



**EETT**

HELLENIC TELECOMMUNICATIONS & POST COMMISSION

# MARKET REVIEW

OF ELECTRONIC COMMUNICATIONS & POSTAL SERVICES

# 2016



2016  
Market Review  
of Electronic Communications  
& Postal Services

This report was prepared by EETT,  
presenting statistical data and information regarding  
the course of the Electronic Communications  
and Postal Services markets for the year 2016 in Greece

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## SUMMARY

### (a) Electronic Communications

2016 may turn out to be a turning point for the domestic telecommunications market. The adoption and imminent implementation of the vectoring Regulation is expected to lead to a further multi-benefit increase of investments. The three major telecommunications providers have already announced a 2 billion euros investment plan for the next four years. At the same time, competition among bundled offers was further intensified based on high-speed broadband access, mobile broadband and Pay TV services. The contribution of the industry's turnover to Greece's Gross Domestic Product (GDP) ranged at 2.8% in 2016, almost at the same level as in 2015.

#### Financial data

The turnover of the telecommunications industry stabilized at the level of 5 billion euros. Revenues from telecommunications services represented the vast majority of all revenues (~90%), while Pay TV revenues were on rise. The total investment made by the electronic communications providers increased spectacularly by 69% (corresponding to 22.6% of the total

industry's turnover), with approximately 70% being carried out on fixed networks and the remaining 30% on mobile networks. The focus of these investments was mainly the telecommunications infrastructure as well as the research and development (e.g. software, new services etc.). The Earnings Before Interest, Tax, Depreciation and Amortization (EBITDA) for the major fixed and mobile operators increased by 2.8% compared to 2015, while their gross profit declined further at about 415 million, mainly due to increased depreciation figures.

#### Fixed communications

For the first time in recent years, the number of telephone lines increased marginally compared to 2015 attaining a 44.1% population penetration. Conversely, fixed telephony traffic decreased by 6% mainly due to the shorter duration of national calls to fixed phones and international calls as well. Despite the fact that OTE is still the incumbent operator with a 56% share of the telephony lines, its traffic share is much lower at about 45%. This is attributed to the fact that the alternative operators outperformed OTE in increasing their fixed to mobile traffic.

Retail revenues from the provision of telephony and Internet services at a fixed location amounted to 1.4 billion euros, marking a marginal increase compared to last year, mainly due to Internet services' revenues, with OTE's relative share estimated at 61% for 2016.

The average monthly revenue from providing telephony and Internet services at a fixed location rose to 24.75 euros and the respective revenue from stand-alone telephony services was 18.94 euros.

### Mobile communications

In 2016, the number of mobile phone connections reached 15.9 million registering a 3.8% increase compared to 2015, while active connections decreased marginally at 12.5 million. As regards the share of Mobile Telephony Operators (MTOs) in total number of connections, the shares of COSMOTE and VODAFONE slightly increased reaching 45.6% and 35.3% respectively, while on the other hand WIND's share decreased to 18.7%. In terms of active connections, COSMOTE's share is in the range of [45%-55%], followed by VODAFONE with a range of [25%-35%]. The use of mobile phone networks has been characterized mainly by the significant reduction in the duration of international calls (voice minutes) and the significant increase in the use of data services. The volume of voice calls marked a 1% compared to last year, while 62% of these calls were on-net. Mobile phone data services increased further by 48% in 2016 thus reaching 46 billion. However, the mobile retail revenues (post-paid and pre-paid) decreased slightly by 2.5% amounting to 1.6 billion euros. The average annual revenue per user (post-paid and pre-paid) decreased further to 280 and 53 euros respectively.

### Broadband

At the end of 2016, the fixed broadband lines increased by 5.2% reaching 3,616,705. Notably, the fixed broadband penetration in the general population, having registered an almost double growth rate compared to the European one, reached 32.8% exceeding the European average for the first time. Local-Loop Unbundling (LLU) lines reached 2.09 million. At the same time, 7.5% of the total broadband lines were VDSL lines.

On the contrary and as far as mobile broadband penetration is concerned, Greece had a 49.8% penetration rate and was ranked among the lowest EU member states. However, there is significant room for improvement, taking into consideration both the double-digit increase (10 points) in the 4G population coverage percentage and the doubling of the traffic share via 4G networks (from 14% to 32.6%).

### Bundled offers

In 2016, the sales of bundled offers increased further to 3.6 million, 61% of which corresponded to a double play package, 35% to a triple play one and 4% to quad play services. Fixed telephony with fixed broadband Internet remained the most popular bundled offer (approximately 2.1 million) followed by the triple play bundled offers of fixed telephony-Internet-Pay TV and fixed telephony-Internet-mobile telephony (both roughly at 630 thousand). Nowadays, three out of four subscribers use to buy fixed telephony as part of a bundled offer. Pay TV becomes increasingly important, as the television subscriptions exceeded one million, 79% of which were sold at the end of 2016 as part of a bundled offer.

### Price Observatory

According to the Price Observatory data registered by the telecommunications operators, the majority of the products pertained to mobile communications (~62%). COSMOTE maintained a balance between basic tariff plans and add-ons (~42-43%), VODAFONE was based primarily on its basic tariff plans (72%) contrary to WIND that seemed to favor mainly its add-ons (46%). COSMOTE and WIND's tariff plans targeted mainly the residential customers (>80%), while over half of VODAFONE's tariff plans (55%) were business-oriented. The majority of the post-paid mobile plans (~53%) consisted of a monthly rental up to 40 euros (on average about 26 euros) and a call allowance of 1000 minutes (on average 375 minutes).

### (b) Postal Services

Despite the competitive conditions and the continuous fall of letter mail volume, the global postal market continued to develop in 2016, mainly thanks to B2C e-commerce growth. The postal

companies that increased the volume of their parcels and express shipments, concentrated on improving the operational efficiency of their delivery networks and focused on developing innovative solutions for the e-commerce consumers. The fast growing cross-border e-commerce market, along with the domestic e-commerce market, remains the main growth factor of the postal market.

In 2016, the Greek postal market showed signs of recovery, as regards revenue, while the volume of handled postal items continued to drop. Specifically, revenue increased by 1% year-on-year, reaching 547.3 million euros, derived from the handling of 376.3 million of items, 4.5% less than previous year.

The Universal Service Provider's (USP) revenue share fell to 38% in 2016 from 42% in 2015, while the courier services operators' share were increased to 59%. Although letter mail continued to hold the largest market share, in terms of both volume (89%) and revenue (56%), the share of parcels-small packages increased in 2016, mainly due to e-commerce growth and the e-substitution of letter mail.

In 2016, apart from the USP, eleven companies with Individual License operated in the Universal Service Area (USA), handling 10% of the USA postal items. In 2016, 76 new companies entered the courier services sector, thus increasing the total number of companies under General Authorization to 509. The postal companies in Greece, including the USP, are now turning towards customer-centric technology-based strategies and are developing innovative products and services, in an effort to acquire a larger market share.







## ELECTRONIC COMMUNICATIONS

### 1.1. The Greek Electronic Communications market

In 2016, the number of licensed providers in the main Electronic Communications market sectors increased marginally to 700 against 691 in 2015 (Chart 1.1) the majority of which (69%) rendered services in the fields of voice telephony and fixed network development. As of the second quarter of 2016, there have been six<sup>1</sup> mobile and fixed telephony operators in Greece (out of which, five were engaged in fixed telephony and four in mobile telephony) (Table 1.1).

The key financial figures of the sector (turnover<sup>2</sup>, gross profit and assets) demonstrated significant changes since the gross profit and assets decreased by 22% and 10% respectively, due to the negative performance of the alternative fixed telephony operators as well as of the

other operators, while turnover increased by 1% (Table 1.2). The contribution of the sector's turnover in Greece's Gross Domestic Product (GDP)<sup>3</sup> stood at 2.8% in 2016, approximately at the same level as in 2015 (Chart 1.2). It should be mentioned that for the 2006-2016 period, the weighted average GDP reduction was -1.9%, which by itself demonstrates the impact the economic crisis had on the sector.

The number of employees in the Electronic Communications stood at 16.8 thousand decreased by 3.4% compared to 2015 (approximately 17.4 thousand), mainly due to the reduction of employees in the fixed telephony operators (Chart 1.3).

Lastly, the general cost trend for Electronic Communications services is reflected in the Consumer Price Index (CPI) over time, as presented in Charts 1.4 and 1.5. The Communica-

1. As of 2009 (following the acquisition of TELLAS), WIND is operating both in fixed and mobile telephony and therefore, the company is counted in both categories. The same is true for CYTA as of 2014, (since the latter is also operating as Virtual Mobile Network Operator (VMNO) as well as for VODAFONE following the acquisition of HOL (HELLAS ON LINE) on 01-04-2016.

2. It should be noted that the sector's turnover has been calculated on the basis of the net revenues from Electronic Communications declared by active, licensed operators and not on the basis of their balance sheets that include revenues from other activities.

3. It should be noted that GDP-related data and components for the period 1995-2004 have been reviewed using 2010 as base year, according to Regulation EU 549/2013 (ESA 2010).

tion Sub-Index showed an upswing for the first time after almost five years, which is partially attributed to the fee levied on Pay TV in June 2016, contrary to the CPI that kept on the downward trend that started in March 2013. According to ELSTAT<sup>4</sup> (Hellenic Statistical Authority), the communications weight coefficient in the total household expenditure used for calculat-

ing the CPI may have decreased to 42.74 from 43 in 2015; however, the consumption expenditure for the purchase of specific telecommunications services as part of the total household expenditure increased, mainly due to the reduction in the price of other goods and services (e.g. housing, transportation, clothing etc.) compared to 2015.

Chart 1.1: Licensed operators (2016)

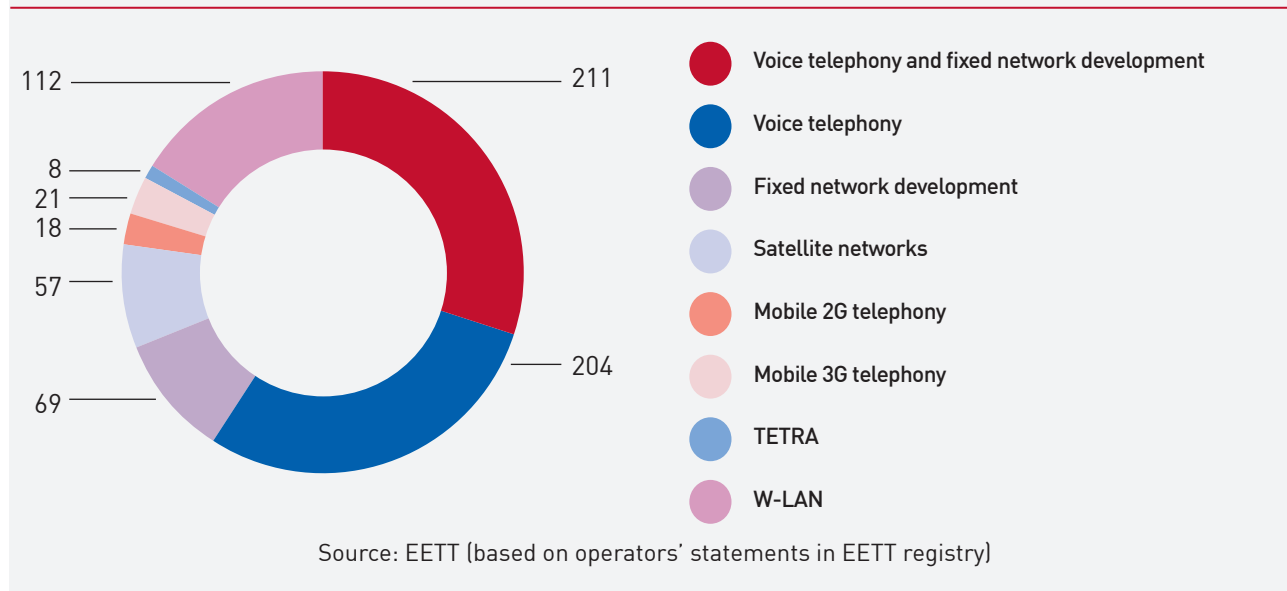


Table 1.1: Active fixed & mobile telephony operators

Operators	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fixed telephony	14	14	14	11	11	11	9	8	8	6	5
Mobile telephony	4	4	3	3	3	3	3	3	4	4	4

Source: EETT

4. Information notice on the CPI and the HICP (Harmonized Index of Consumer Price) (January 2016) <http://www.statistics.gr/el/statistics/-/publication/DKT87/>

Table 1.2: Electronic Communications operators financial figures (in billion euros)

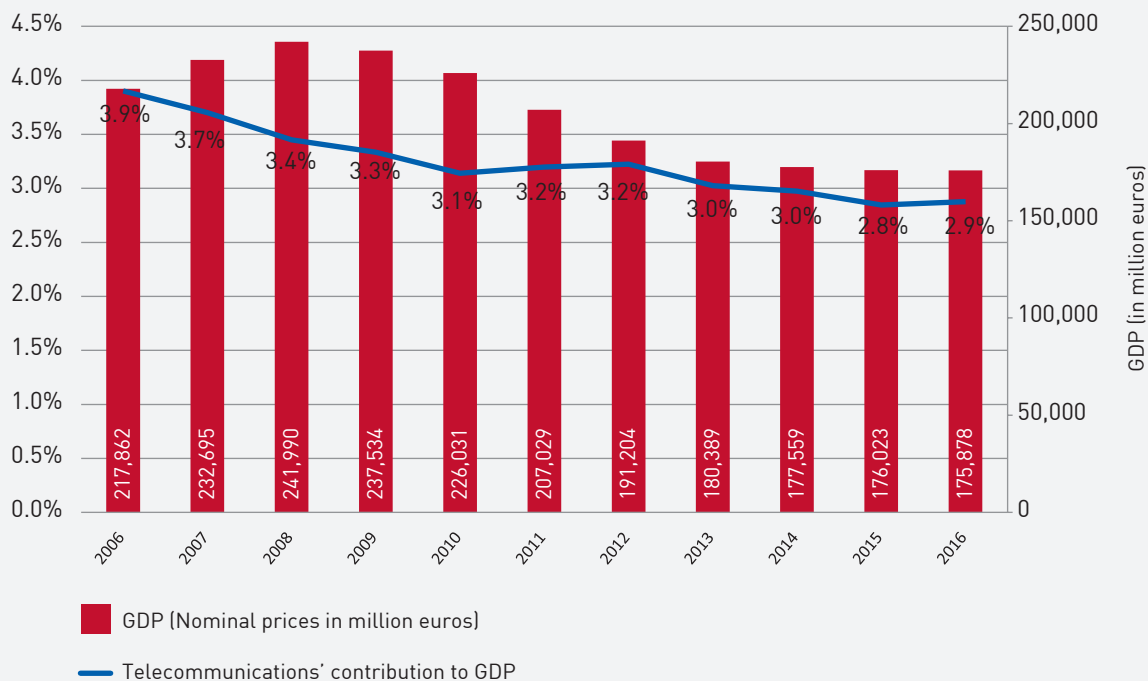
<b>Turnover</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
OTE	2.17	1.91	1.7	1.56	1.51	1.54	1.57
MTOs	3.58	3.23	2.99	2.51	2.37	2.17	2.15
Alternative fixed telephony operators (*)	0.57	0.62	0.63	0.58	0.55	0.81	0.58
Other operators (**)	0.77	0.86	0.84	0.81	0.85	0.49	0.71
<b>Total</b>	<b>7.1</b>	<b>6.62</b>	<b>6.16</b>	<b>5.46</b>	<b>5.28</b>	<b>5.01</b>	<b>5.01</b>
<b>Gross Profit</b>							
OTE	0.14	0.20	0.06	-0.01	0.31	0.23	0.15
MTOs	0.73	0.75	0.64	0.48	0.49	0.14	0.15
Alternative fixed telephony operators (*)	0.01	0.05	0.09	0.09	0.07	-0.03	-0.03
Other operators (**)	0.17	0.18	0.16	0.14	0.15	0.18	-0.03
<b>Total</b>	<b>1.06</b>	<b>1.18</b>	<b>0.96</b>	<b>0.70</b>	<b>1.02</b>	<b>0.53</b>	<b>0.42</b>
<b>Assets</b>							
OTE	7.95	7.76	6.61	6.31	6.48	6.05	6.20
MTOs	7.11	6.81	6.94	6.10	5.98	6.04	5.94
Alternative fixed telephony operators(*)	1.41	1.12	0.92	0.85	0.85	0.77	0.42
Other operators (**)	1.69	1.62	1.54	1.53	1.25	2.14	0.86
<b>Total</b>	<b>18.16</b>	<b>17.31</b>	<b>16.01</b>	<b>14.78</b>	<b>14.59</b>	<b>14.99</b>	<b>13.42</b>

Source: EETT (based on published balance sheets & EETT questionnaires)

\* Includes all licensed fixed telephony operators.

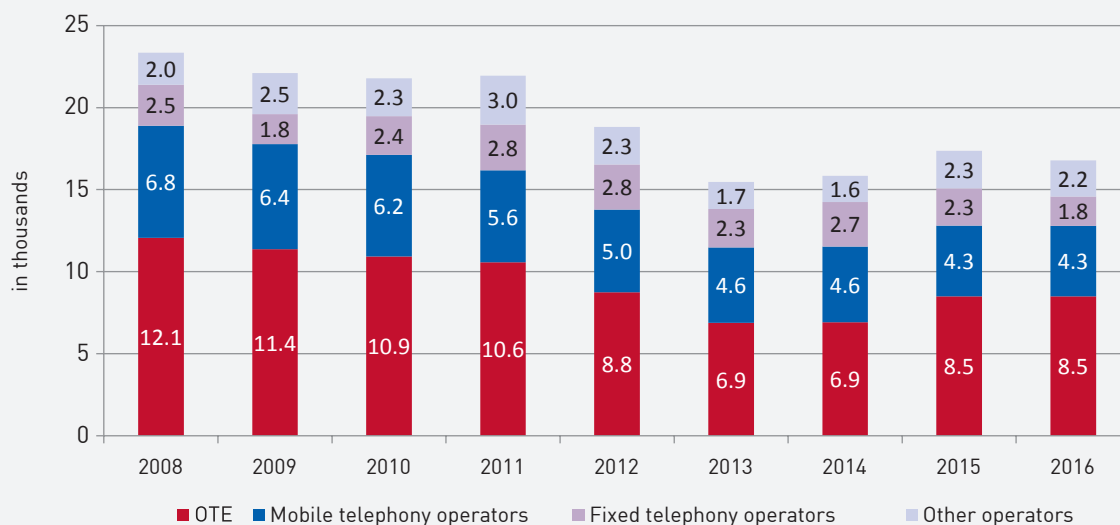
\*\*Includes all other active licensed operators.

Chart 1.2: Telecommunications' contribution to GDP



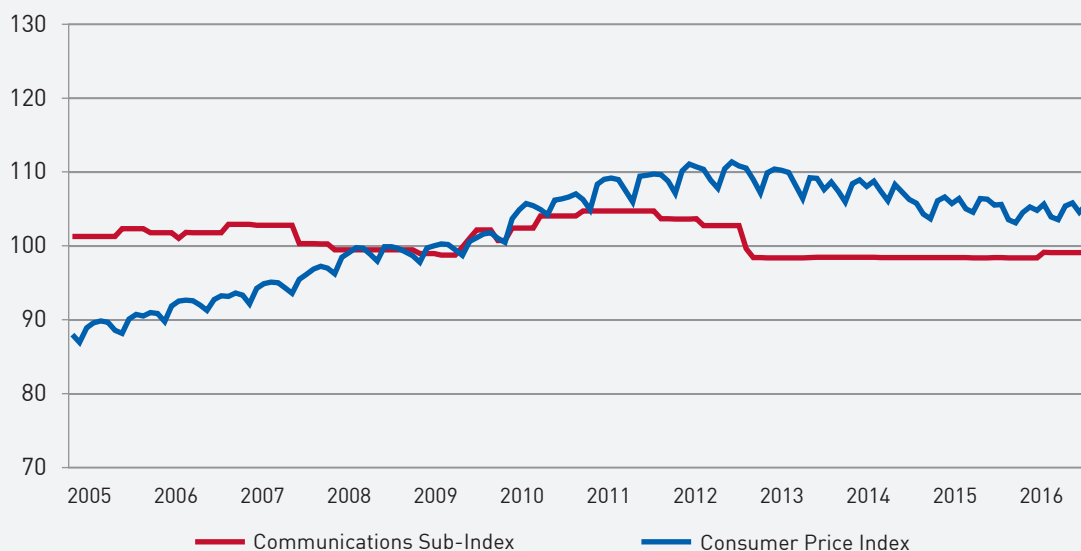
Source: EETT (Based on questionnaires) & ELSTAT

Chart 1.3: Number of personnel



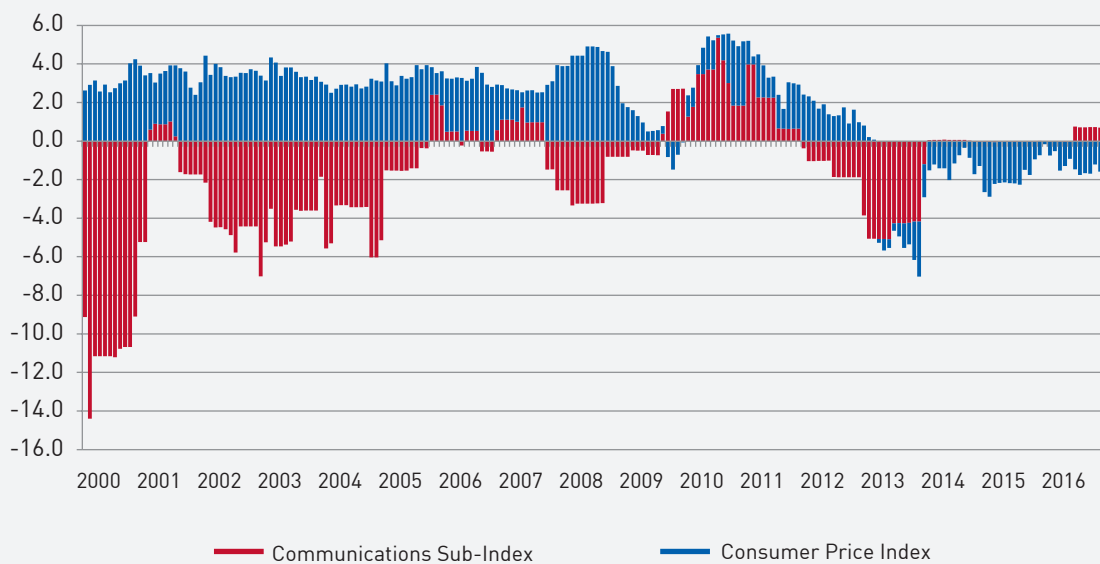
Source: EETT (based on data provided by licensed operators)

Chart 1.4: Progress of the monthly Consumer Price Index  
(General Index – Communications Sub-Index)



Source: EETT (based on ELSTAT data)

Chart 1.5: Variation of the monthly Consumer Price Index over time



Source: EETT (based on ELSTAT data)

## 1.2. Electronic Communications market key figures

### 1.2.1. Financial data

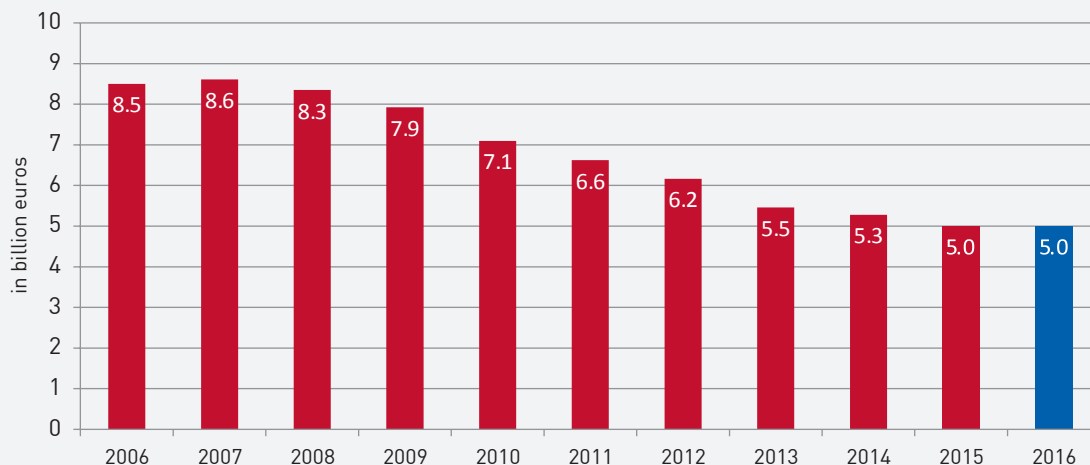
This section presents the Electronic Communications market key financials, based on data gathered by EETT from licensed operators on a semi-annually basis, in terms of turnover, investments etc. In this context, the listed revenues regard fixed and mobile communications, telecommunications equipment and Pay TV from active licensed operators with an annual turnover over 150 thousand euros.

