.17	5	-		23.63	2		1
Average Portugal excluded	17.09		19.27		22.54		40.62		45.02			
% deviation of Portugal vs. average	-21.9%		13.9%		-15.0%		-46.2%		-30.4%			

Unit: Euros VAT excluded.
Source: ICP-ANACOM.

- According to the available data, the 4 Mbps offers were the most used ones in Portugal, in November 2007. For this reason, below are some additional elements on these offers' prices.

  As shown on the previous table, the average price of the 4 Mbps offerings in Portugal were about 46 per cent lower than the average of the considered countries. It was the fourth lowest one (two places lower than in the previous period).

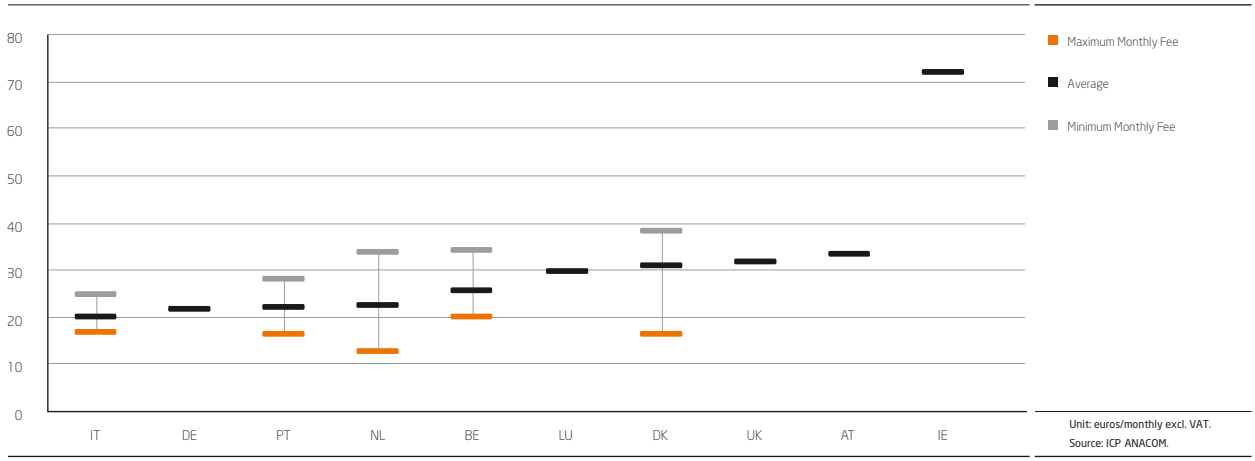
  Considering the variation interval[66] and the average of the 4 Mbps offerings in the considered countries, it can be concluded that prices charged in Portugal are not above the European levels.

  On the other hand, the price of the 4 Mbps offers in Portugal decreased 36 cent between June 2005 and November 2007.

66 The shown variation interval does not take into account all prices in force in one country for each bit rate class, but only those of each ISP which are more competitive in a given country. More expensive offerings including extras (e.g. upload speeds or higher traffic limits), which could bias the results, are thus excluded.

Average variation interval of the 4 Mbps offer prices

Graph 110.



Evaluation by consumers

According to the results of the Survey on the Use of Broadband54, consumers' perception of the quality of the broadband services is generally positive. Nevertheless, 10.4 per cent of the inquired people evaluated it negatively.

Analyzing consumer satisfaction regarding the access speed in particular, about 15 per cent of those inquired evaluated this service's feature negatively.

In spite of the quite generalized satisfaction with the service, about 29 per cent of those questioned stated that they had already filed a complaint with their operator, 8 per cent more than a year before.

"How do you evaluate the overall quality of the Internet access services provided to you?"

Table 82.

	Dec-07
Very good	8,9
Good	75,3
Bad	9,2
Very bad	1,2

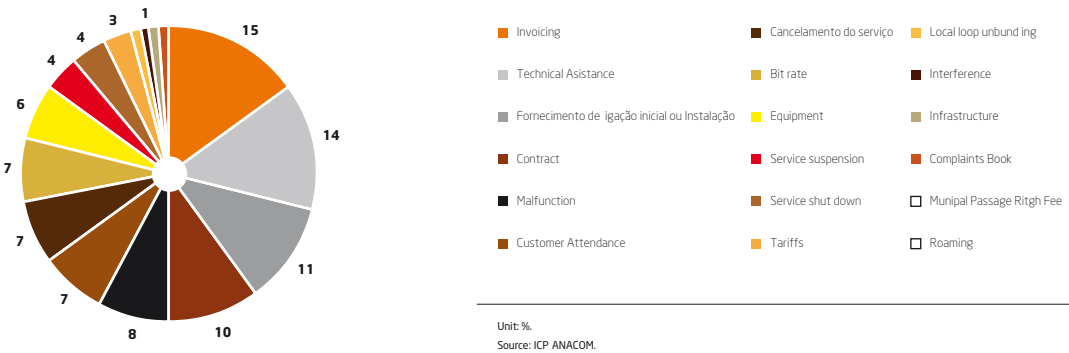
Unit: %.
Source: ICP-ANACOM, Survey on the use of broadband – 2007.

And, in fact, during 2007, ICP-ANACOM received around 5,017 complaints. In relative terms, the Internet Access Service is the second service with the largest amount of complaints. According to ICP-ANACOM's UM-TSM (Mission Unit for Handling Market Requests), this Authority received 3,956 complaints regarding the Internet Access Service and its providers.

Most of the requests regarded invoicing (15 per cent), technical assistance (14 per cent), the installation process (11 per cent), the contract (10 per cent) and malfunctions (8 per cent).

Distribution of complaints received by ICP-ANACOM - 2007

Graph 111.



Unit: %.
Source: ICP ANACOM.