- The telecommunications industry turnover in 2016 stood at the same levels as in 2015 exceeding marginally 5 billion euros (Chart 1.6). OTE's turnover increased by 2.1%, mainly due the revenue growth from broadband services (increase of broadband lines by 8.6%) and Pay TV services (increase of TV subscribers by 12.7%) (Chart 1.7).
- Revenues from telecommunications services account for the vast majority of the turnover (88%) (Chart 1.8), with revenues from Pay TV services increasing also their share to 5.3% (compared to 5% in 2015).
- Revenues from fixed telephony services represent approximately 54% of the revenues from telecommunications services (Chart 1.9) and are generated by the provision of retail (telephony and Internet, including access to the telephone network, leased lines etc.) and wholesale telecommunications services (i.e. interconnection, wholesale access – LLU). Respectively, revenues from mobile communication services include retail revenues from mobile telephony voice and data services, as well as wholesale interconnection revenues, roaming etc.
- Retail revenues from telephony and Internet services represented almost 69% of the total fixed networks' revenues, followed by the wholesale access services' revenues (11.4% of total revenues) (Chart 1.10). As regards mobile networks and services, retail revenues from voice and data services represented the vast majority of total revenues with 66% and 21% respectively (Chart 1.11).
- The total investments made by electronic communications operators (Chart 1.12) increased

considerably by 69% accounting for 22.6% of the total sector's turnover, and this is mainly attributed to VODAFONE's increased investments in fixed networks (acquisition of HOL). Consequently for 2016, the majority of investments (70%) regarded fixed networks and the rest 30% was invested in mobile networks.

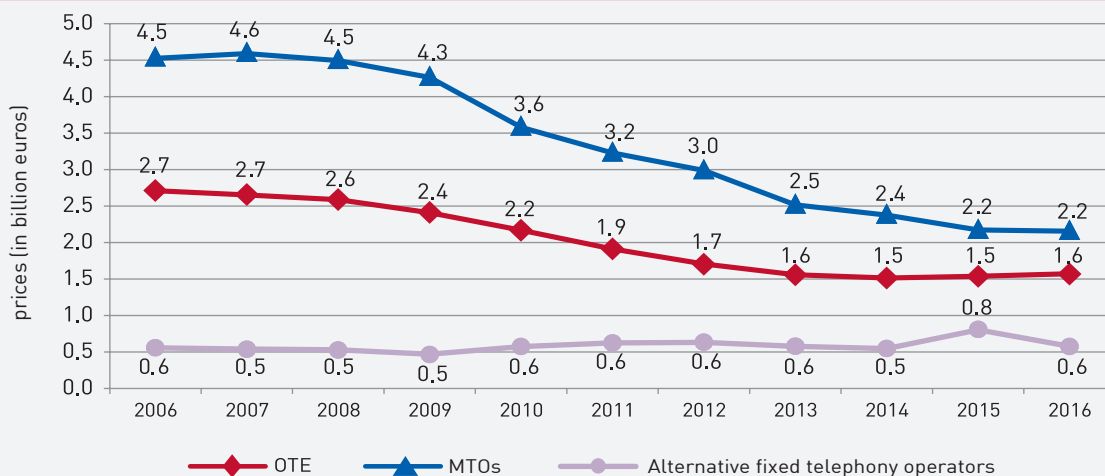
- In 2016, most of the investments made by Electronic Communications operators (Chart 1.13) were directed towards telecommunications' infrastructure and research and development (i.e., software, new services, etc.).
- The weighted average turnover's decrease during the period 2010-2016 ranged at almost the same levels with those of the corresponding period 2010-2015 (-6.7% and -6.1%). On the contrary, investments attained a weighted average increase of 1.1% (Chart 1.14). Consequently for the same period, OTE may have lost on average 6.3% of its revenues, but increased its investments by 5.7%.
- For the largest fixed and mobile telephony operators, investments represent 5% to 22% of the total revenues of Electronic Communications services. VODAFONE was the exception to the rule, whose rate has risen significantly almost to 60% due to HOL acquisition. (Chart 1.15).
- For the largest fixed and mobile telephony operators, the Profits Before Interest, Taxes, Depreciation and Amortization (EBITDA) increased by 2.8% compared to 2015. It is highlighted that, compared to 2008 and taking into consideration the merging and acquisition outcomes, the EBITDA profitability index seems to be gradually recovering during the recent years rising to 1.3 billion euros against almost 2 billion euros in 2008 (Chart 1.16).

Chart 1.6: Turnover of Electronic Communications operators



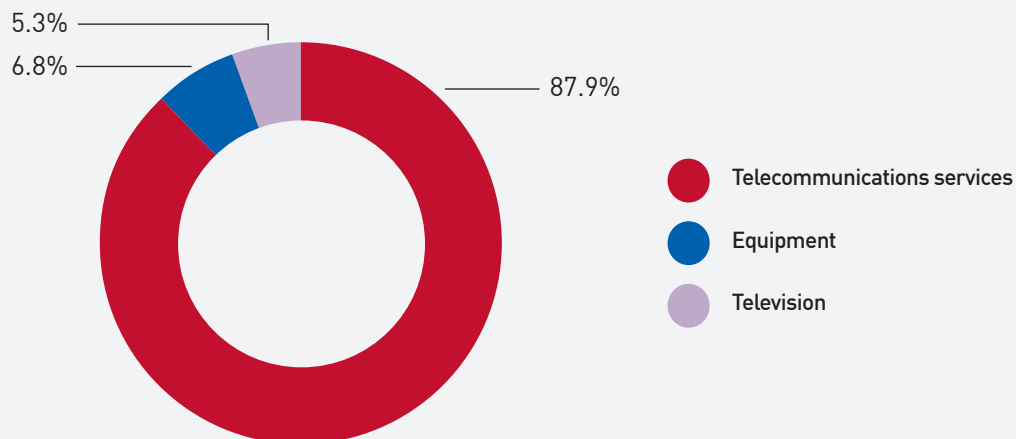
Source: EETT (based on data provided by the active licensed operators)

Chart 1.7: Turnover of fixed & mobile telephony operators



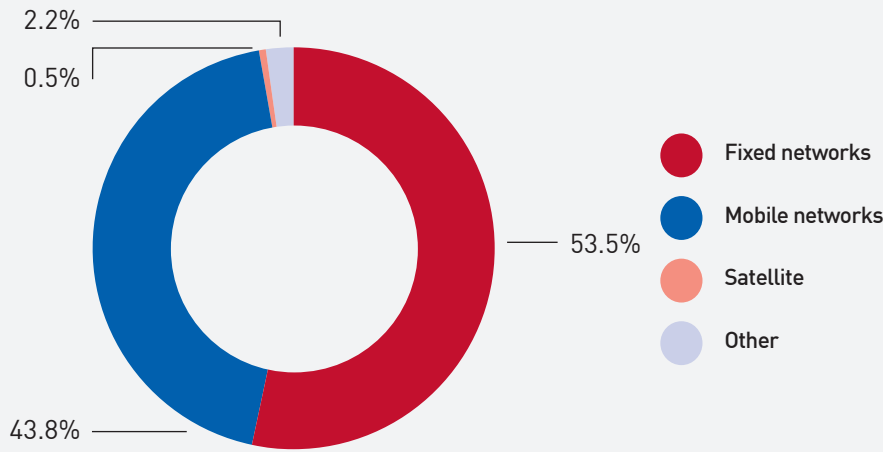
Source: EETT (based on data provided by the active licensed operators)

Chart 1.8: Turnover breakdown



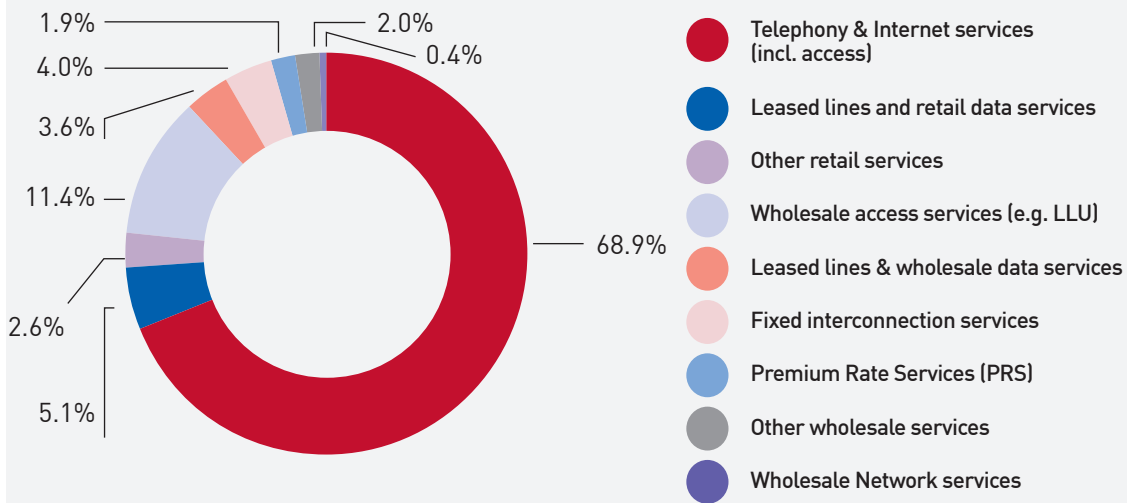
Source: EETT (based on data provided by the active licensed operators)

Chart 1.9: Telecommunications services breakdown



Source: EETT (based on data provided by the active licensed operators)

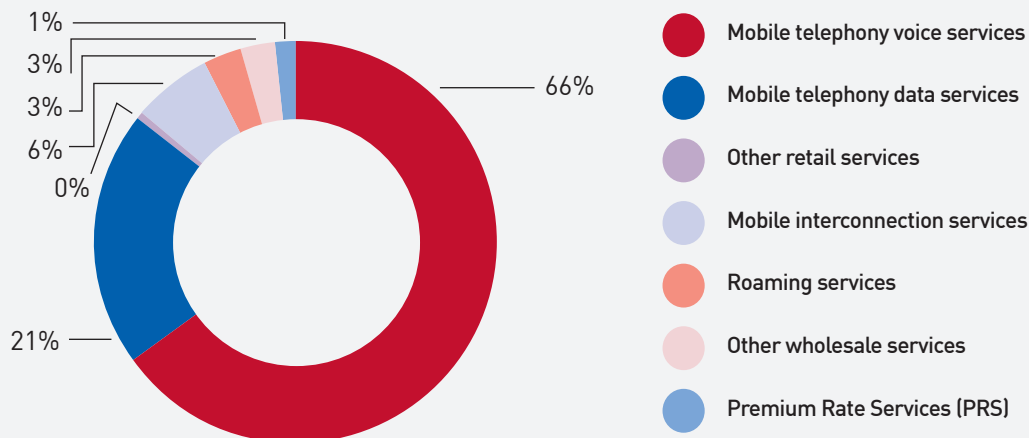
Chart 1.10: Fixed networks revenues breakdown



Source: EETT (based on data provided by the active licensed operators)

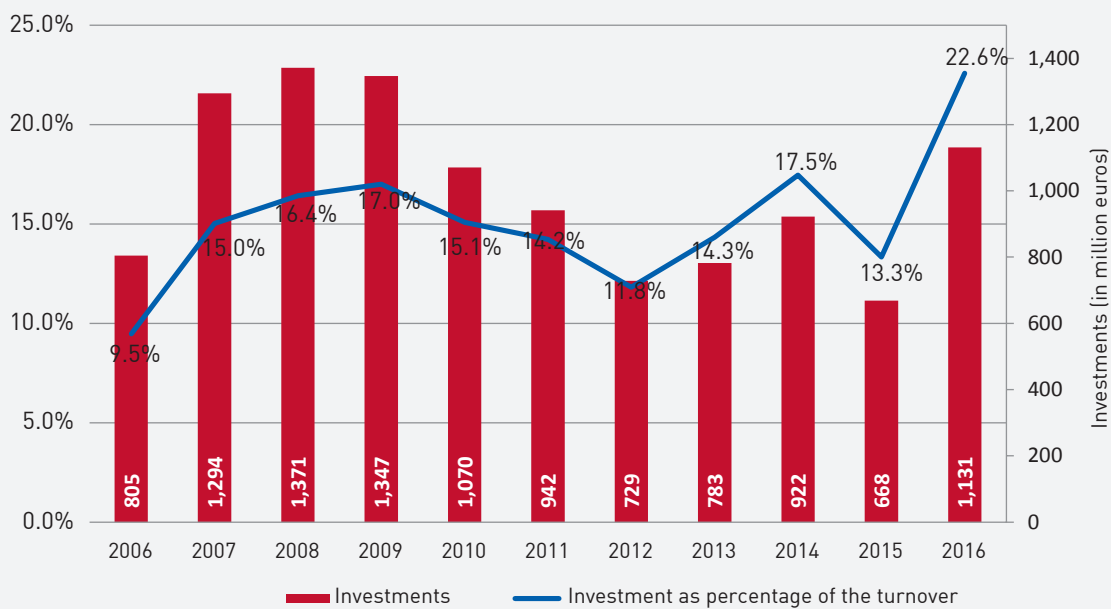


Chart 1.11: Mobile networks revenues breakdown



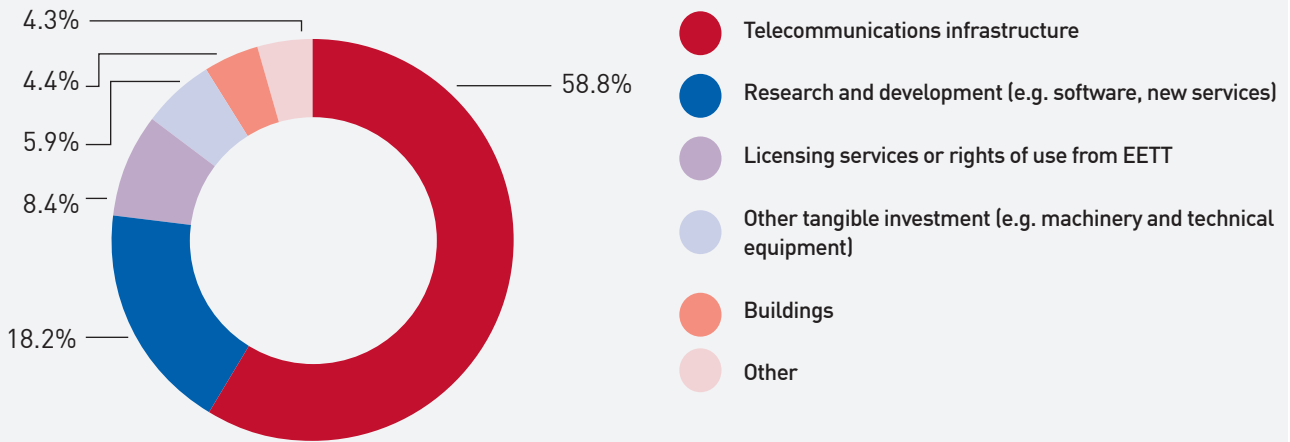
Source: EETT (based on data provided by the active licensed operators)

Chart 1.12: Electronic Communications operators' investments



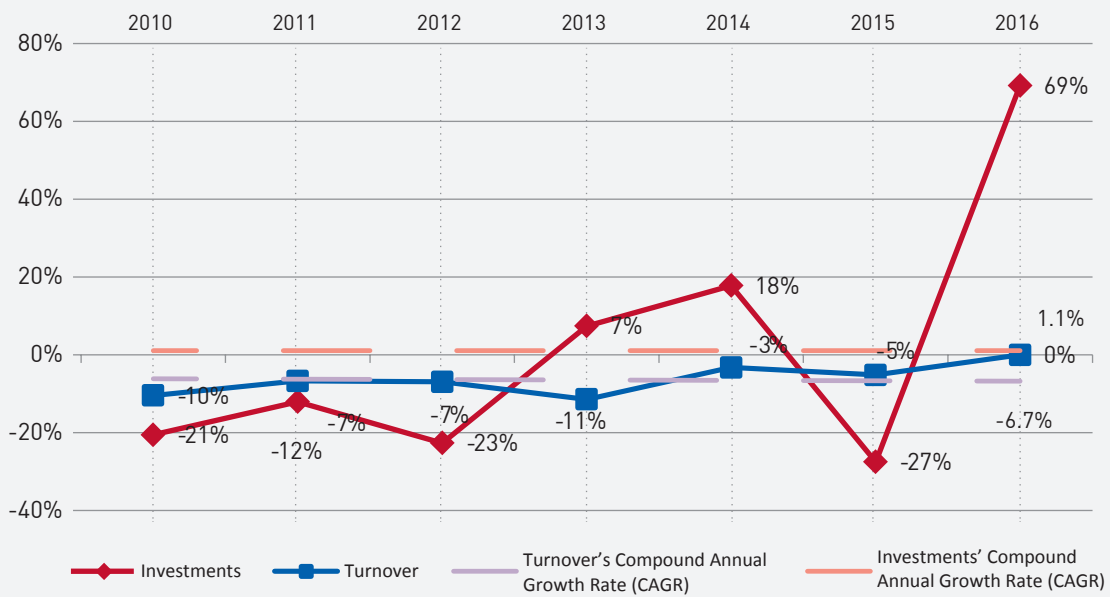
Source: EETT (based on data provided by the active licensed operators)

Chart 1.13: Electronic Communications operators' investments breakdown for 2016



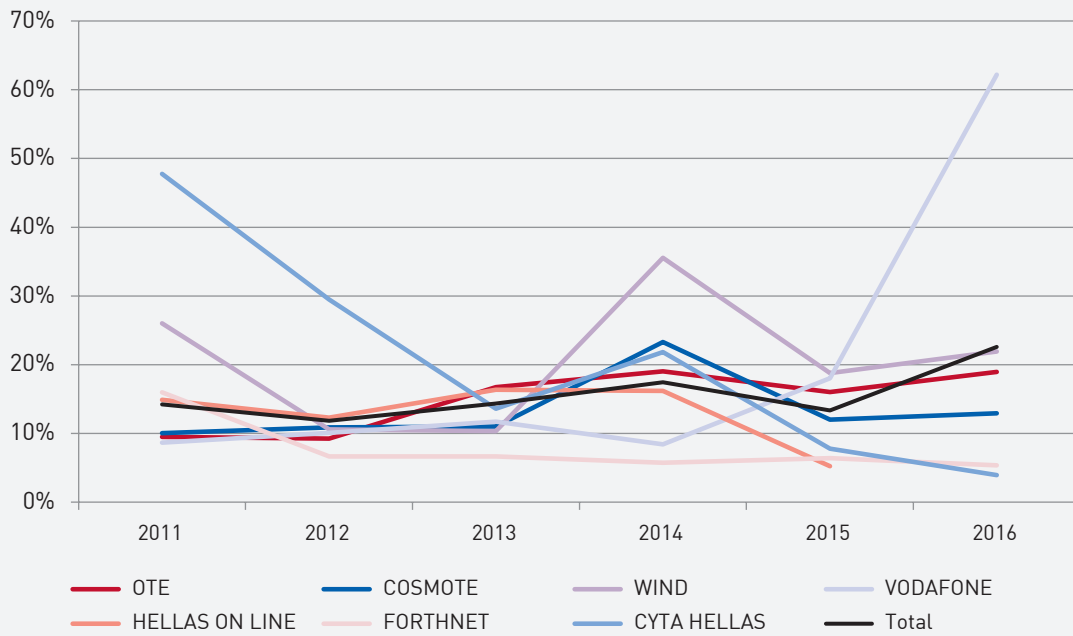
Source: EETT (based on data provided by the active licensed operators)

Chart 1.14: Growth rate of investments/turnover ratio



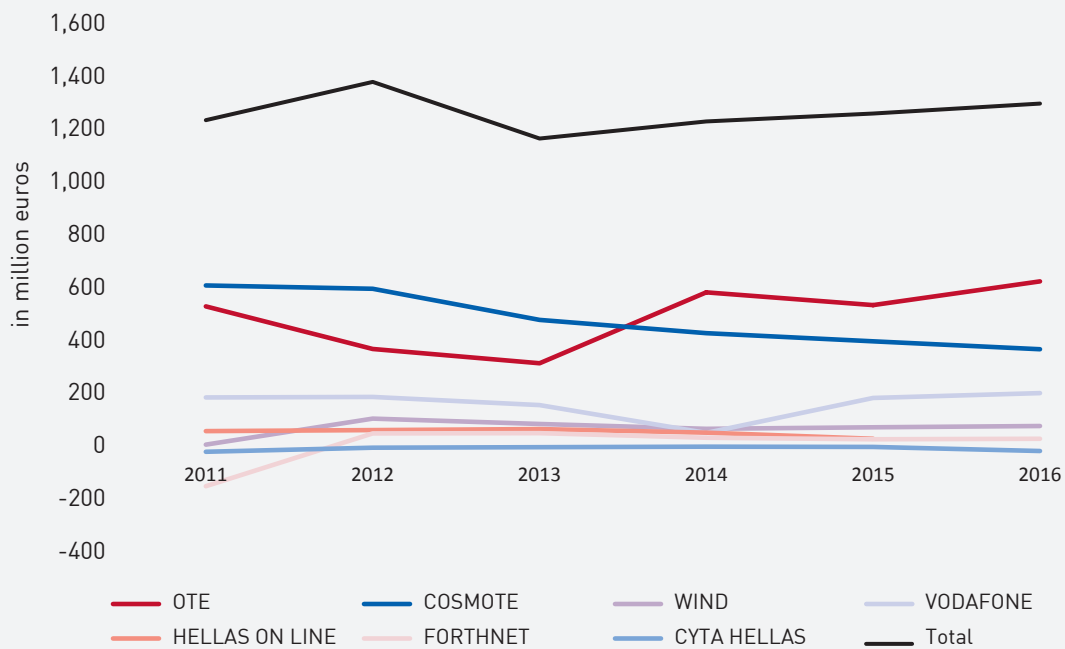
Source: EETT (based on data provided by the active licensed operators)

Chart 1.15: Investments/turnover ratio



Source: EETT (based on data provided by the active licensed operators)

Chart 1.16: Profits Before Interest, Tax, Depreciation and Amortization (EBITDA)



Source: EETT (based on data provided by the active licensed operators)

### 1.2.2. Fixed communications<sup>5</sup>

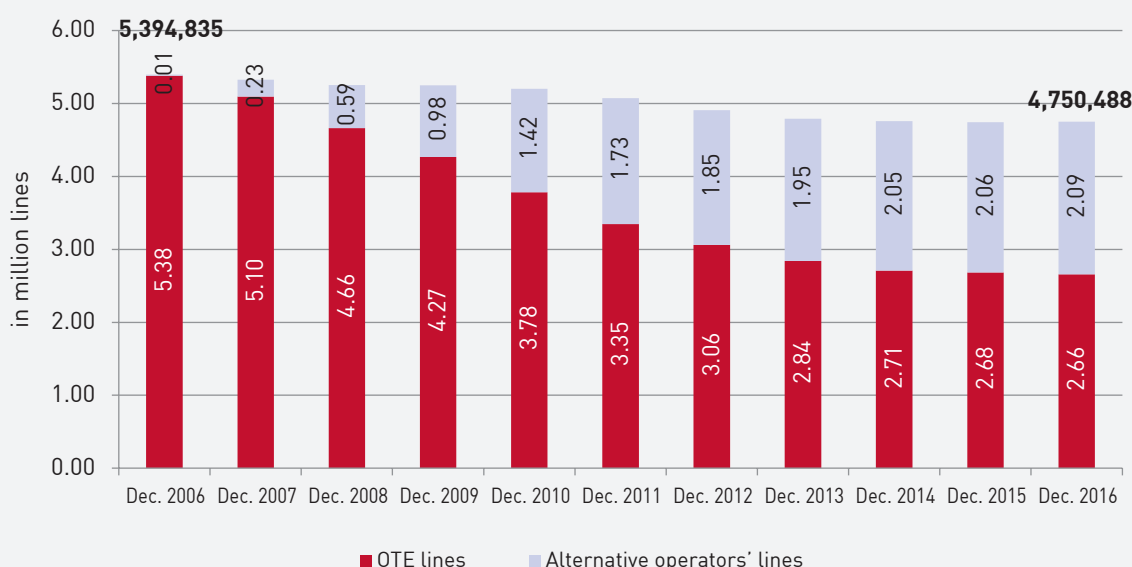
#### Access and subscriptions

In December 2016 the number of access lines to the public telephone network at a fixed location raised to 4,750,488, i.e. 44.1% penetration in the population compared to 4,743,358 in December 2015, having increased slightly (0.15%), for the first time in the last decade, compared to the previous year (Chart 1.17 and Table 1.3).

OTE's telephone lines marked a decrease of 26,467 lines, similar to the one recorded in the

previous year (decrease of 26,991 lines in 2015) and its share fell to 56% at the end of 2016 compared to 56.6% at the end of 2015. It's worth mentioning that nowadays, 23% of OTE's lines are Managed VoIP ones, a considerable growth compared to last year (3% in 2015). That percentage is expected to increase further. The other operators' lines increased further (33,597 lines during 2016 against 12,078 lines during 2015), gaining a share of 44% versus 43.4% at the end of 2015 (Chart 1.18).

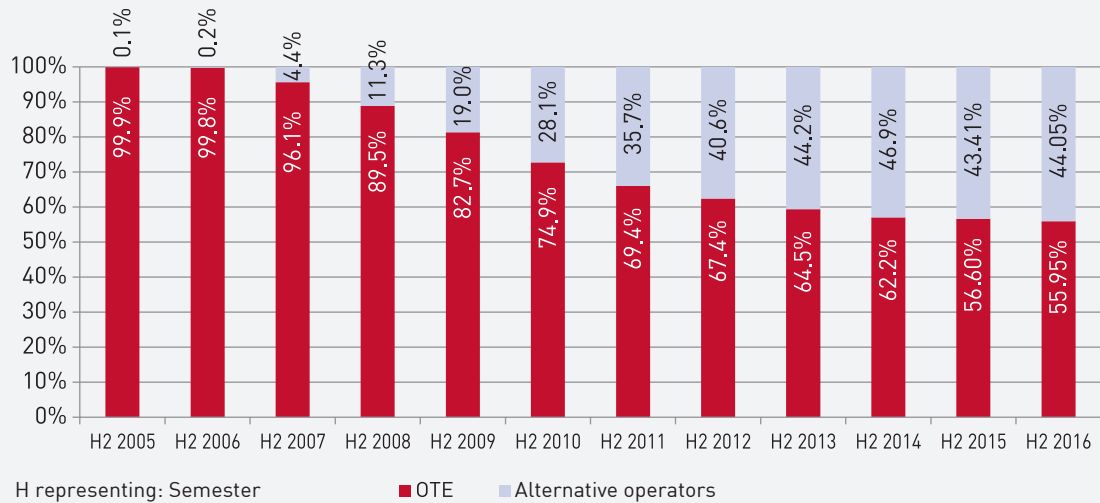
Chart 1.17: Progress of telephone lines



Source: EETT (based on data provided by the active licensed operators)

5. Please note that all the data presented in this report relates to subscriber services. Card telephony services (pre-paid services) are not included.

Chart 1.18: Market shares based on the total number of access lines  
(at the end of the semester)



Source: EETT (based on data provided by the active licensed operators)

Table 1.3: Progress of telephone lines

	OTE lines					Alternative operators' lines					Total lines
	PSTN	ISDN BRA	Managed VoIP	ISDN PRA	Total	PSTN and ISDN BRA without Wholesale Line Rental	PSTN and ISDN BRA through Wholesale Line Rental	Managed VoIP	ISDN PRA	Total	
Dec. 2000	5,659,274	96,972	-	3,946	5,760,192	-	-	-	-	0	5,760,192
Dec. 2001	5,607,726	199,033	-	5,385	5,812,144	-	-	-	-	0	5,812,144
Dec. 2002	5,412,796	349,751	-	6,023	5,768,570	93	-	-	-	93	5,768,663
Dec. 2003	5,200,231	448,542	-	6,766	5,655,539	650	-	-	-	650	5,656,189
Dec. 2004	5,078,908	525,499	-	7,138	5,611,545	1,787	-	-	-	1,787	5,613,332
Dec. 2005	4,927,622	578,505	-	7,094	5,513,221	5,018	-	-	444	5,462	5,518,683
Dec. 2006	4,778,245	597,867	-	6,213	5,382,325	12,176	-	-	334	12,510	5,394,835
Dec. 2007	4,509,564	579,533	-	6,185	5,095,282	205,707	-	26,875	480	233,062	5,328,344
Dec. 2008	4,110,102	548,388	-	5,971	4,664,461	547,242	-	41,992	681	589,915	5,254,376
Dec. 2009	3,744,759	517,337	-	5,677	4,267,773	848,354	42,405	89,524	695	980,978	5,248,751
Dec. 2010	3,306,469	473,183	-	5,259	3,784,911	1,191,665	71,883	154,833	747	1,419,128	5,204,039
Dec. 2011	2,917,578	426,830	-	4,808	3,349,216	1,395,486	82,091	246,697	1,820	1,726,094	5,075,310
Dec. 2012	2,670,296	387,692	-	4,320	3,062,308	1,415,564	63,964	364,288	2,791	1,846,607	4,908,915
Dec. 2013	2,484,926	354,655	-	3,791	2,843,372	1,516,775	47,082	380,420	3,025	1,947,302	4,790,674
Dec. 2014	2,377,849	330,034	-	3,499	2,711,382	1,612,296	35,325	396,306	2,962	2,046,889	4,758,271
Dec. 2015	2,298,569	303,791	78,789	3,242	2,684,391	1,651,635	14,344	390,189	2,799	2,058,967	4,743,358
Dec. 2016	1,782,963	262,449	609,443	3,069	2,657,924	1,706,449	9,386	374,609	2,120	2,092,564	4,750,488

Source: EETT

### Retail outgoing traffic

The fixed telephony traffic, dropped by 6% in 2016 amounting to 16.5 billion minutes (Chart 1.19), mainly due to the reduction of national fixed calls' duration as well as of international calls. The duration of the fixed to mobile calls increased for the third consecutive year (3.2% in 2016, 12.8% during 2015 and 6.3% during 2014) due to the extended inclusion of such calls in the call allowance of the offered packages (Chart 1.20 & 1.21). It is noted that, the last five years the duration of the main call types represented the 98% of duration of all call types. Regarding the breakdown of the main call types, 83% were national fixed calls, 14% calls to mobiles and the remaining 3% international calls. More information on the progress of traffic per call type is presented in Table 1.4.

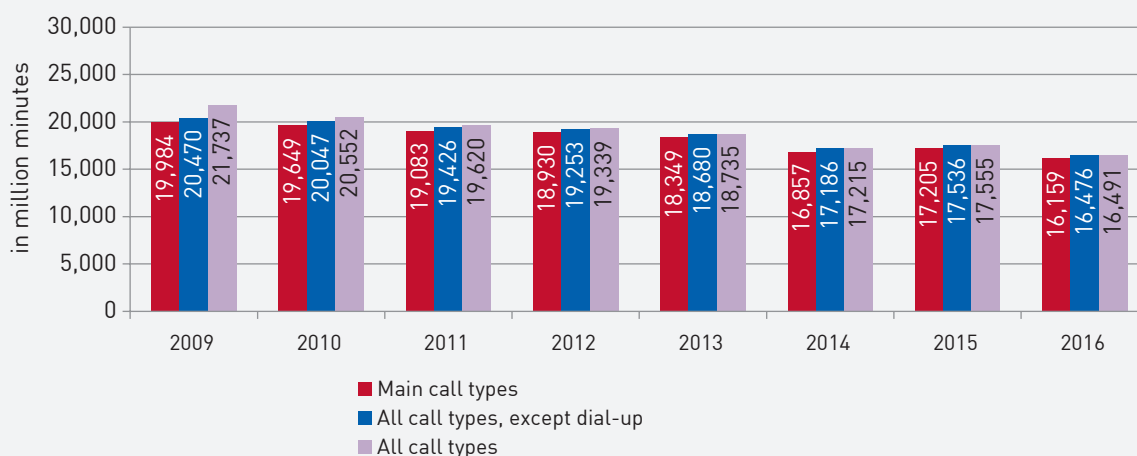
OTE's traffic share decreased slightly in 2016, by less than a percentage point (compared to 2015) and it is estimated to 45.2% for the total traffic

and to 44.9% for the traffic of the main call types (Chart 1.22). This is mainly due to the fact that the growth rate of other operators' fixed to mobile traffic persisted throughout 2016, marking a 6% increase (Chart 1.23).

The domestic fixed communications market was highly concentrated, since cumulatively the 99.5% of the shares was held by OTE and another four operators, following the acquisition of HELLAS ON LINE in 2016. These operators are: CYTA, FORTHNET, VODAFONE and WIND (Chart 1.24).

Chart 1.25 presents, total traffic's breakdown over time (excl. dial-up calls) between OTE and the alternative operators. As already mentioned, fixed telephony traffic decreased by 6% in 2016, compared to 2015, with OTE marking the highest decrease compared to the alternative operators (7.5% against 4.8%). The average duration of the main call types in 2016 reached 283,45 minutes per month, per connection.

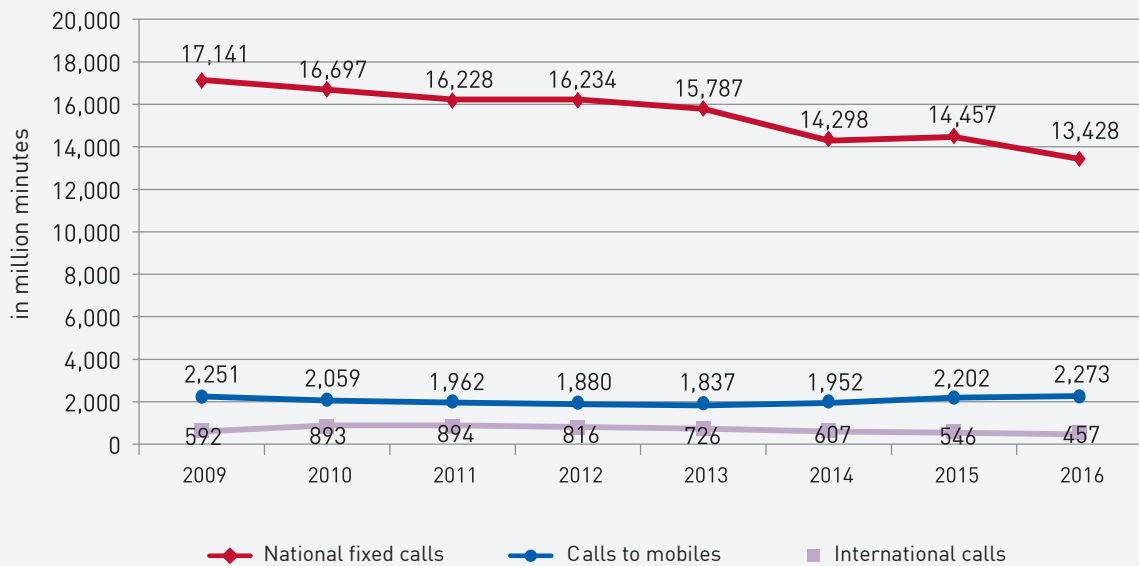
Chart 1.19: Progress of the fixed outgoing traffic



Source: EETT (based on data provided by the active licensed operators)

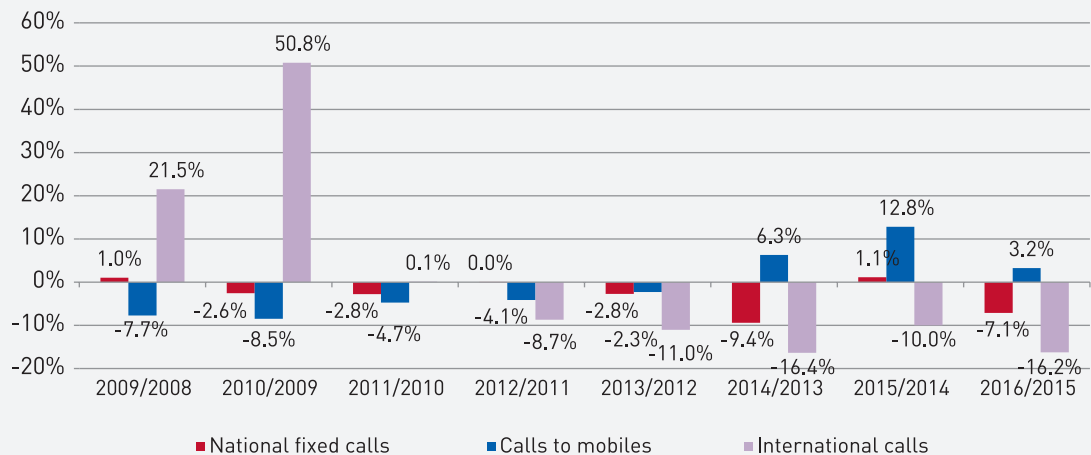
Note: The main call types include the national fixed calls (e.g. the local and the national calls), the calls to mobile and the international calls)

Chart 1.20: Fixed outgoing traffic for the main call types



Source: EETT (based on data provided by the active licensed operators)

Chart 1.21: Annual change of fixed outgoing traffic



Source: EETT (based on data provided by the active licensed operators)

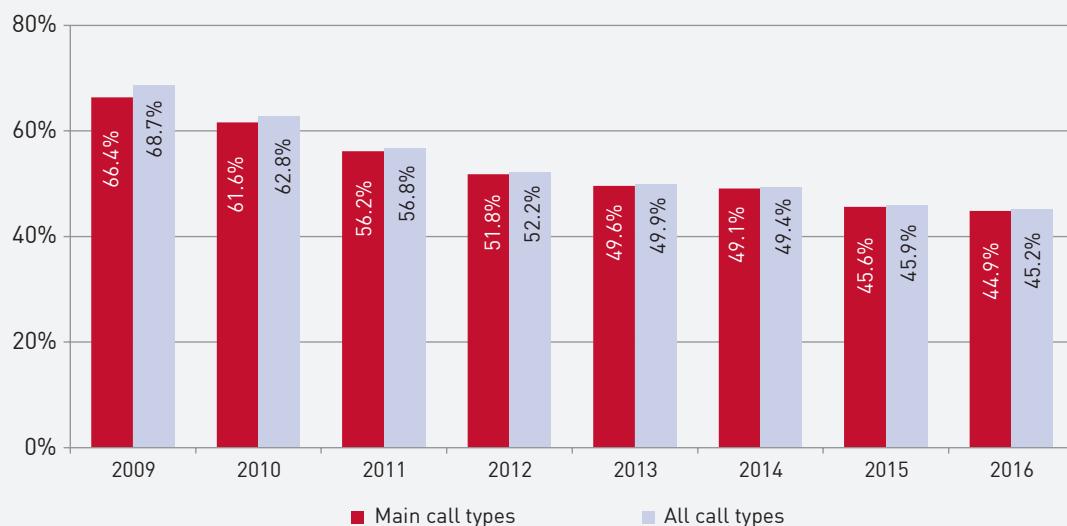
Table 1.4. Volume per call type (in million minutes)

	Call type	2009	2010	2011	2012	2013	2014	2015	2016
Main call types	National fixed calls	17,141	16,697	16,228	16,234	15,787	14,298	14,457	13,428
	Calls to mobiles	2,251	2,059	1,962	1,880	1,837	1,952	2,202	2,273
	International calls	592	893	894	816	726	607	546	457
Other call types	Dial-up calls	1,267	505	194	86	55	29	19	15
	Calls to personal numbers (series 70)	0.00	0.05	0.13	0.13	0.14	0.14	non available	non available
	Calls to toll free services (FreePhone - 800)	30	24	23	23	26	31	58	54
	Calls to shared cost services (Shared cost-801)	158	77	52	35	33	31	0	0
	Calls to short code services (3-digits, 4-digits, 5-digits) See Note 1	288	236	225	220	219	229	238	230
	Calls to added value services See Note 2	10	61	43	45	53	37	35	34
<b>Main call types</b>		19,984	19,649	19,083	18,930	18,349	16,857	17,205	16,159
<b>All call types, except dial-up</b>		20,470	20,047	19,426	19,253	18,680	17,186	17,536	16,476
<b>All call types</b>		21,737	20,552	19,620	19,339	18,735	17,215	17,555	16,491

Note 1: Up to 2009, the calls to short code services include short codes for added value services. Since 2010 onwards, they do not include them.

Note 2: Up to 2009, the calls to value added services refer only to the code 90 calls. Since 2010 onwards, they refer to all the added value services, including the short codes for added value services.

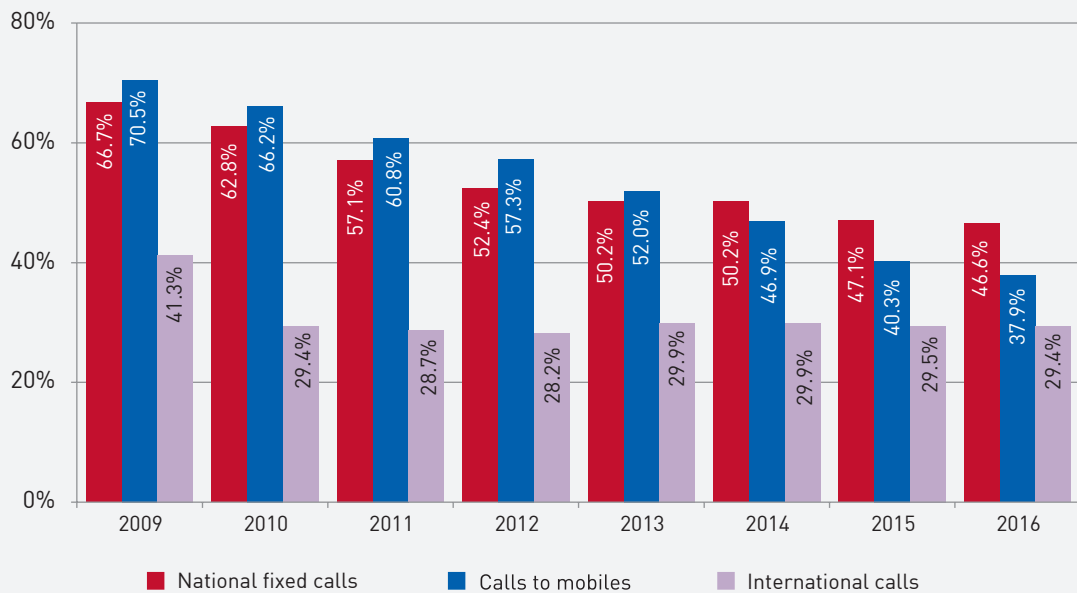
Chart 1.22: OTE's annual market shares (based on outgoing traffic)



Source: EETT (based on data provided by the active licensed operators)

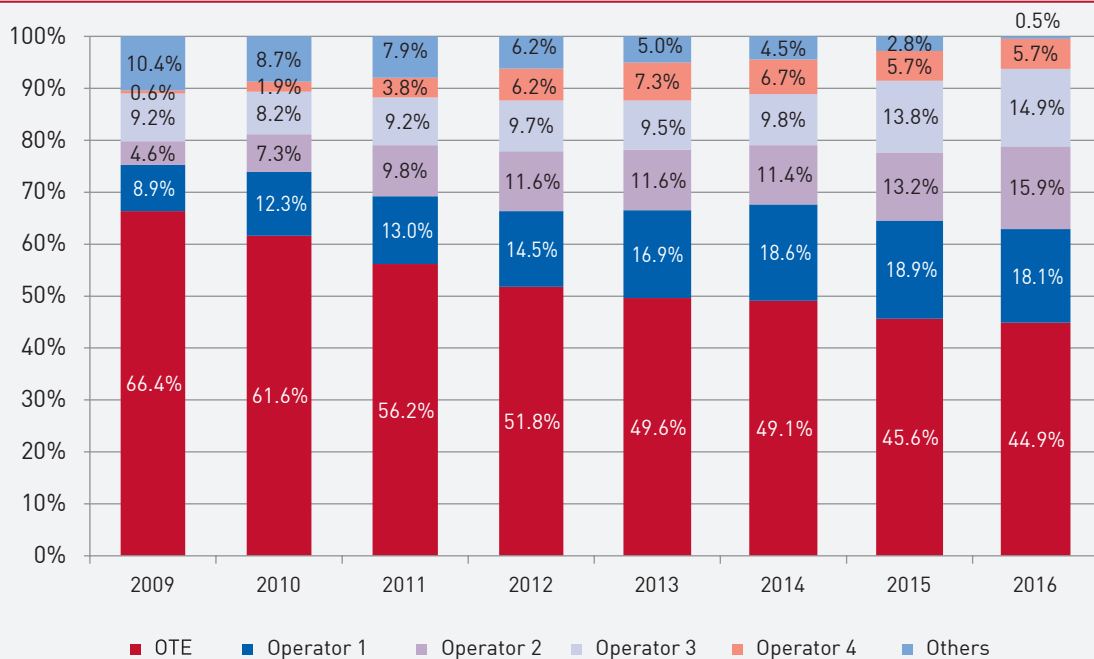


Chart 1.23: OTE market shares per main call type (based on traffic)



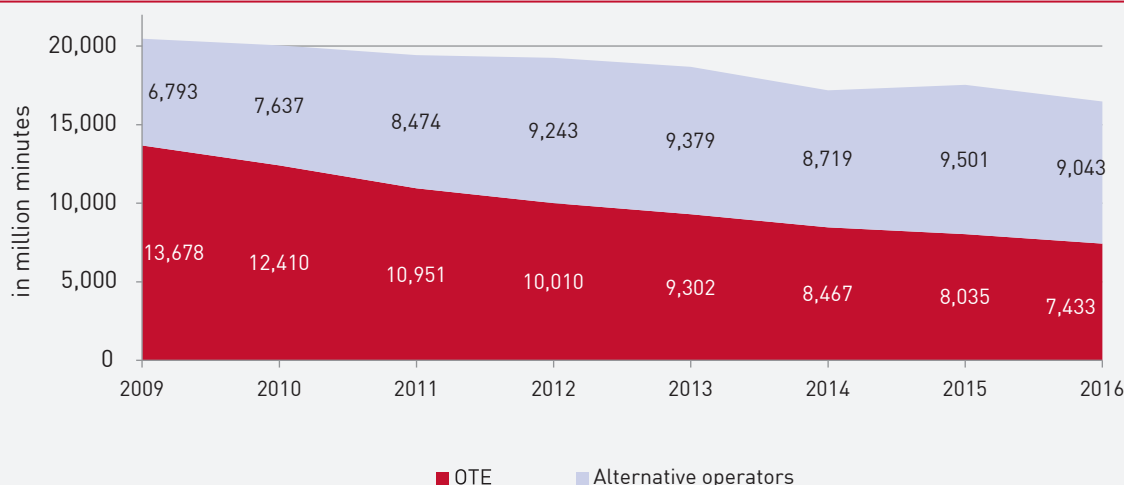
Source: EETT (based on data provided by the active licensed operators)

Chart 1.24: Market shares for the main call types (based on traffic)



Source: EETT (based on data provided by the active licensed operators)

Chart 1.25: Outgoing traffic volume for OTE and the alternative operators (excl. dial-up)



Source: EETT (based on data provided by the active licensed operators)

**Retail revenue from the provision of telephony and Internet services at a fixed location<sup>6</sup>**

In 2016, the retail revenues from the provision of telephony and Internet services at a fixed location increased to 1.41 billion euros, making a slight increase of 0.4% compared to 2015 (Chart 1.26). Despite the fact that the telephony services at a fixed location retail revenue decreased by 23.3 million euros, i.e. by 2.1% compared to previous year, the Internet services revenue increased by 9.7% compared to 2015 and reached 331.3 million euros. It should be noted that the revenues presented here are prior to any clearing with other third parties and that the telephony revenues include revenues from both access<sup>7</sup> and all type of calls<sup>8</sup>.

The average monthly revenue from telephony and Internet services at a fixed location reached 24.75 euros for 2016, while just from the telephony services at a fixed location it was 18.94 euros. The average revenue per minute of outgoing traffic to all call types reached an average 0.065 euros in 2016.

OTE's total share based on the telephony and Internet retail revenues remained relatively stable (approximately 61%) during the last four years (Chart 1.27 and Table 1.5). Just as the case was

for the total market, the 2.6% decrease of retail telephony revenues in 2016, was offset by the 11.8% increase of retail Internet revenues compared to 2015.

The market share of the operators of telephony and Internet services at a fixed location, as of the end of 2016, is presented in Table 1.5.

Table 1.5: Market share of operators of telephony and Internet services at a fixed location

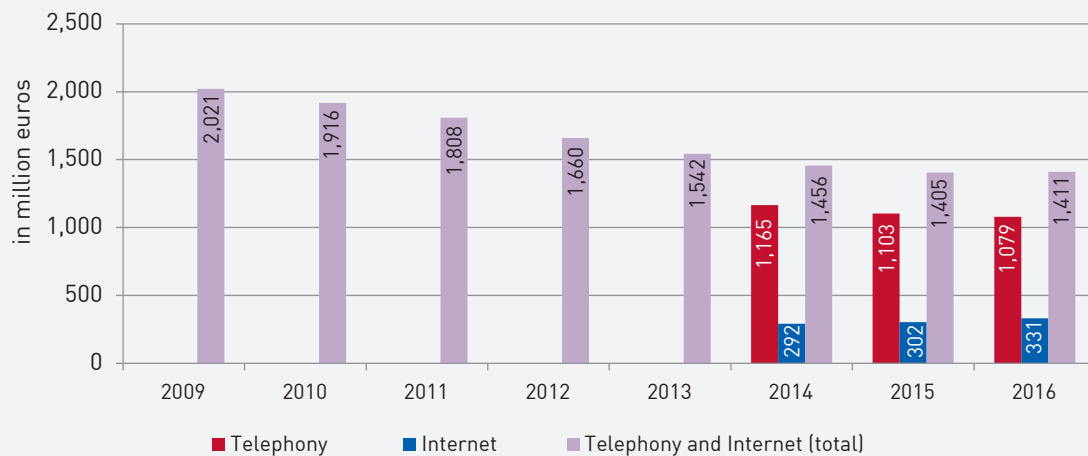
	Dec-16
<b>OTE</b>	~61%
<b>VODAFONE</b>	10%-15%
<b>FORTHNET</b>	10%-15%
<b>WIND</b>	5%-10%
<b>CYTA</b>	5%-10%
<b>Others</b>	0%-5%

6. Please note that all the data presented in this report relates to subscriber services. Card telephony services (pre-paid services) are not included.

7. Including initial connection/installation fees, monthly rental for the access line to telephony services and revenues from additional facilities.

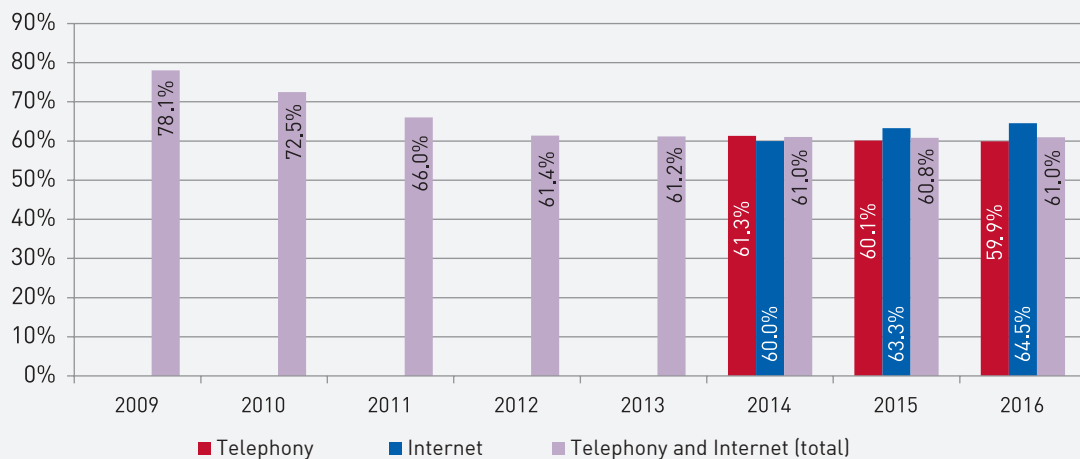
8. Please note that the data available in this section and particularly the breakdown of telephony and Internet revenues are based on estimations made by most of the operators.

Chart 1.26: Retail revenues from the provision of telephony and Internet services at a fixed location



Source: EETT (based on data provided by the active licensed operators)

Chart 1.27: OTE's market share (based on the retail revenues from telephony and Internet services at a fixed location)



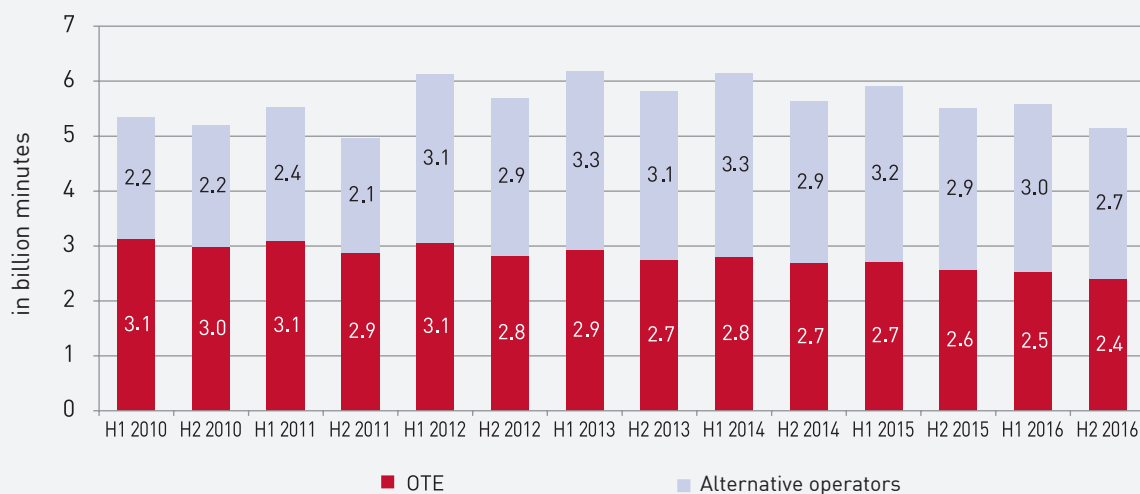
Source: EETT (based on data provided by the active licensed operators)

### Fixed telephony interconnection

In 2016, call termination (Chart 1.28) reached 5.15 billion minutes at the end of the year, having decreased by 7% compared to the respective period in 2015 (5.51 billion minutes). During the last five years, the termination traffic to the alternative operators' fixed telephony networks exceeded that to OTE's network. The overall call termination traffic to fixed telephony networks

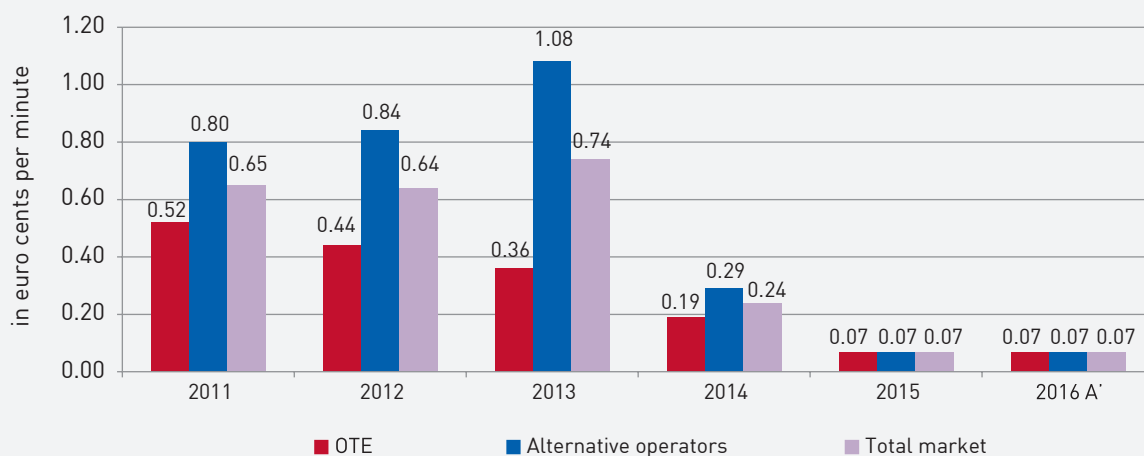
showed a slight decrease in the past few years. During the last two years, termination fees were symmetrical for all the fixed telephony operators (Chart 1.29).

Chart 1.28: Call termination traffic to fixed telephony networks (OTE - alternative operators)



Source: EETT (based on data provided by the active licensed operators)

Chart 1.29: Actual interconnection fees (2016)



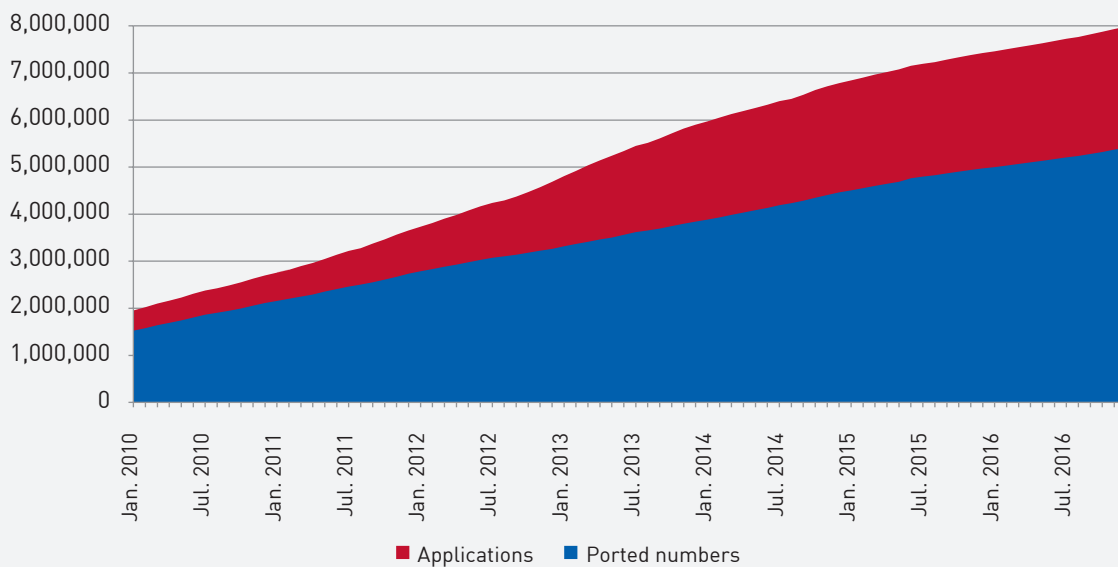
Source: EETT (based on data provided by the active licensed operators)

**Number portability for fixed telephony**

During 2016, 590,908 applications were submitted compared to 639,865 applications in 2015, marking a 12.3% drop. In 2016 respectively, 440,061 numbers were ported, being reduced by 13.7%

compared to 2015 (Chart 1.30). Consequently, an approximate 80% of the initial number portability applications were successfully completed.

Chart 1.30: Number portability for fixed telephony



Source: EETT

### 1.2.3. Mobile communications

#### Connections

At the end of 2016, total mobile telephony<sup>9</sup> connections increased slightly, while the number of active connections<sup>10</sup> remained stable compared to 2015. More specifically at the end of 2016, total mobile connections increased by 3.8% and amounted to 15.9 billion compared to 15.4 billion connections at the end of 2015 (Table 1.6 and Chart 1.31).

Both post-paid connections and pre-paid registered connections remained roughly at the same level as at the end of 2015 (4.2 million post-paid subscribers and 11.7 million prepaid registered users) (Chart 1.32). The number of prepaid registered connections showed a slight increase by 5%, that is, from 11.1 million at the end of 2015 to 11.7 million at the end of 2016 (Chart 1.32 and Table 1.7).

Residential users increased by 4% coming up to 14.7 million while business users showed stability overtime, ranging at almost 1.25 million (Table 1.8 and Chart 1.33).

Table 1.6: Total and active mobile telephony connections (without datacards)

Connections	Registered	Active
Dec. 2006	13,874,674	11,097,515
Dec. 2007	16,226,675	12,294,912
Dec. 2008	18,918,092	13,799,340
Dec. 2009	20,298,102	13,295,093
Dec. 2010	14,815,705	12,292,716
Dec. 2011	14,557,672	12,127,985
Dec. 2012	15,151,742	12,897,306
Dec. 2013	15,722,476	12,518,645
Dec. 2014	15,473,683	12,144,598
Dec. 2015	15,353,553	12,566,650
Dec. 2016	15,934,294	12,538,927

Source: EETT (based on data provided by MTOs)

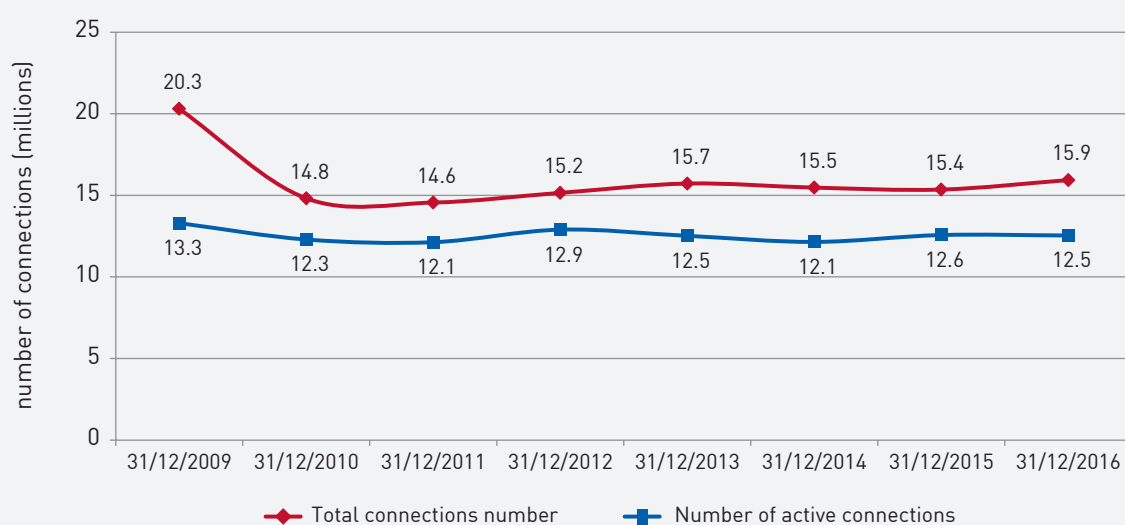
9. The term used is "connection" or "subscription" instead of "subscriber". It is not the number of subscribers as individuals or legal entities that are recorded, but the total connections/subscriptions, as one subscriber may possibly have one or more subscriptions/connections.

10. "Active connections" or "active subscriptions" are intended as connections/subscriptions that have generated retail or wholesale revenue within the last quarter.

Mobile Telephone Operators' (MTOS) shares over the total number of subscribers remained stable at the end of 2016. COSMOTE and VODAFONE shares showed a small increase coming up to 45.6% and 35.3% respectively, against 45.2% and 35.1% at the end of 2015. WIND share dropped at 18.7% against 19.5% in 2015 (Table 1.9 and Chart 1.34). Regarding the active connections<sup>11</sup>, COSMOTE share ranged from [45%-55%] followed by VODAFONE that ranged from [25%-35%] (Table 1.10).

The penetration of the active mobile connections in Greece's population, reached 117% at the end of 2016, compared to 116% at the end of 2015, marking a slight increase. Respectively and as far as total mobile connections were concerned, penetration increased to 148% (against 142% in 2015) (Table 1.11).

Chart 1.31: Mobile telephony connections/subscriptions (2006-2016)



Source: EETT (based on data provided by the active licensed operators)

Table 1.7: Total post-paid and pre-paid connections

Connections	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
Post-paid	4,583,091	4,509,815	4,375,606	4,381,879	4,278,843	4,216,579	4,211,675	4,219,022
Pre-paid (registered)	15,715,011	10,305,890	10,182,066	10,769,863	11,443,633	11,257,104	11,141,878	11,715,272

Source: EETT (based on data provided by the active licensed operators)

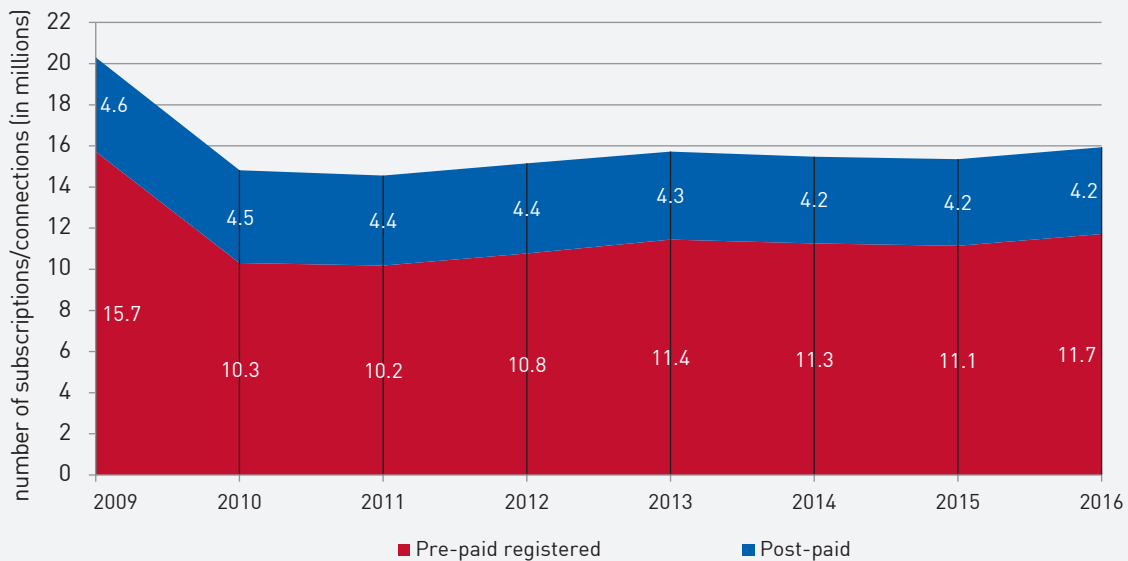
11. The number of active connections as well as their resulting shares is confidential information and thus replaced by ranges.

**Table 1.8: Total post-paid and pre-paid connections of residential and business users**

Connections	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
Residential	18,906,617	13,436,394	13,233,823	13,876,910	14,497,186	14,254,880	14,118,156	14,682,583
Business	1,391,485	1,379,311	1,323,849	1,274,537	1,225,290	1,218,803	1,235,397	1,251,711

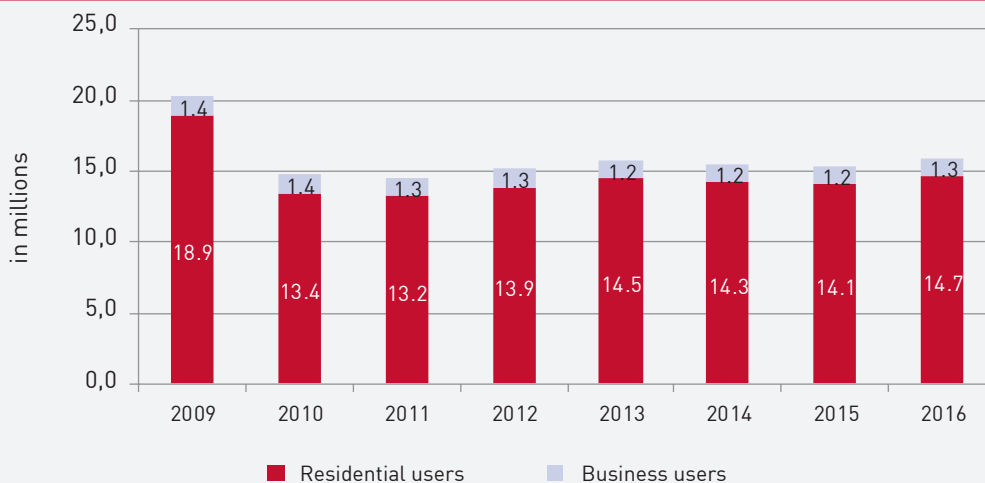
Source: EETT (based on data provided by the active licensed operators)

**Chart 1.32: Progress of mobile telephony subscriptions (pre-paid and post-paid)**



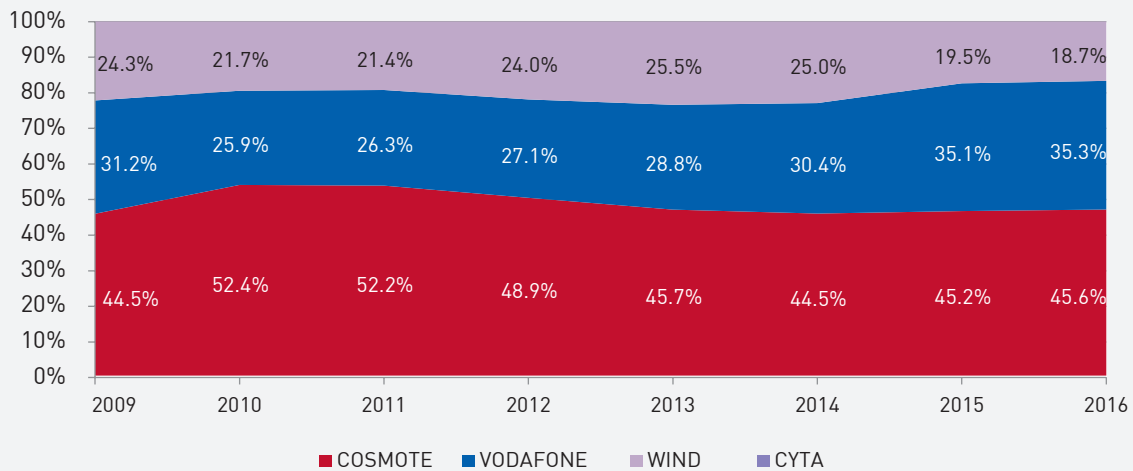
Source: EETT (based on data provided by the active licensed operators)

**Chart 1.33: Progress of mobile telephony subscriptions (residential-business)**



Source: EETT (based on data provided by the active licensed operators)

Chart 1.34: MTOs shares on the number of mobile telephony connections (2009-2016)



Source: EETT (based on data provided by the active licensed operators)

Table 1.9: MTOs registered connections shares (2007-2016)

	Dec. 2007	Dec. 2008	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
<b>COSMOTE</b>	38.6%	41.7%	44.5%	52.4%	52.2%	48.9%	45.7%	44.5%	45.2%	45.6%
<b>CYTA</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.3%
<b>VODAFONE</b>	33.5%	30.8%	31.2%	25.9%	26.3%	27.1%	28.8%	30.4%	35.1%	35.3%
<b>WIND</b>	27.9%	27.5%	24.3%	21.7%	21.4%	24.0%	25.5%	25.0%	19.5%	18.7%

Source: EETT (based on data provided by the active licensed operators)

Table 1.10: MTOs active connections shares (2007-2016)

	Dec. 2007	Dec. 2008	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
<b>COSMOTE</b>	35%-45%	35%-45%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%
<b>CYTA</b>	-	-	-	-	-	-	-	0%-5%	0%-5%	0%-5%
<b>VODAFONE</b>	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%
<b>WIND</b>	25%-35%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%

Source: EETT (based on data provided by the active licensed operators)

Table 1.11: Mobile penetration in the population (2006-2016)

Penetration	Dec. 2007	Dec. 2008	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
<b>Registered</b>	146%	169%	181%	132%	131%	137%	143%	142%	142%	148%
<b>Active</b>	110%	123%	119%	110%	109%	116%	114%	111%	116%	117%

Source: EETT (based on data provided by the active licensed operators)



### Use of mobile telecommunications networks

The use of mobile telecommunications networks remained relatively stable as regards to voice minutes of national calls, was significantly decreased in terms of voice minutes of international calls and stably increased with regards to data services use. Moreover, the use of Short Text Messages (SMS) slightly reduced.

#### Voice calls

- The number of voice calls was set at 25.6 billion minutes in 2016, showing a decrease by 1% compared to 2015 (25.9 billion minutes) (Chart 1.35).
- The largest volume of calls was the on-net mobile traffic, marking however a decrease from 16.7 to 16 billion minutes and representing 62% of the total volume of voice calls, against 65% in 2015 (Chart 1.36).
- The off-net mobile voice calls showed an increase of 12.8% compared to 2015 (from 6.3% to 7.2 billion minutes). Mobile calls to fixed numbers were decreased by 4.1% (from 2.3 to 2.2 billion minutes).
- International calls showed a decrease of 41% (Chart 1.37).

Chart 1.38 demonstrates the volume of voice calls per user category. Prepaid users are steadily at the top with 46.9% of total calls, followed by post-paid residential users with 37.6% and post-paid business users with 15.5%. Based on the actual traffic, the average monthly call duration

for a post-paid residential user was 248 minutes to mobile numbers and 27 minutes to fixed numbers; the respective data for a business user were 277 minutes to mobile and 86 minutes to fixed numbers, while a pre-paid subscriber talked 113 minutes on average per month to mobile numbers and seven minutes to fixed numbers.

#### Short Message Service (SMS)

- The total number of Short Message Services (SMS) showed- once again-a decrease by 20% (2.9 against 3.7 billion messages in 2015) (Chart 1.39).
- The vast majority of SMS were on-net also in 2016, at a rate of 71% (against 75% in 2014), while the number of off- net SMS increased on an average rate.
- SMS from prepaid users showed the largest decrease by 31%, reaching 1.4 billion messages in 2016 against 2 billion in 2015 (Chart 1.40).
- A residential post-paid user sent on average 36 SMS per month, followed by a business user with 23 and lastly, a prepaid user with 14 SMS.

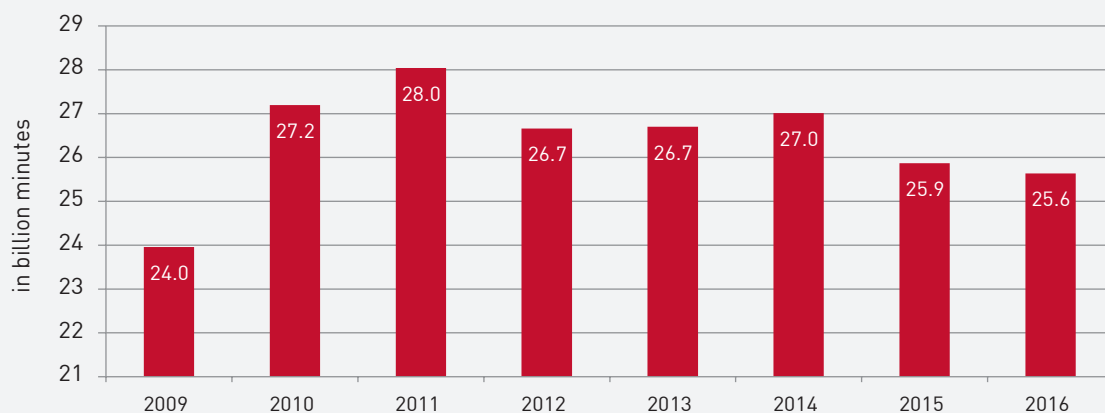
#### Multimedia Message Services (MMS)

- Multimedia Message Services (MMS) showed a decrease of 9.4%, reaching 13.5 million at the end of 2016, from 15 million in 2015 (Chart 1.41).

#### Data services (data)<sup>12</sup>

- Data services via mobile telephony networks, increased by 48% in 2016, reaching 46 billion. (Chart 1.42).

Chart 1.35: Voice calls originating from mobile phone

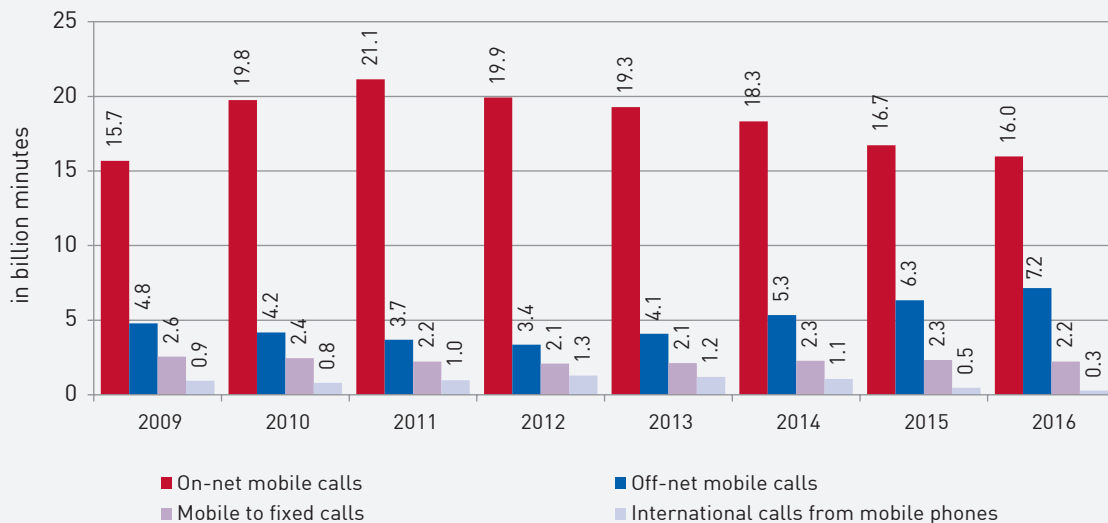


Source: EETT (based on data provided by the active licensed operators)

12. Please note that up till 2012 distinguishing between data use via mobile phone or datacards was not feasible.

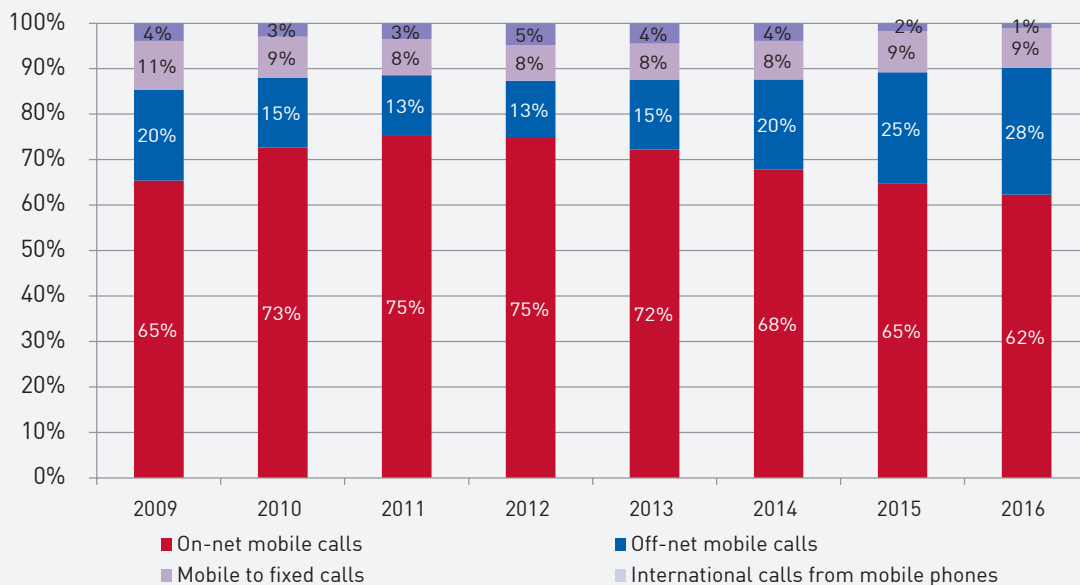
- The majority of data (84%) was transferred via mobile telephony phones in 2016, while the remaining 16% through other portable devices using datacards.
- A post-paid residential user used in average 496 MB per month, followed by a business user with 379 MB and lastly, a prepaid user with 238 MB.

Chart 1.36: Voice calls per category



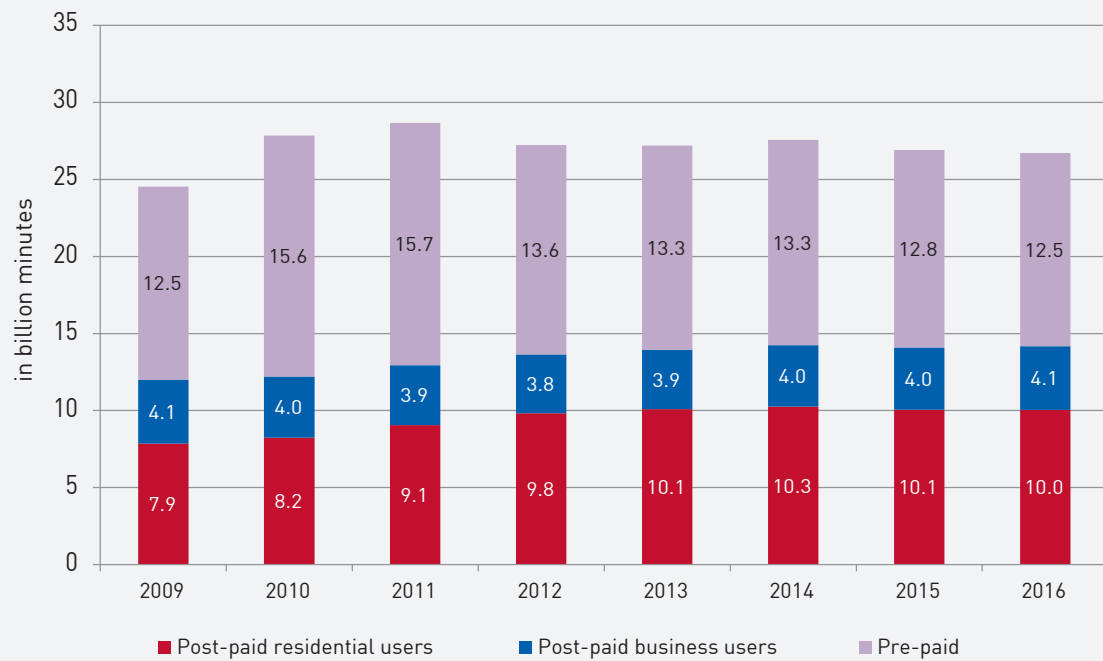
Source: EETT (based on data provided by the active licensed operators)

Chart 1.37: Voice calls per category (% of the total)



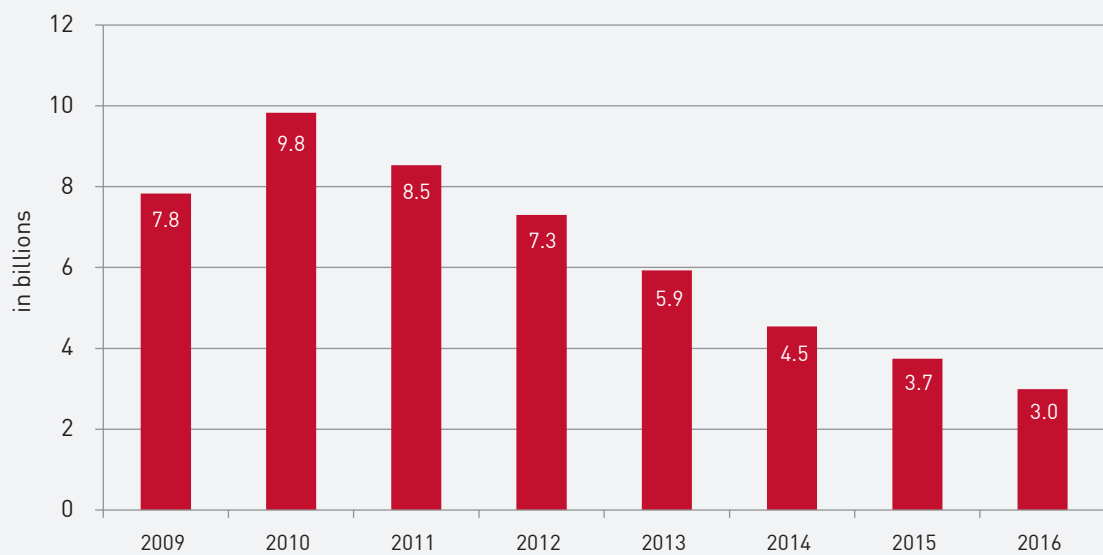
Source: EETT (based on data provided by the active licensed operators)

Chart 1.38: Voice calls per user category



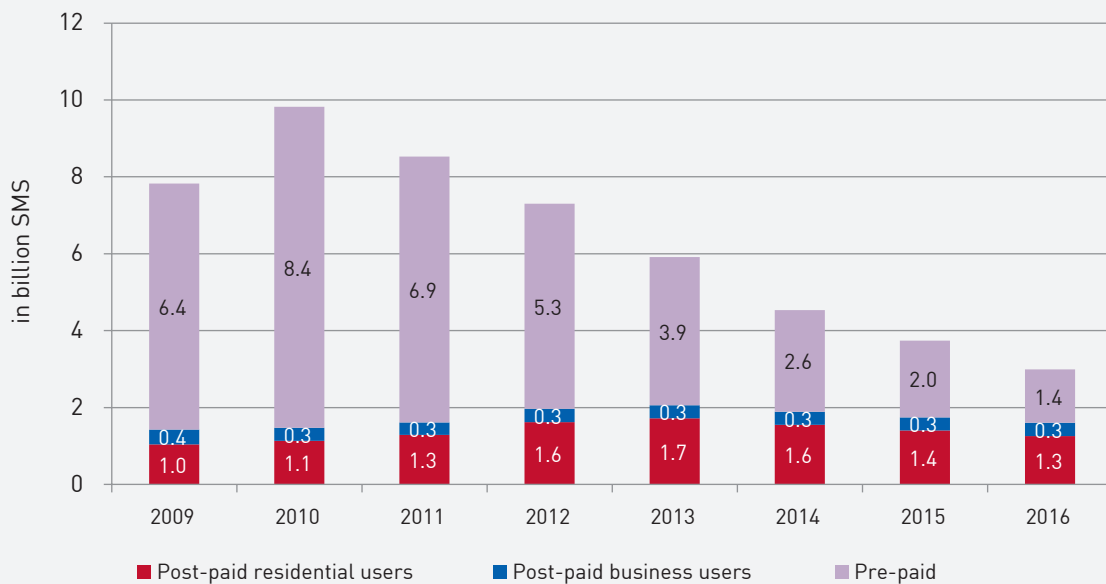
Source: EETT (based on data provided by the active licensed operators)

Chart 1.39: Total number of SMS (2009-2016)



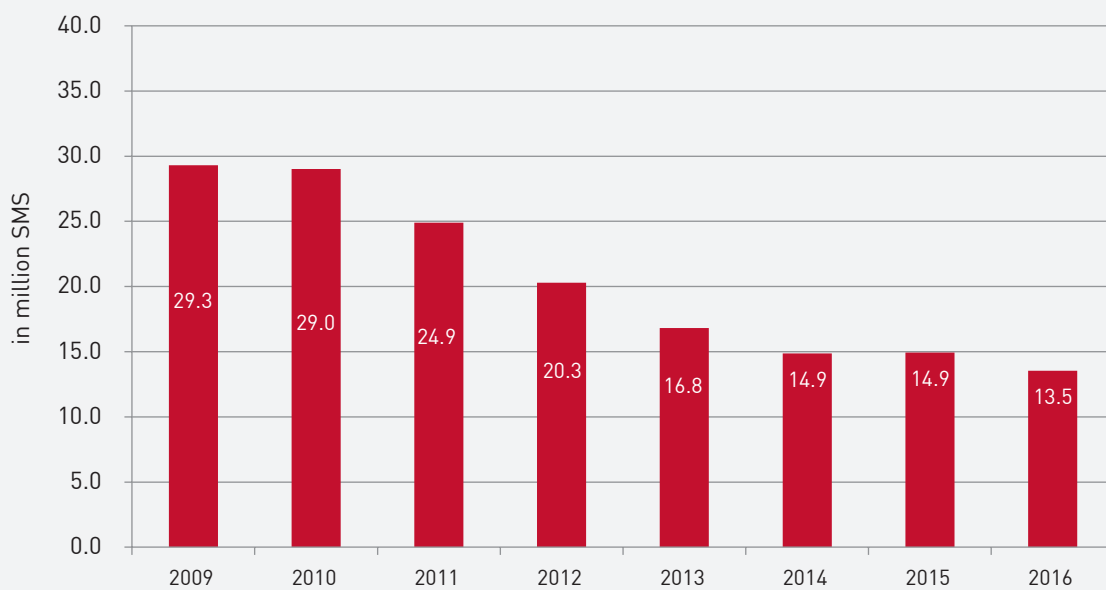
Source: EETT (based on data provided by the active licensed operators)

Chart 1.40: Number of SMS per user category



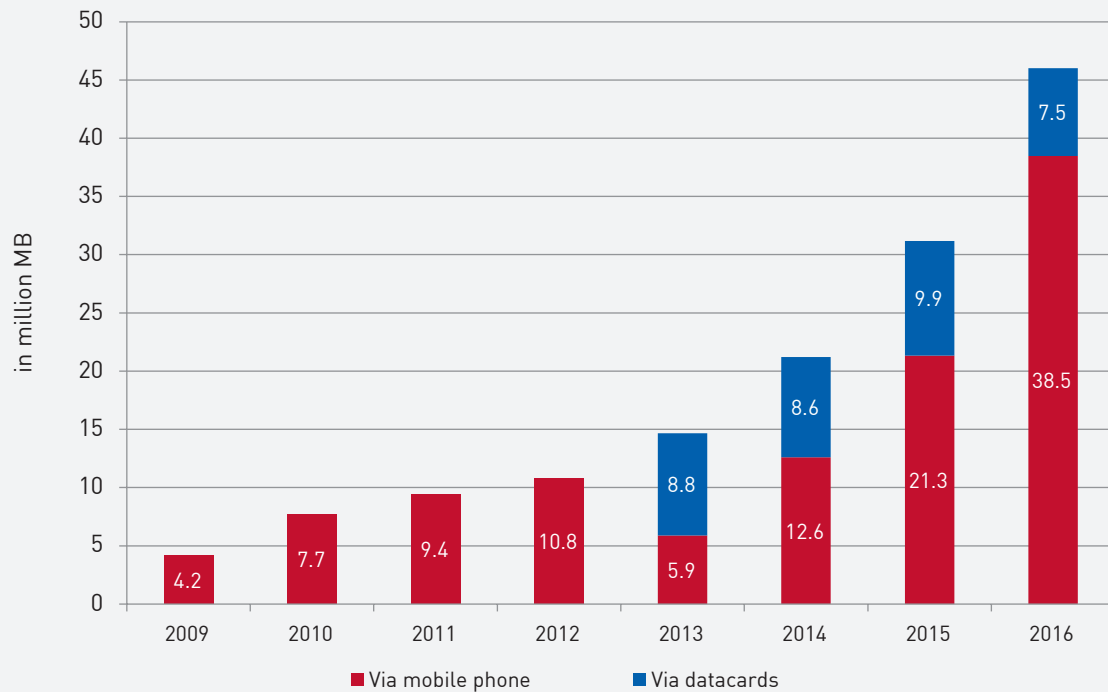
Source: EETT (based on data provided by the active licensed operators)

Chart 1.41: Total number of MMS



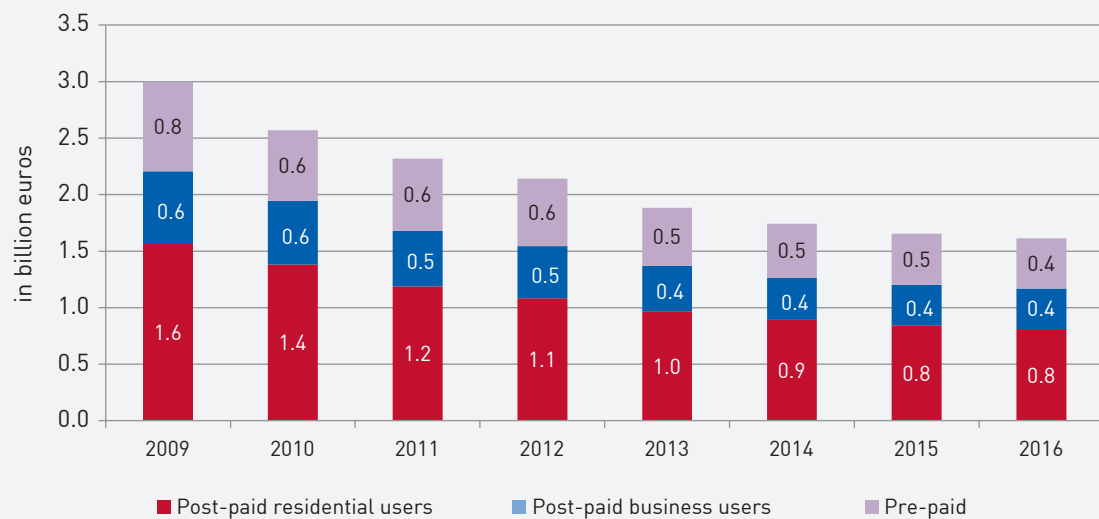
Source: EETT (based on data provided by the active licensed operators)

Chart 1.42: Total number (MB) of data services via mobile phone and datacards



Source: EETT (based on data provided by the active licensed operators)

Chart 1.43: Mobile telephony retail revenues



Source: EETT (based on data provided by the active licensed operators)

### Mobile telephony retail revenues

In 2016, the mobile telephony retail revenues<sup>13</sup> (post-paid and pre-paid) decreased slightly by 2.5% and amounted to 1.6 billion euros compared to 1.66 billion euros in 2015 (Chart 1.43). Tables 1.12-1.14 present the MTOs' shares on retail revenues<sup>14</sup>, both in total and per user category (post paid-prepaid). Revenues from residential

post-paid users demonstrated the largest drop (3.9%), while the pre-paid revenues decreased also by 1.8%. Voice calls produced the majority of mobile retail revenues (73.6%) (Chart 1.44). The average annual revenue per post-paid and pre-paid user (connection) was 280 euros (reduction of 2.1%) and 53 euros (reduction of 4%) respectively (Chart 1.45).

Table 1.12: MTOs shares on the retail revenues (2009-2016)

	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
COSMOTE	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%
CYTA	-	-	-	-	-	0%-5%	0%-5%	0%-5%
VODAFONE	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%
WIND	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%

Source: EETT (based on data provided by the active licensed operators)

Table 1.13: MTOs shares on the post-paid retail revenues (2009-2016)

	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
COSMOTE	35%-45%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%
CYTA	-	-	-	-	-	0%-5%	0%-5%	0%-5%
VODAFONE	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%	25%-35%
WIND	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%

Source: EETT (based on data provided by the active licensed operators)

Table 1.14: MTOs shares on the pre-paid retail revenues (2009-2016)

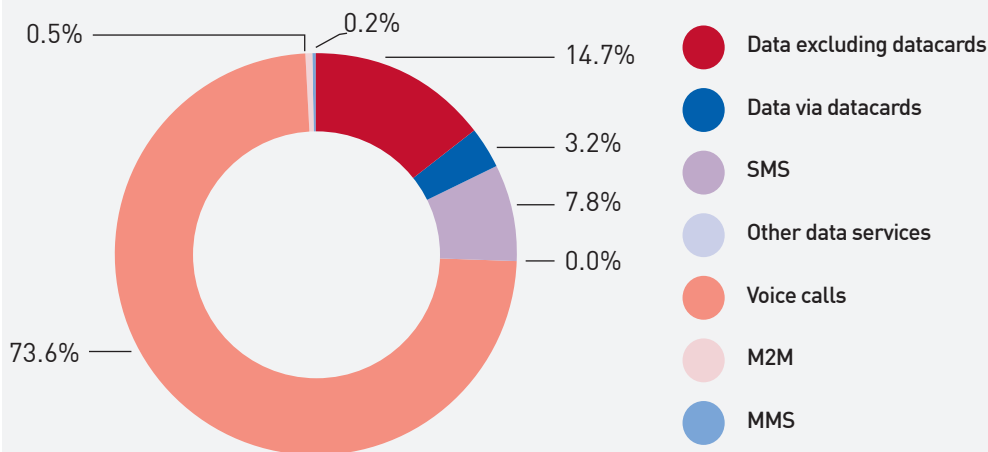
	Dec. 2009	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016
COSMOTE	45%-55%	55%-65%	55%-65%	55%-65%	55%-65%	55%-65%	55%-65%	55%-65%
CYTA	-	-	-	-	-	0%-5%	0%-5%	0%-5%
VODAFONE	25%-35%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	25%-35%	25%-35%
WIND	25%-35%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%

Source: EETT (based on data provided by the active licensed operators)

13. Revenues from the sale of handsets, wholesale or other services are not included.

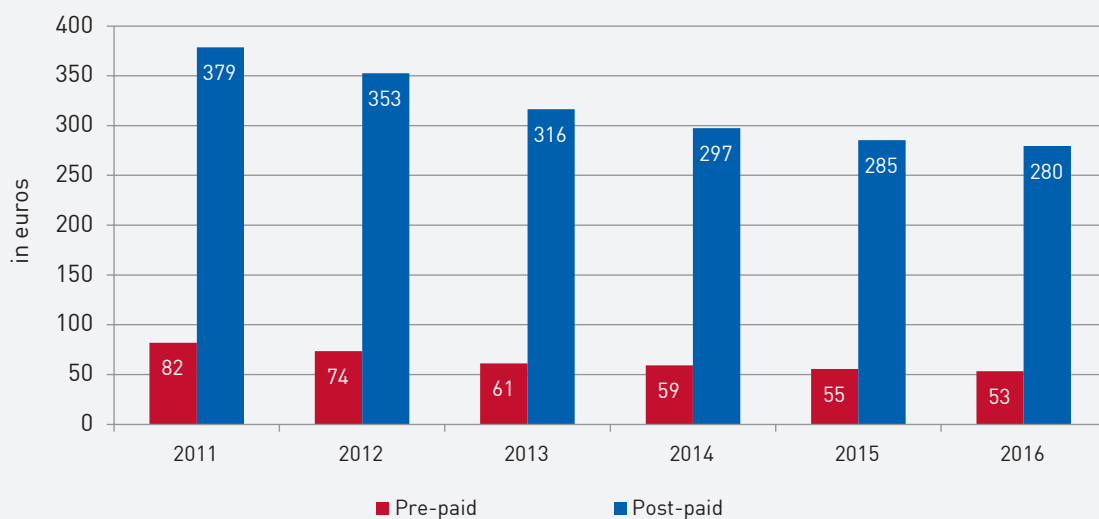
14. Retail revenues as well as their resulting shares is confidential information and thus replaced by ranges.

Chart 1.44: Mobile telephony retail revenues breakdown (2016)



Source: EETT (based on data provided by the active licensed operators)

Chart 1.45: Annual average revenue per mobile connection



Source: EETT (based on data provided by the active licensed operators)

### Mobile telephony interconnection

The interconnection traffic for MTOs in 2016 increased, as shown in Chart 1.46, which presents the national and international interconnection (incoming and outgoing) traffic for the three MTOs and one Mobile Virtual Net Operator (MVNO). Compared to 2015, the overall rise was 6%, namely a total annual increase of approximately 1.06 billion minutes. Both national outgoing and incoming traffic were significantly increased by 8%.

Chart 1.47 demonstrates the on-net traffic for the three MTOs and the one MVNO, which in 2016 was

approximately 16 billion minutes, having decreased by 5% compared to 2015 (763 million minutes approximately) and accounts for 45% of the total interconnection traffic (that includes both incoming and outgoing traffic).

At the same time, the national traffic terminating to mobile networks has been relatively stable during the last five years. In 2016, in particular, national calls to mobile phones fell marginally by 0.4%, amounting to 25,383 million minutes compared to 25,483 million minutes in 2015, given that, as previously mentioned, the 5% reduction of the incoming

traffic was partially offset by the 12% increase of the mobile incoming traffic (Chart 1.48).

The revenues accrued from the mobile incoming traffic in Greece in 2016, increased by 4% compared to the previous year, amounting to 102.3 versus 98.1 million euros in 2015, due to the mobile national incoming traffic increase by 12%. The gradual reduc-

tion of the termination fees and the enlargement of on-net traffic have led to a cumulative reduction of the call termination revenues by 74% compared to 2010. In this context and as of the 1<sup>st</sup> of January 2017, the termination fees to mobile telephony networks stand at 1.07 euros cents per traffic minute (Charts 1.49-1.50).

Chart 1.46: MTOs interconnection traffic

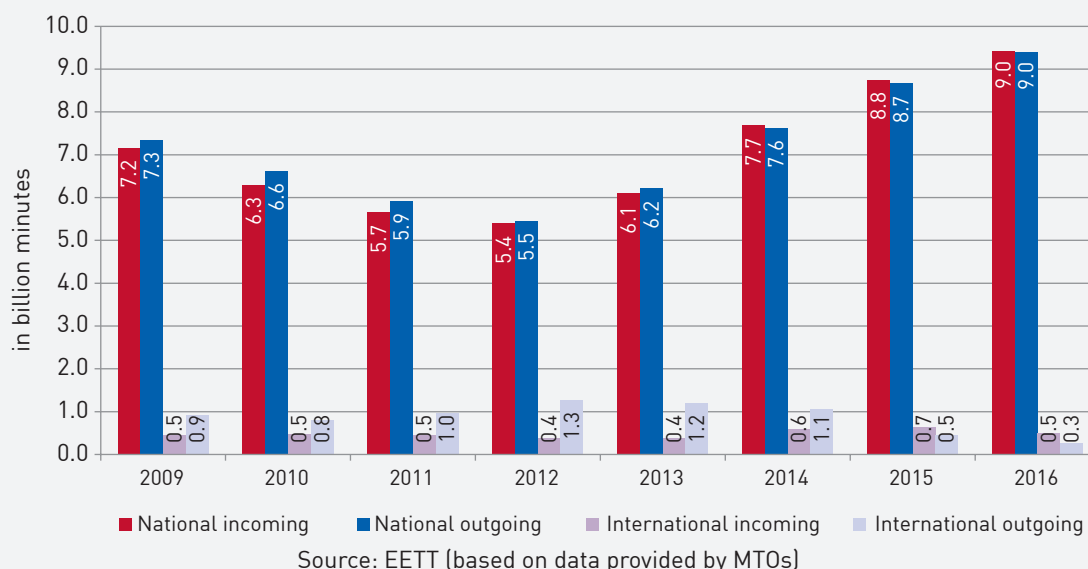


Chart 1.47: MTOs on-net traffic

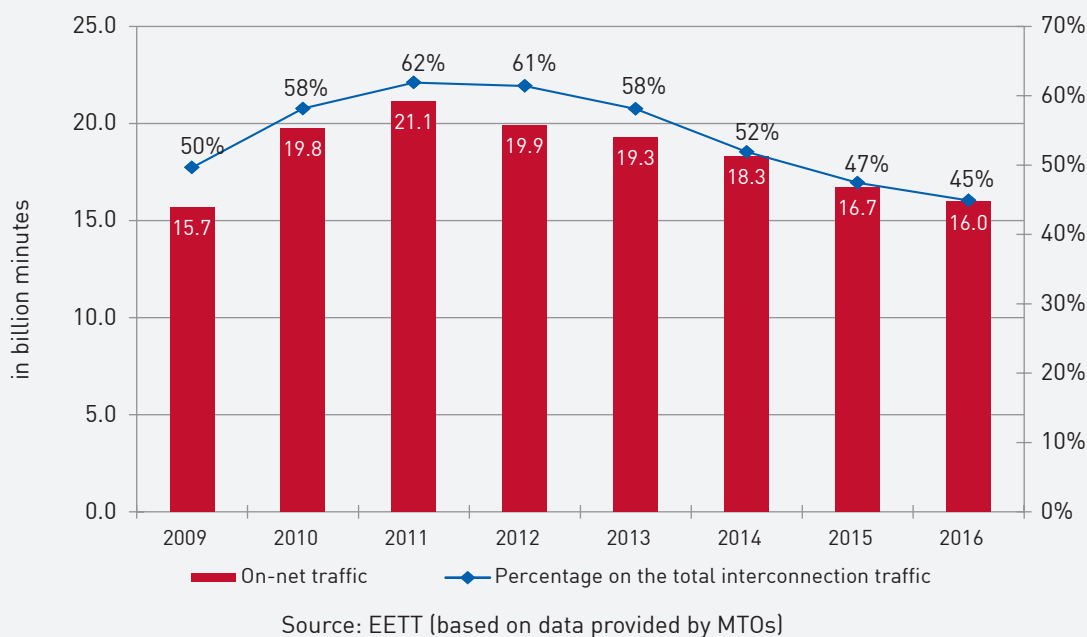
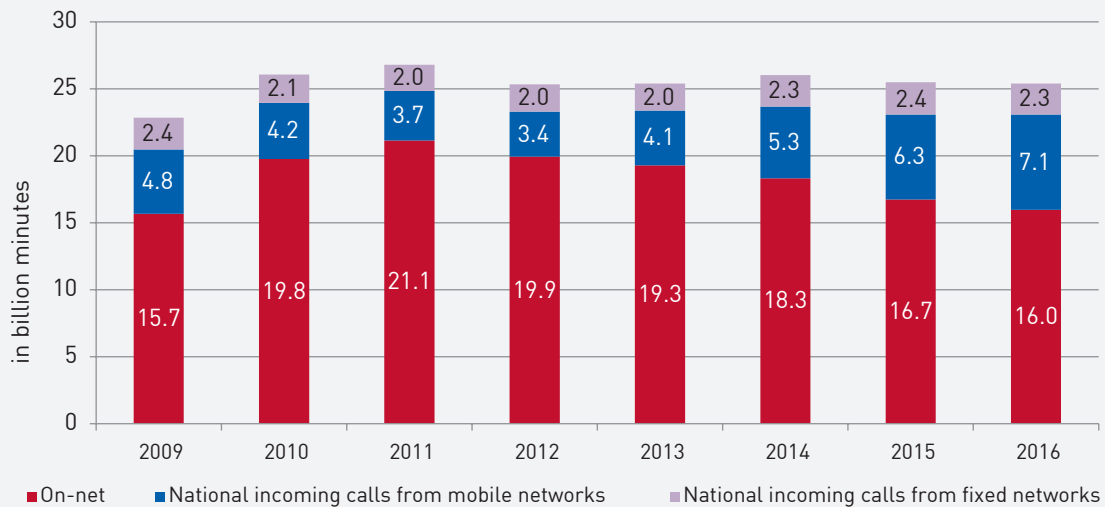


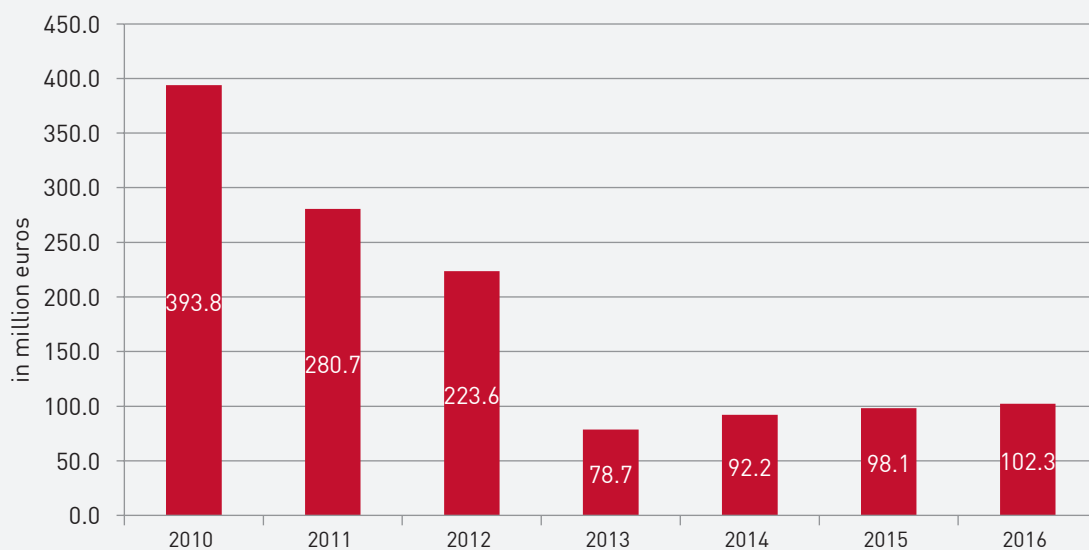


Chart 1.48: Voice calls terminating to mobile phones in Greece (%)



Source: EETT (based on data provided by MTOs)

Chart 1.49: Revenues accrued by fixed and mobile calls to mobiles in Greece



Source: EETT (based on data provided by MTOs)

### Mobile telephony number portability

During 2016, 650,652 portability applications for mobile telephony numbers were submitted compared to 761,908 applications submitted in 2015, i.e. a reduction of 14.6% compared to the previous year. During the same period, 399,763

numbers were ported, marking a decrease by 12.4% compared to 2015. This indicates that approximately 61% of the initial portability applications were seen through. The aggregate progress of portability is presented in Chart 1.51.

Chart 1.50: Mobile call termination fees reduction

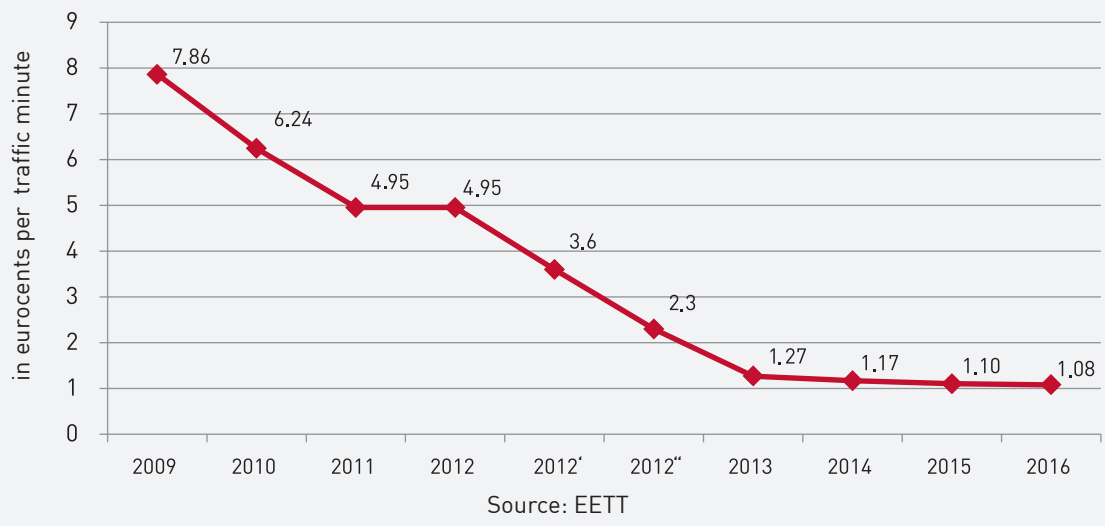
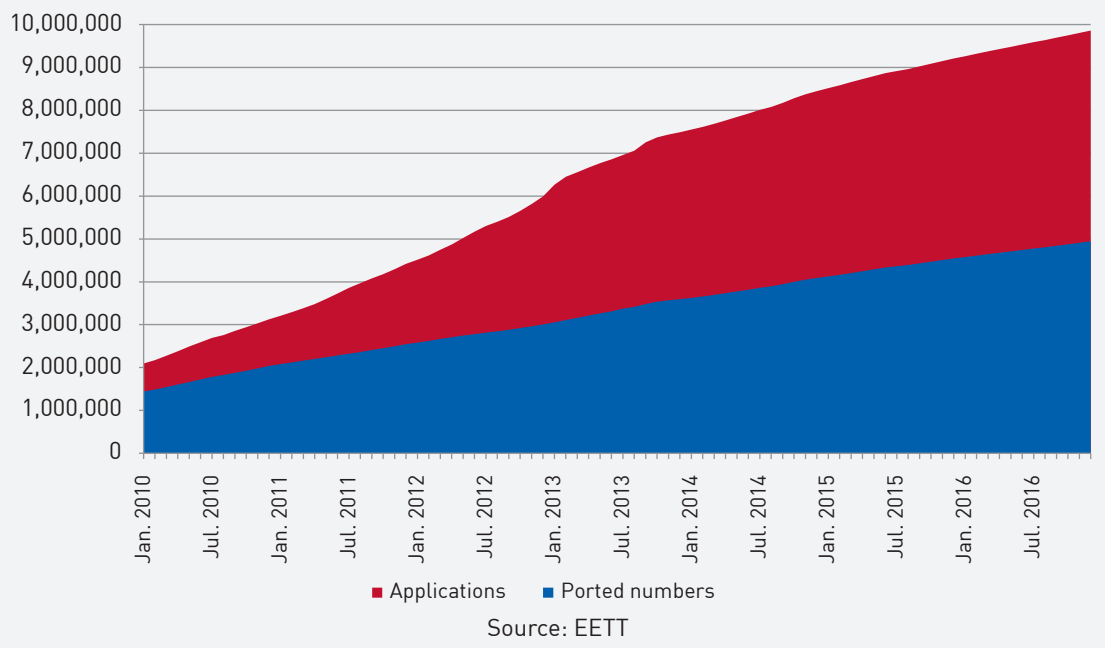


Chart 1.51: Portability for mobile telephony



1.2.4. Comparison between fixed and mobile telephony

After almost 15 years fixed telephony connections increased marginally, reaching 4.8 million in 2016, while on the other hand active mobile telephony subscriptions/connections decreased by 0.2% and amounted to 12.5 million. Fixed telephony connections correspond to slightly

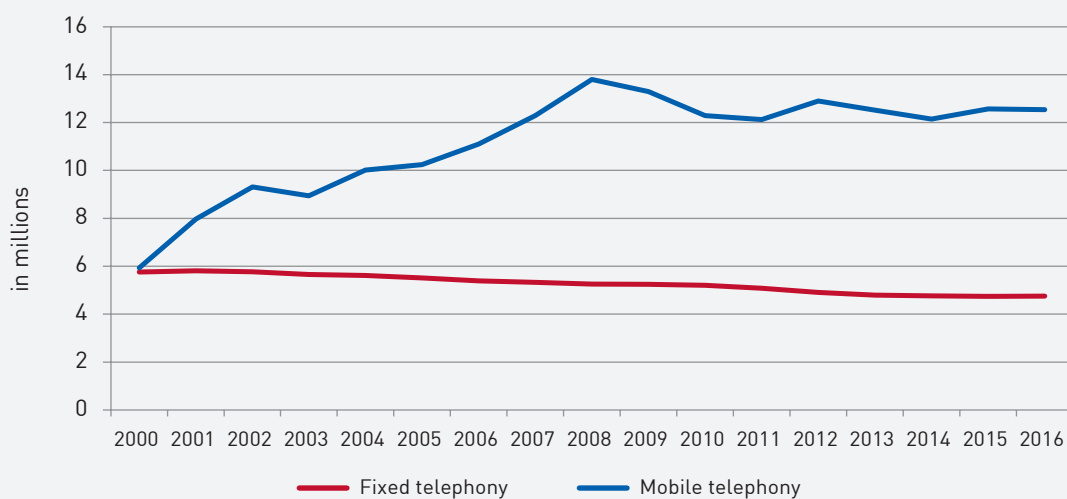
more than 1/3 of the respective ones in mobile telephony (Chart 1.52).

Chart 1.53 shows the progress of the fixed and mobile telephony retail revenues for the period 2011-2016. Mobile telephony retail revenues kept on following a downward trend recording a 2.5% decrease compared to 2015 and amounting now to 1.6 billion euros, while on the other

hand fixed telephony retail revenues increased marginally, for the first time, by 0.4% compared to 2015 and amounted to 1.4 billion euros. It is mentioned that the mobile telephony retail revenues refer only to voice and data (SMS, MMS, Data) (not including revenues from handsets and other services), while the fixed telephony revenues are presented in total for the period 2011-2013 and as of 2014 pertain to voice and Internet retail revenues. Mobile telephony calls decreased by approximately 1% compared to 2015 and currently account for 62% of the total traffic compared to 60% in 2015. This per-

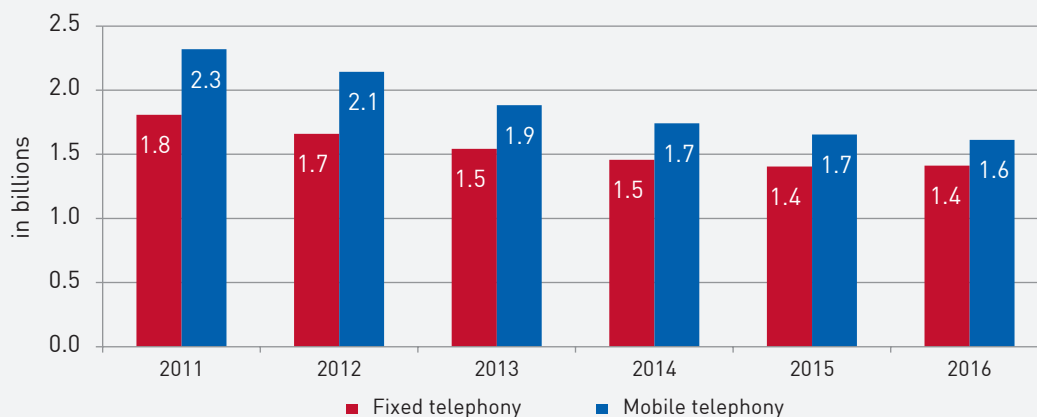
centage increase is attributed to the higher decrease of fixed calls (6.1%), which amounted to 16.2 million minutes in 2016, compared to 17.2 million minutes in 2015, mainly due to the considerable decline by 1 billion minutes of the outgoing national calls to fixed phones. The progress of traffic volumes from fixed and mobile phones along with the respective market shares are presented in Charts 1.54 and 1.55, taking into account the national fixed calls, calls to mobiles, as well as international calls.

Chart 1.52: Subscriptions/connections of fixed and mobile telephony



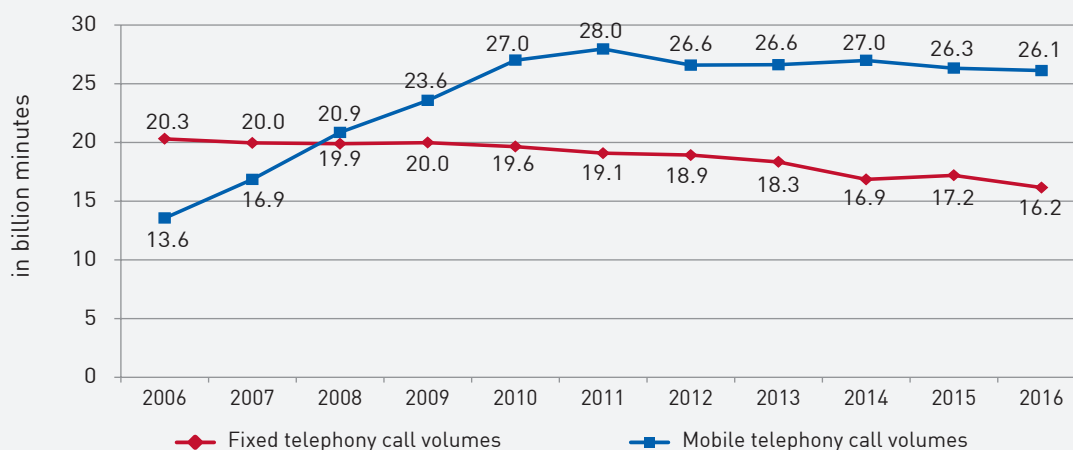
Source: EETT (based on data provided by the active licensed operators)

Chart 1.53: Revenues from fixed and mobile telephony



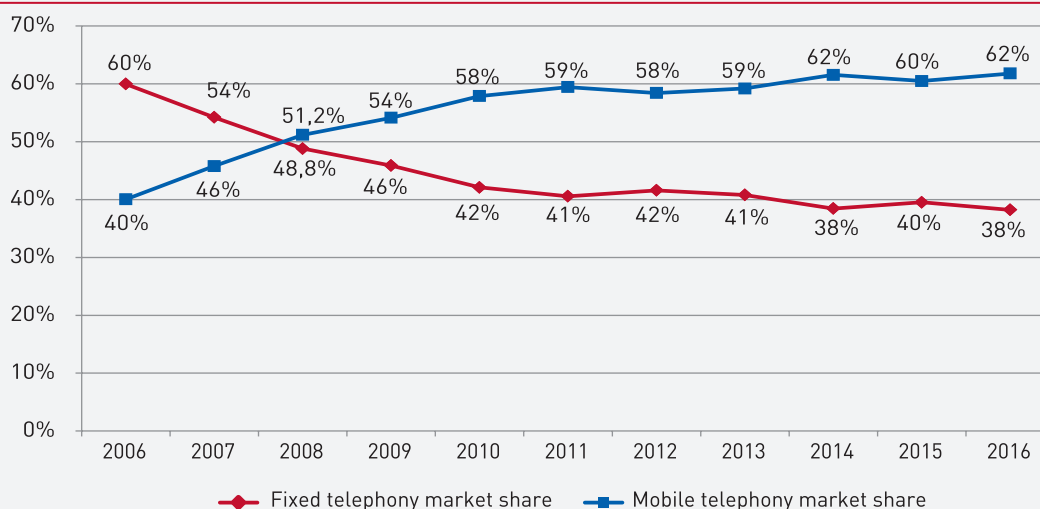
Source: EETT (based on data provided by the active licensed operators)

Chart 1.54: Call volumes from fixed and mobile phones



Source: EETT (based on data provided by the active licensed operators)

Chart 1.55: Fixed and mobile telephony market shares



Source: EETT (based on data provided by the active licensed operators)

### 1.2.5. Broadband

#### Fixed broadband

By the end of 2016, broadband connections reached 3,616,705 compared to 3,439,034 at the end of 2015, registering an annual increase of 5.2% (Chart 1.56), which is lower than the respective one of last year (8.9%) by 105 thousand lines.

LLU continued to increase during 2016 (Chart 1.57), reaching 2,085,248 at the end of the year compared to 2,047,268 at the end of 2015 (increase of 1.9%

against 1.6% in 2015)<sup>15</sup>. This increase is entirely attributed to the full LLU lines which amounted to 2,081,058 by the end of the year versus 2,041,824 at the end of 2015 (1.9% increase), as opposed to the shared LLU lines, whose number continued to drop (4,190 lines at the end of the year against 5,444 at the end of 2015).

Nowadays, most of the operators' broadband lines, excluding OTE, are LLU lines. VDSL lines at the end of 2016 reached 273,165, compared to 174,266 in December 2015 (annual increase of 56.7%), making

15. The access lines via LLU are a superset of broadband lines via LLU, since they also include telephony only lines.

up 7.5% of total broadband lines. Their penetration in the population remained low (2.5% against 1.6% at the end of 2015) (Chart 1.58).

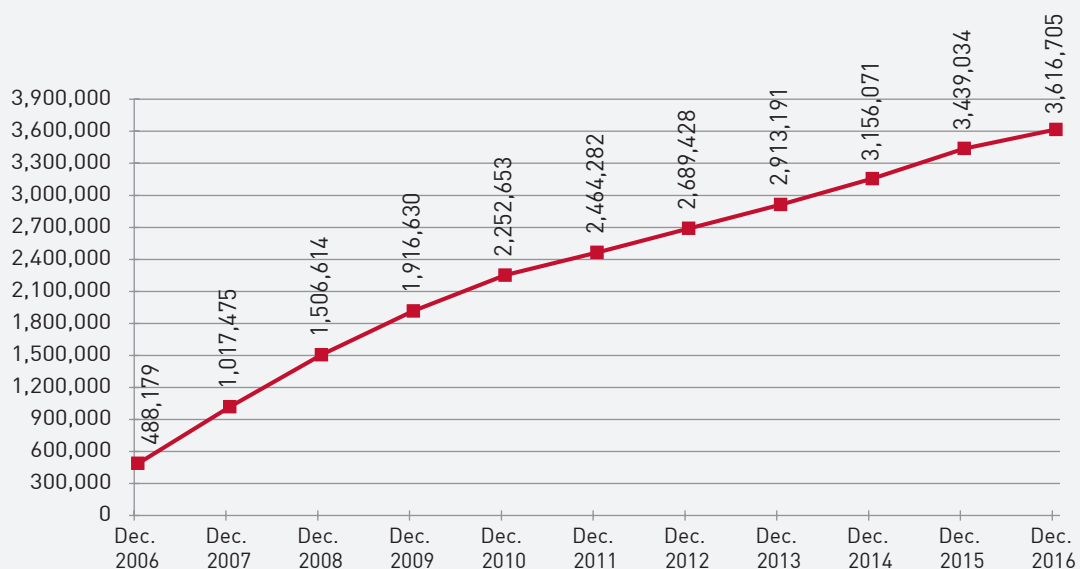
The individual shares of broadband lines per technology were as follows:

- The xDSL access lines' share via LLU reached 53.36% at the end of 2016 compared to 55.39% in 2015 (Chart 1.59).
- The share of OTE's xDSL retail lines on the total broadband lines increased to 44.96% (1,626,006 lines) compared to 43.53% at the end of 2015 (1,496,886 lines). From the total number of OTE's xDSL lines, 219,166 are VDSL lines.
- The ADSL lines, that the alternative operators are getting from OTE for rendering broadband access services, increased to 48,407 lines (1.34% on the total broadband lines) compared to 25,970 in December 2015, due to the increase of wholesale broadband lines via VDSL lines (37,995 against 12,008 in December 2015).
- The lines of other technologies remained at very low levels with a percentage estimated at 0.35%.
- The vast majority of the total broadband lines

(88%) correspond to nominal speeds (download) above 10 Mbps, and a 7.6% corresponds to speeds above 30 Mbps (compared to 5.5% at the end of 2015) (Charts 1.61 and 1.62).

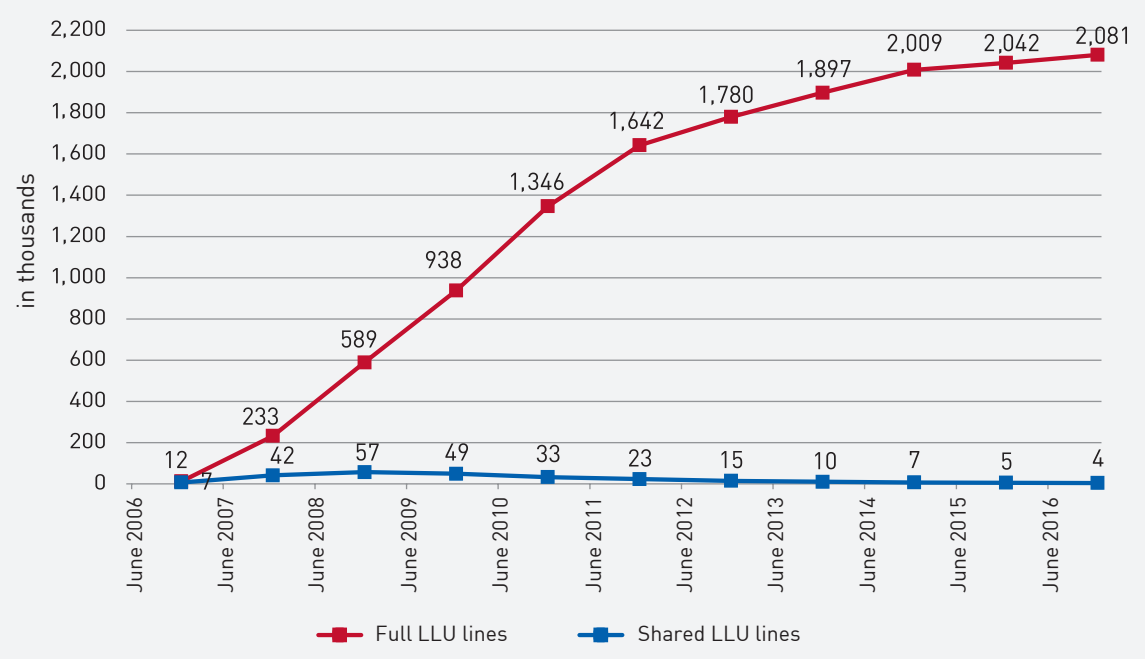
- The average nominal speed of ADSL lines (both retail, which are sold by OTE to its retail customers, and wholesale, which are supplied by OTE to operators in order to provide broadband access to their retail customers) reached 22Mbps compared to approximately 20Mbps in December 2015), as a result of the increase of VDSL lines volume (Chart 1.63).
- The internet traffic of the fixed broadband access users during 2016 reached an average of 0,46 TB per subscriber.
- Referring to the fixed broadband access providers' shares, COSMOTE is ahead (35%-45%) followed by VODAFONE (15%-25%) (Table 1.15).
- The population coverage for every geographic region of the country, in terms of direct broadband access via a certain operator's network, ranged between 88%-93% (Table 1.16). The situation is expected to improve with the completion of the "rural broadband" projects.

Chart 1.56: Progress of broadband lines



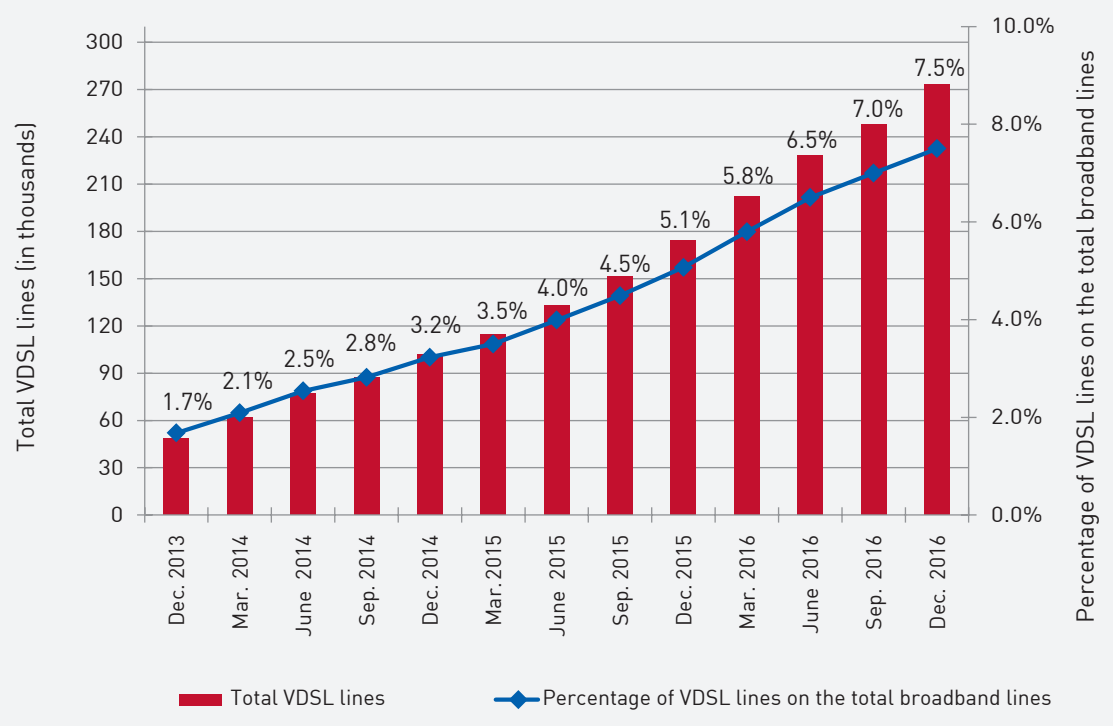
Source: EETT (based on data provided by the active licensed operators)

Chart 1.57: Progress of LLU lines



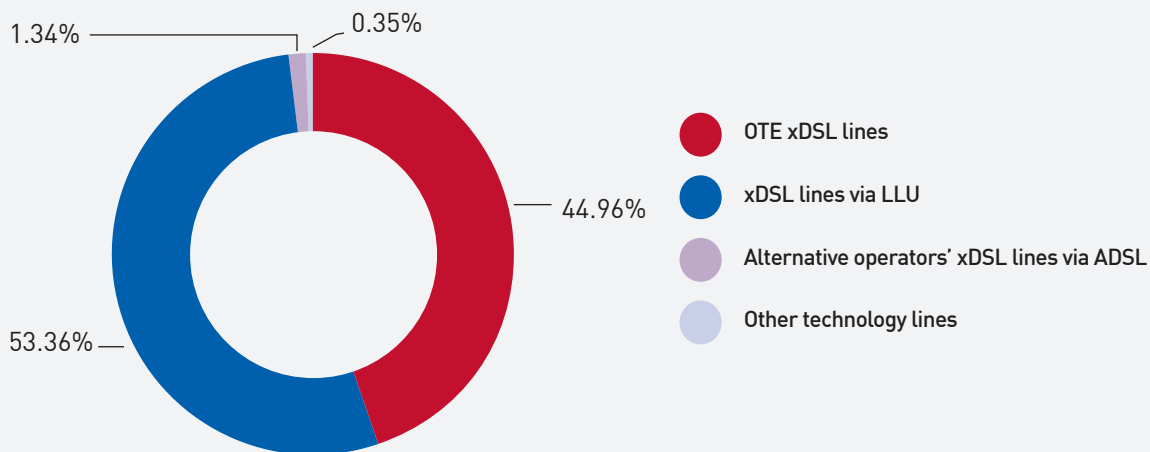
Source: EETT (based on data provided by the active licensed operators)

Chart 1.58: Progress of VDSL lines



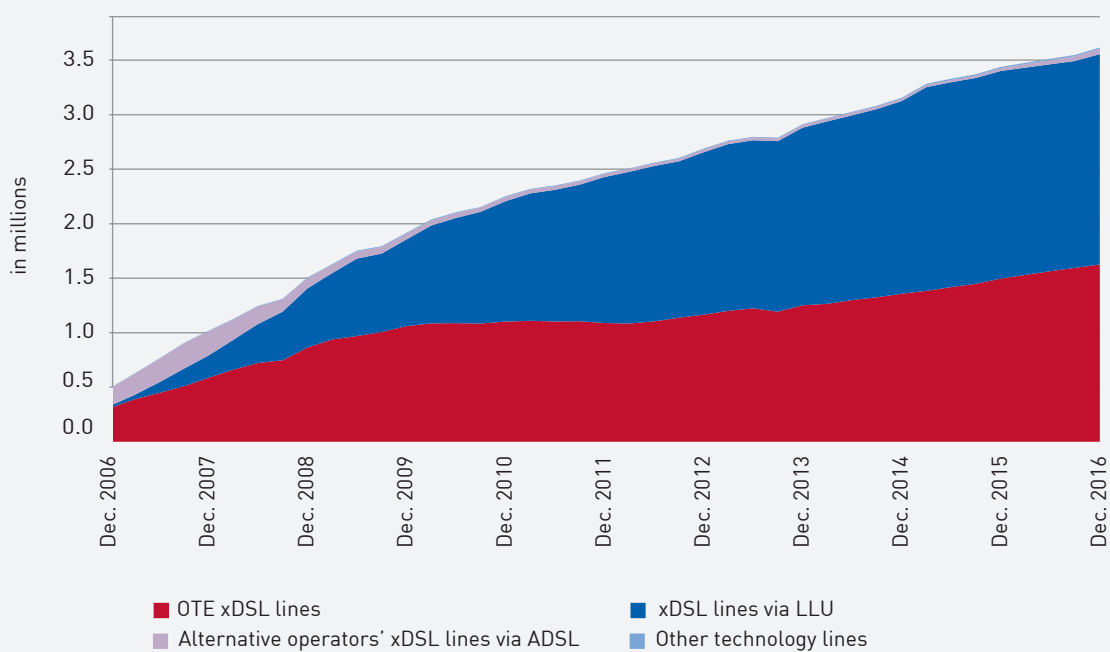
Source: EETT (based on data provided by the active licensed operators)

Chart 1.59: Breakdown of broadband lines per technology (December 2016)



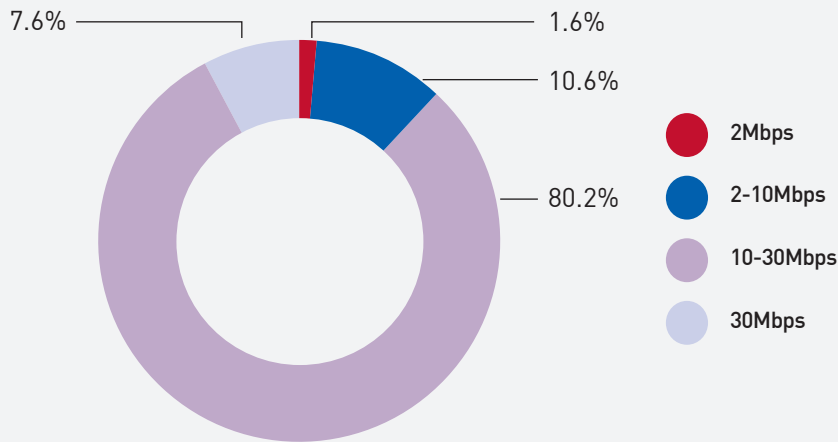
Source: EETT (based on data provided by the active licensed operators)

Chart 1.60: Progress of broadband lines per technology



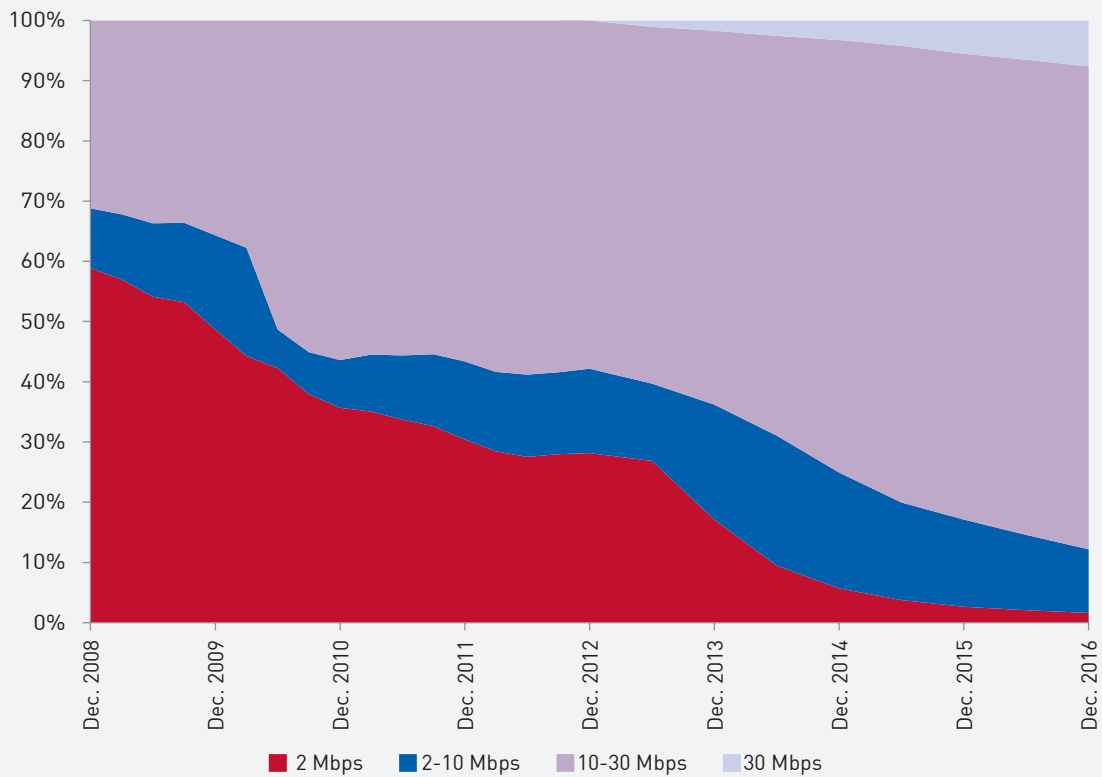
Source: EETT (based on data provided by the active licensed operators)

Chart 1.61: Breakdown of nominal broadband lines speed (December 2016)



Source: EETT (based on data provided by the active licensed operators)

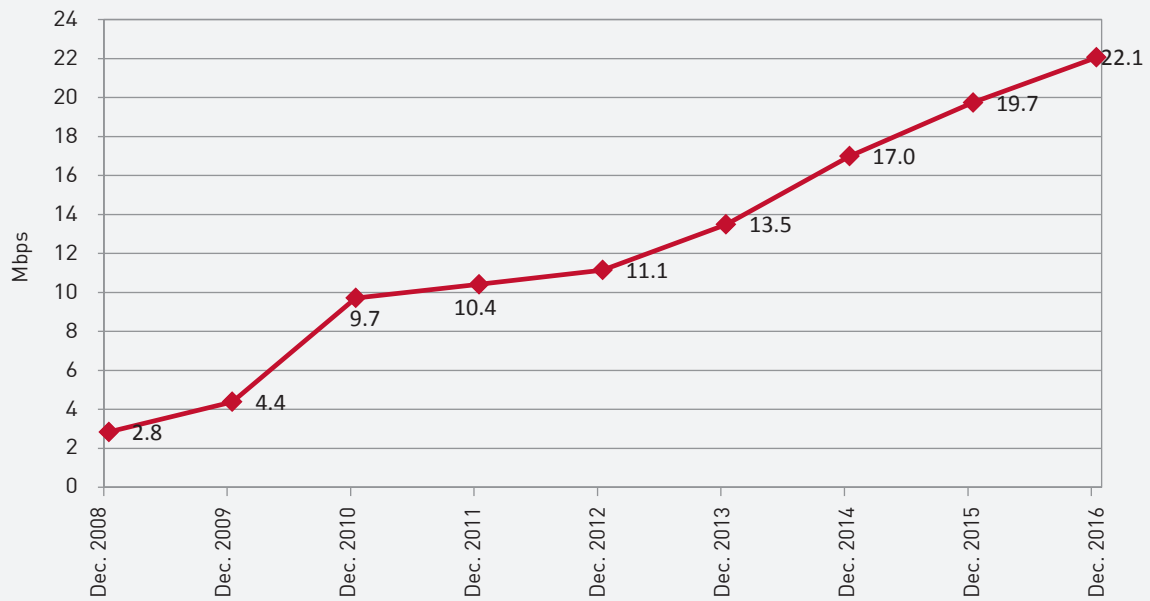
Chart 1.62: Progress of broadband lines speed



Source: EETT (based on data provided by the active licensed operators)



Chart 1.63: Progress of the average access speed of retail and wholesale ADSL lines



Source: EETT (based on data provided by the active licensed operators)

Table 1.15: Shares of fixed broadband access operators

	Dec. 2016
COSMOTE	35%-45%
VODAFONE	15%-25%
FORTHNET	10%-15%
WIND	10%-15%
CYTA	5%-10%

Source: EETT (based on data provided by the active licensed operators)

Table 1.16: Population coverage per geographic region

Eastern Macedonia and Thrace	92%
Central Macedonia	93%
Epirus	90%
Thessaly	89%
Ionian Islands	92%
Western Greece	90%
Central Greece	88%
Attica	93%
Peloponnese	91%
North Aegean	93%
South Aegean	93%
Crete	92%

Source: EETT (based on data provided by the active licensed operators for the end of 2015)

### Mobile broadband

The total active mobile subscribers that used Internet data services were 5,709,261 at the end of 2016 compared to 5,078,741 at the end of 2015 (Chart 1.64), marking a 12.4% annual increase. The majority of those subscribers (5,261,148) either got an add-on package or used Internet data services via mobile bundled programs that include, among others, Internet access at a single fee. In addition, 541,130 subscribers used Internet data services via mobile packages that include, inter alia, Internet access (charge per unit), while 448,113 accessed the Internet via datacards.

The progress of the Internet traffic via 3G and 4G networks is presented in Chart 1.65. Most of the traffic was carried through 3G networks, with a diminishing share though (67.39% in December 2016 compared to 85.8% in December 2015) due to the increased traffic share via 4G networks (32.61% in December 2016 compared to 14.1% in December 2015). The average traffic per user is estimated at 9.33GB for the 3G subscribers and 7.415GB for the 4G subscribers. As far as the shares of the active 3G and 4G subscribers (post-paid and pre-paid) at the

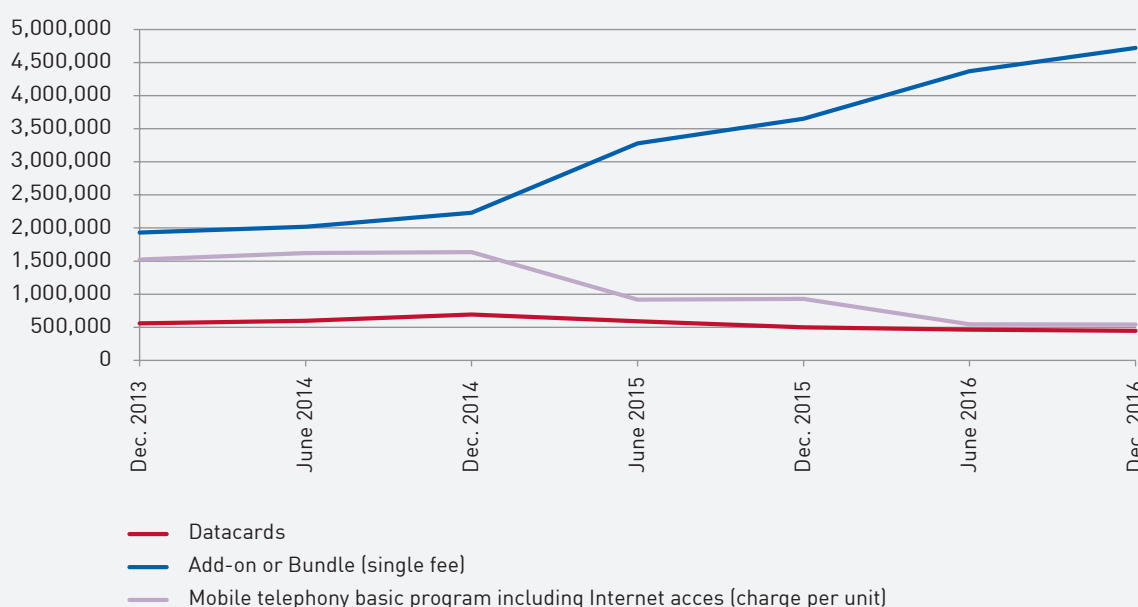
end of the year are concerned, COSMOTE leads the way with VODAFONE following (Table 1.17). The highest population coverage percentages for the new generation networks of mobile telephony operators are presented in Chart 1.66. The 4G population coverage increase by ten percentage units during 2016 (93% at the end of 2016 compared to 83% at the end of 2015) was remarkable. The respective 3G population coverage was almost 100%.

Table 1.17: Shares of the active 3G and 4G subscribers (post-paid and pre-paid)

	2016	
	3G	4G
COSMOTE	45%-55%	55% -65%
VODAFONE	15%-25%	35%-45%
WIND	25%-35%	0%

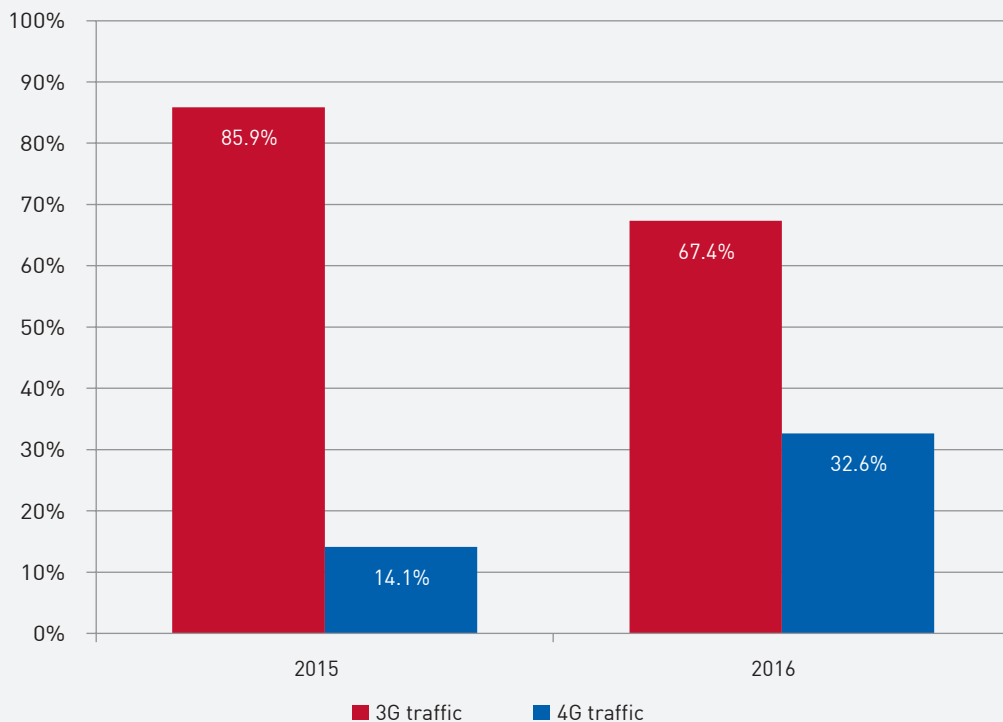
Source: EETT (based on data provided by the active licensed operators)

Chart 1.64: Progress of mobile telephony subscribers making use of Internet



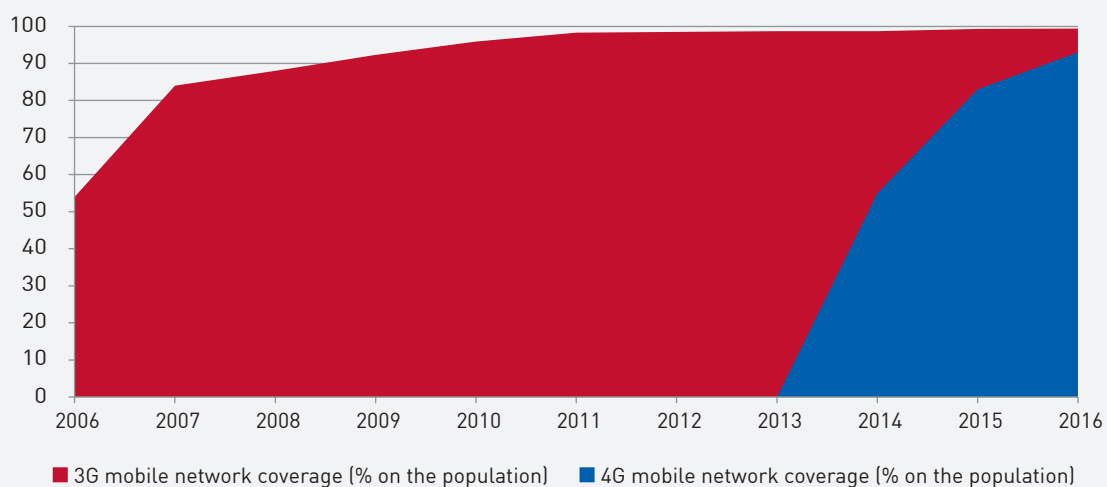
Source: EETT (based on data provided by the active licensed operators)

Chart 1.65: Progress of 3G and 4G networks Internet traffic



Source: EETT (based on data provided by the active licensed operators)

Chart 1.66: Mobile network population coverage



Source: EETT (based on data provided by the active licensed operators)

### 1.2.6. Pay TV

Pay TV users (IPTV and satellite) increased by 2.1% exceeding one million (Chart 1.67) with the respective shares shown in Table 1.18.

**Table 1.18: Shares of Pay TV operators based on subscribers**

	2015	2016
FORTHNET/NOVA	45%-55%	35%-45%
OTE	45%-55%	45%-55%
VODAFONE	-	5%-10%
CYTA	0%-5%	0%-5%
HOL	0%-5%	-

Source: EETT (based on data provided by the active licensed operators)

### 1.2.7. Bundled offers

Bundled offers (bundles<sup>16</sup>) are available in the Greek market mainly by the companies OTE-COSMOTE, VODAFONE-HOL<sup>17</sup>, WIND, CYTA and FORTHNET-FORTHNET MEDIA. The combination “Fixed telephony” and “Fixed broadband Internet” were mainly provided by the companies OTE, VODAFONE-HOL, WIND, CYTA and FORTHNET, television services were provided by OTE, FORTHNET-FORTHNET MEDIA, VODAFONE-HOL and CYTA, while bundled offers with mobile services were provided by OTE-COSMOTE, VODAFONE-HOL, WIND and CYTA<sup>18</sup>.

It is pointed out that, fixed telephony, fixed broadband Internet and Pay TV are services

mainly addressed to the household in case of residential bundled offers (or to the company in case of business ones), while the mobile post-paid connections, that may be part of the bundles, refer mainly to personalized/personal services.

The basic conclusions for 2016 (end of the year) are the following:

- Bundled offers reached 3,572,789 increased by 205 thousand compared to 2015, while on the other hand and for the same period unbundled fixed telephony subscriptions decreased by almost 193 thousand (Chart 1.68).
- Double play offers were the most popular ones, since throughout the years six out of ten bundled offers were such. Triple play offers play a decisive role accounting for 35.3% of the total, while quad play subscriptions, that amount to 138 thousand and make up 4% of the total, are gradually becoming more important (Chart 1.69).
- The most popular bundled offer was the fixed telephony and fixed broadband Internet double play, with approximately 2.1 million subscriptions followed by the triple play combinations of (a) fixed telephony, Pay TV and Internet and (b) fixed telephony, Internet, mobile service(s) (approximately equal at 630 thousand), and then by the quad play combination (Chart 1.70).
- In 2016, double play subscribers of fixed telephony and fixed broadband Internet increased by 196 thousand compared to 2015, while the ones that bought fixed telephony as an unbundled service decreased by 193 thousand during the same time. (Chart 1.71)

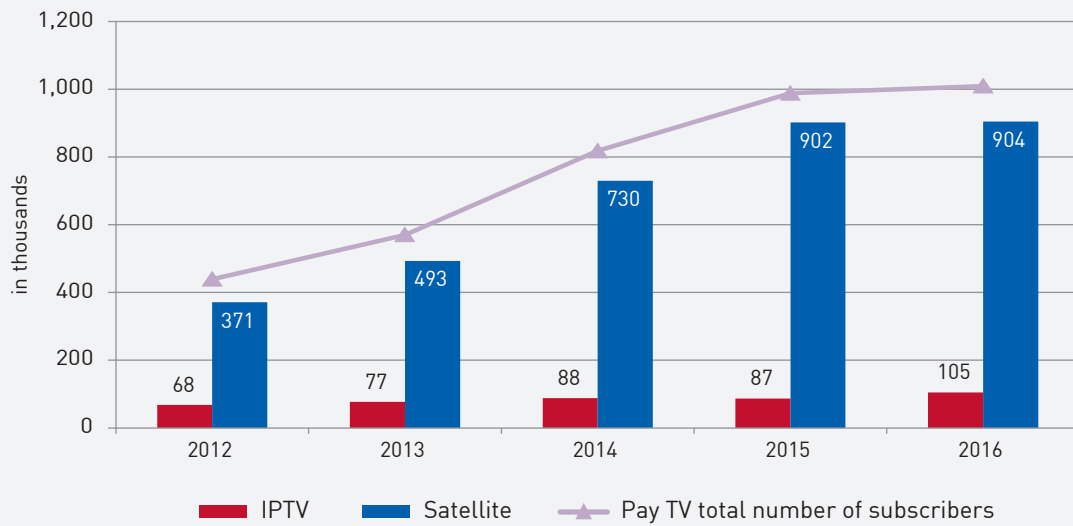
16. Please note that “bundled offers” are commercial offers by one or more operators for the provision of two or more of the following four services: “Fixed telephony”, “Fixed broadband Internet”, “Pay TV” and “Mobile service”. It is further clarified that:

a) The term “Pay TV” refers exclusively to the provision of TV services via broadband and satellite connection. Mobile TV is not included.  
 b) The term “mobile service” refers to mobile telephony or/and mobile broadband Internet, without distinguishing between computer-based and handset-based access. Only the two aforementioned mobile communication services are taken into account but as a single service (whether the operator provides one or both of them).  
 (c) Bundled offers may be either (a) pure bundles or (b) tied and tying service bundles or (c) mixed bundles, in which the operator or operators offer some kind of incentive to customers to entice them to select the bundled (combined) purchase of these services, usually under some kind of “permanent favourable terms” (i.e. favourable terms applicable for the entire duration of the bundled offer). These terms are not applicable when the customer purchases the services separately (not in bundled/combined form).

17. It is noted that HOL was acquired by VODAFONE on 01-04-2016.

18. It should be mentioned that based on the definition used for bundled offers, one or more operators (either individual companies or/and companies-members of the same group) may provide such offers. In addition, given that such an offer includes by definition at least one service rendered at a fixed location, all the calculations of the current paragraph (unless otherwise stated), are based on the number of fixed subscriptions. So, a fixed telephony and broadband Internet subscription that is bundled with three SIM mobile cards is counted as one bundled offer.

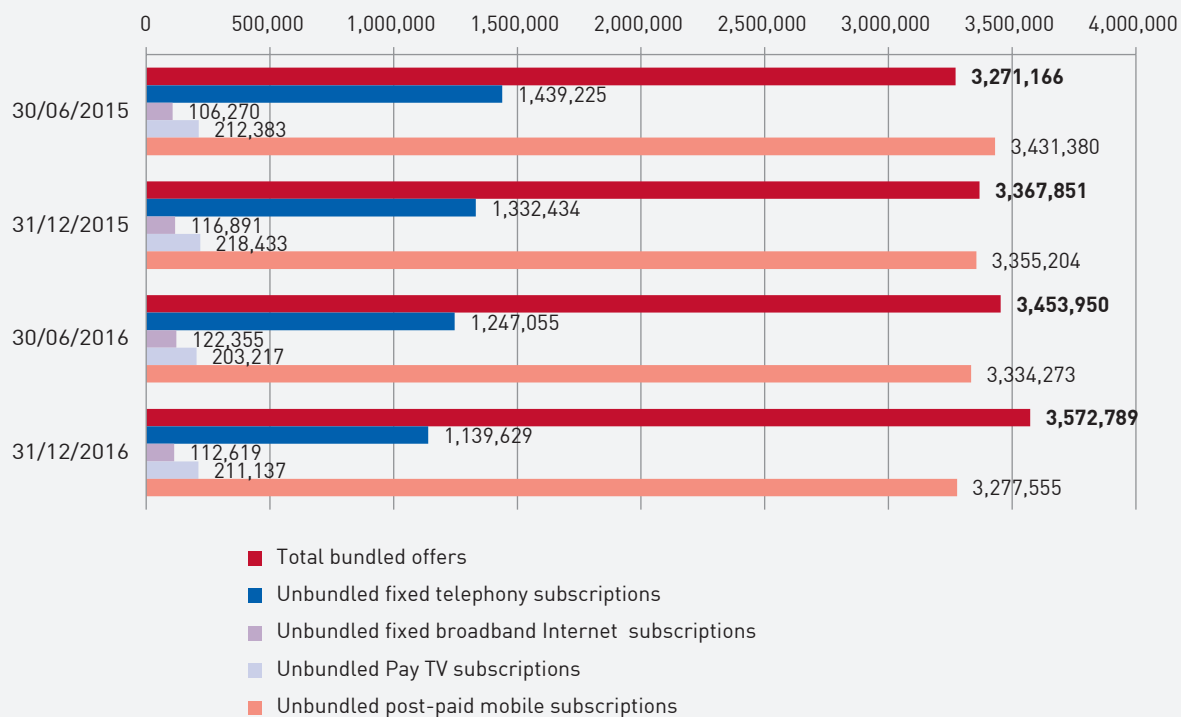
Chart 1.67: Progress of Pay TV users



Source: EETT (based on data provided by the active licensed operators)

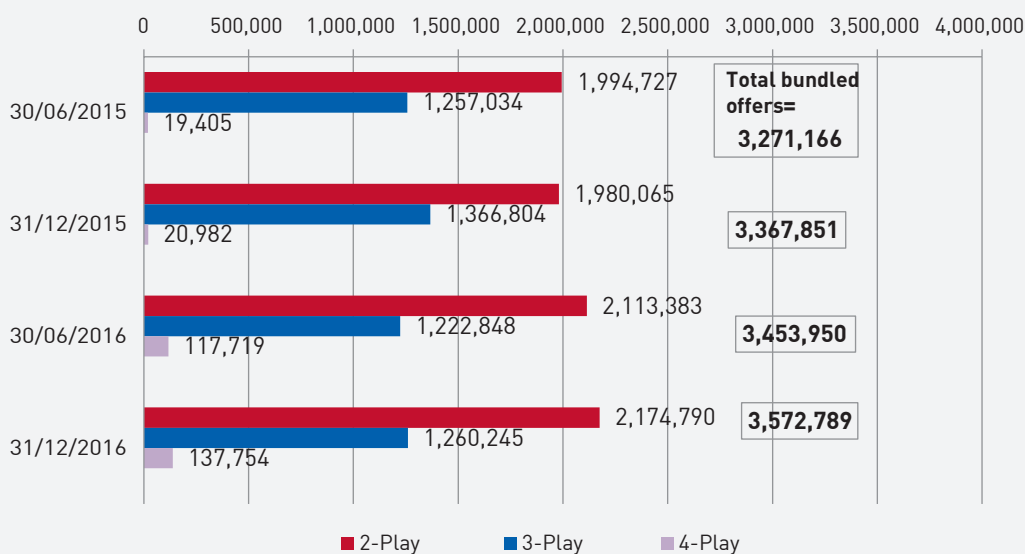
- Total fixed telephony subscriptions that kept on shrinking for years, increased during 2016 demonstrating somewhat stabilizing trends (Chart 1.71).
- Ever since bundled offers came into play and up till 2016, fixed telephony has always been included in them. Fixed broadband Internet was respectively included in approximately 98% of the bundled offers purchased by the consumers, while mobile services and Pay TV were respectively included in 23% and 22% (Chart 1.71).
- 75.8% of the total fixed telephony subscriptions i.e. three out of four fixed telephony subscriptions were sold bundled with other services, while the respective percentage one year ago was 71.7%. Specifically, 44.4% of the total fixed telephony subscriptions were exclusively bundled with Internet (versus 40.3% at the end of 2015), 13.4% was bundled with Internet and television, another 13.3% with Internet and mobile service(s), while lastly, a 2.9% of the total fixed telephony subscriptions bundled together all four services (Chart 1.72).
- Approximately 97% of the fixed broadband Internet was bundled with other services (Chart 1.73).
- The television subscriptions increased by 2.1% reaching 1,009,054 versus 988,218 last year.
  - Out of those who purchased television services, 62.5% bundled them with fixed telephony and Internet (i.e. triple play of television, fixed telephony and fixed Internet), 13.7% got them as part of a quad play, while just 20.9% purchased television as an unbundled service (Chart 1.74).
  - Approximately 90% of total television subscriptions (904,341 subscriptions) were satellite ones, while the rest 10% referred to subscriptions via broadband connections.
  - Bundled offers with mobile services increased by 13.5% and have now reached 820,450 compared to 722,594 during last year. Out of them, 76.7% pertain to the triple play offer of fixed telephony, fixed Internet and mobile service(s), while in total, 20% of the post-paid mobile subscriptions were bundled with at least one service provided at a fixed location (Charts 1.75-1.76).
  - Bundled offers with mobile services, seen from the fixed subscriptions' perspective, increased by approximately 98 thousand, while for the ones based on the SIM cards (more than one SIM cards may be part of a bundled offer) the increase is estimated to 171 thousand (the estimated average number of SIM per fixed subscription amounted to 1.18 at the end of 2016 compared to 1.10 at the end of 2015) (Chart 1.77).

Chart 1.68: Bundled offers and unbundled subscriptions



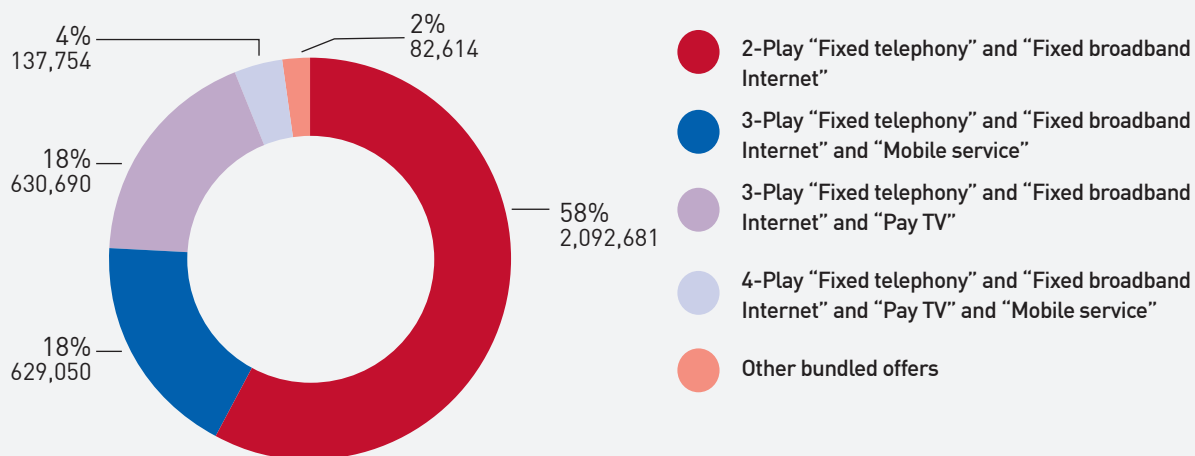
Source: EETT (based on data provided by the active licensed operators)

Chart 1.69: Bundled offers per general type



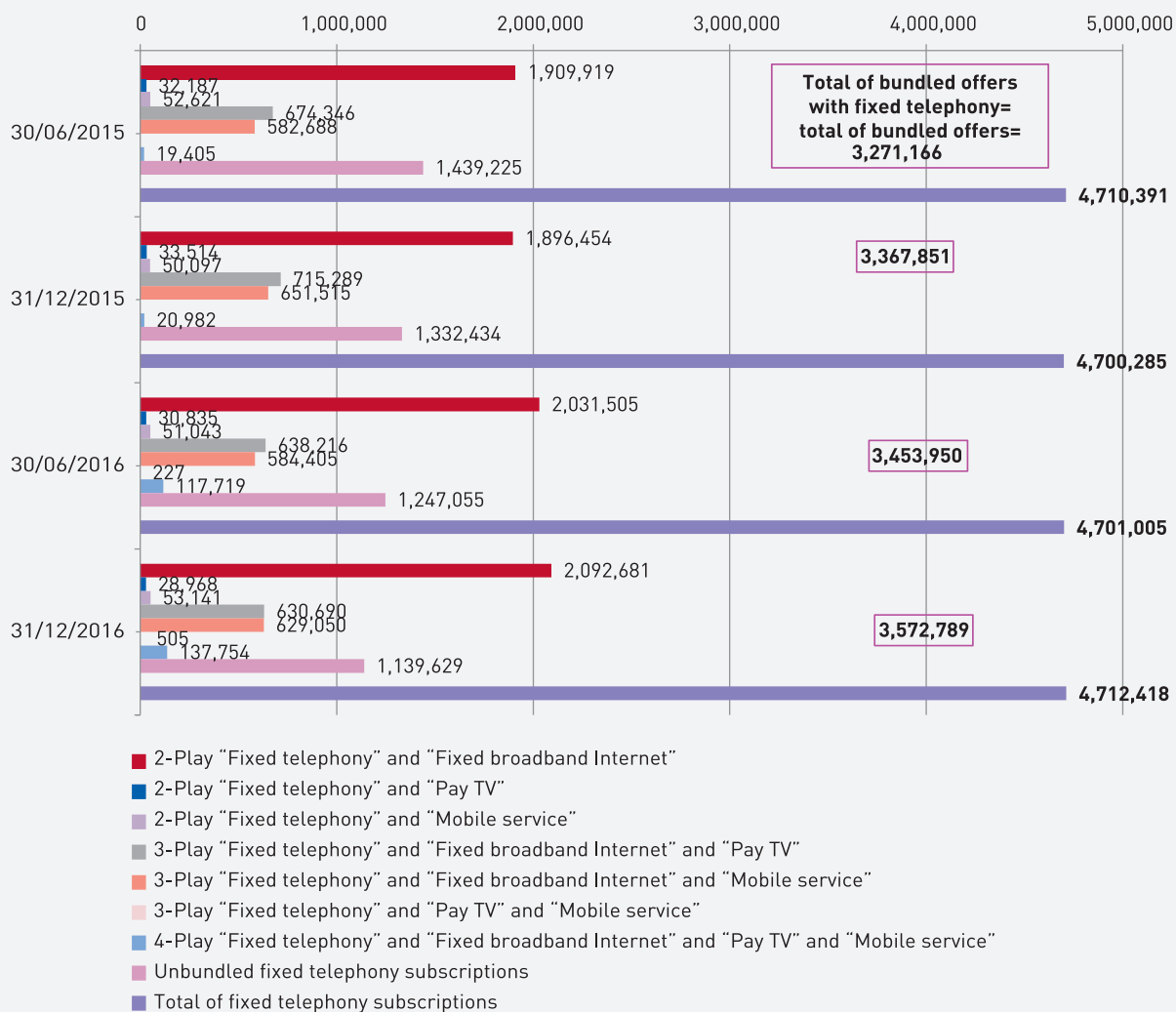
Source: EETT (based on data provided by the active licensed operators)

Chart 1.70: Bundled offers per specific type (December 2016)



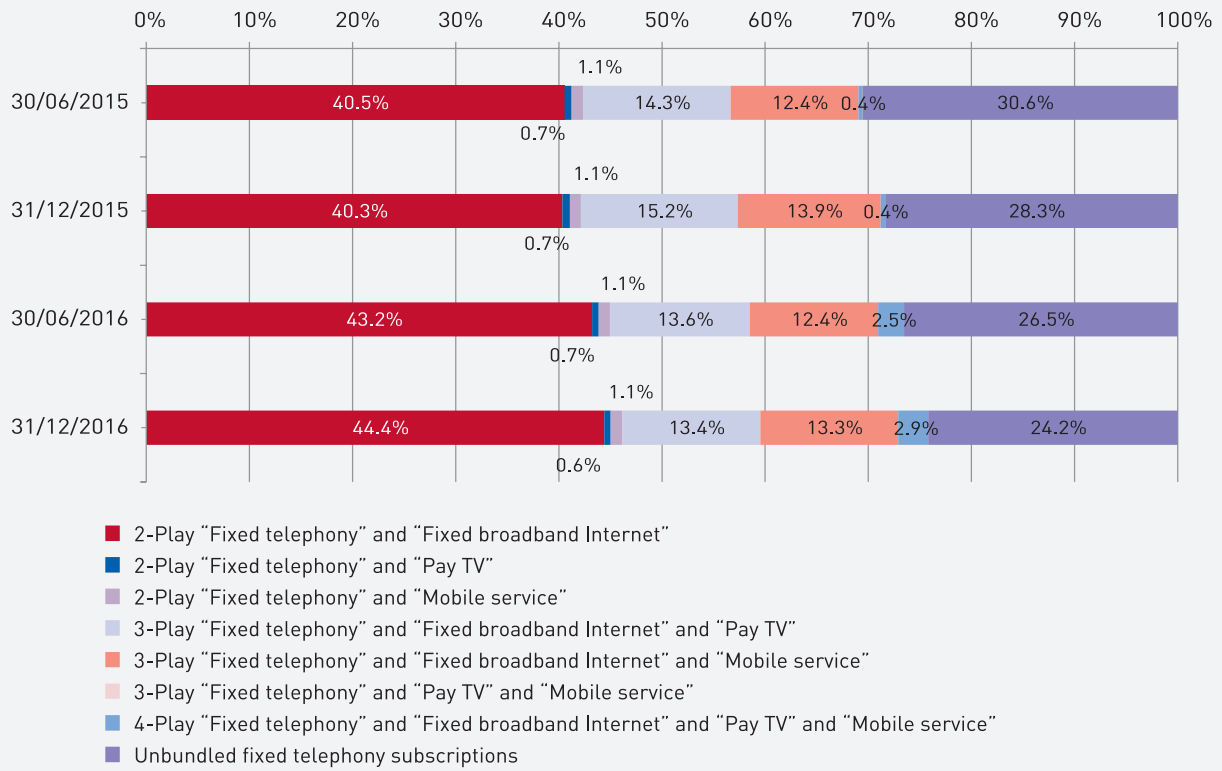
Source: EETT (based on data provided by the active licensed operators)

Chart 1.71: Fixed telephony; Bundled offers (per specific type) and unbundled subscriptions breakdown



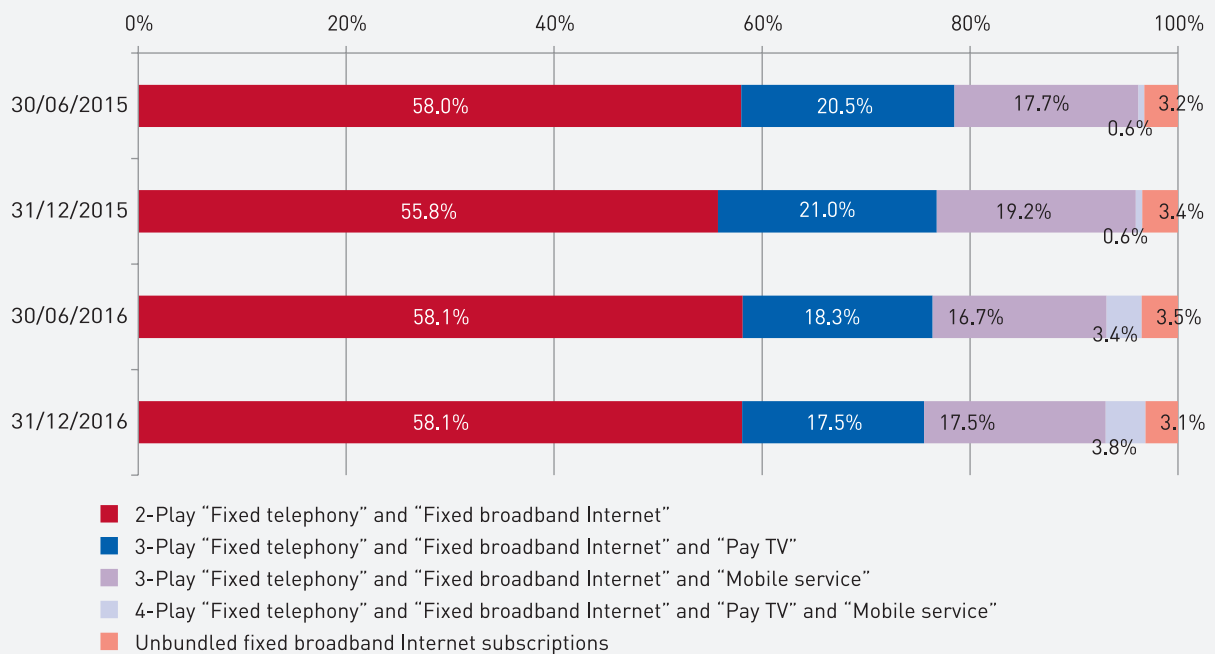
Source: EETT (based on data provided by the active licensed operators)

**Chart 1.72: Bundled offers (per specific type) and unbundled subscriptions breakdown (%)**



Source: EETT (based on data provided by the active licensed operators)

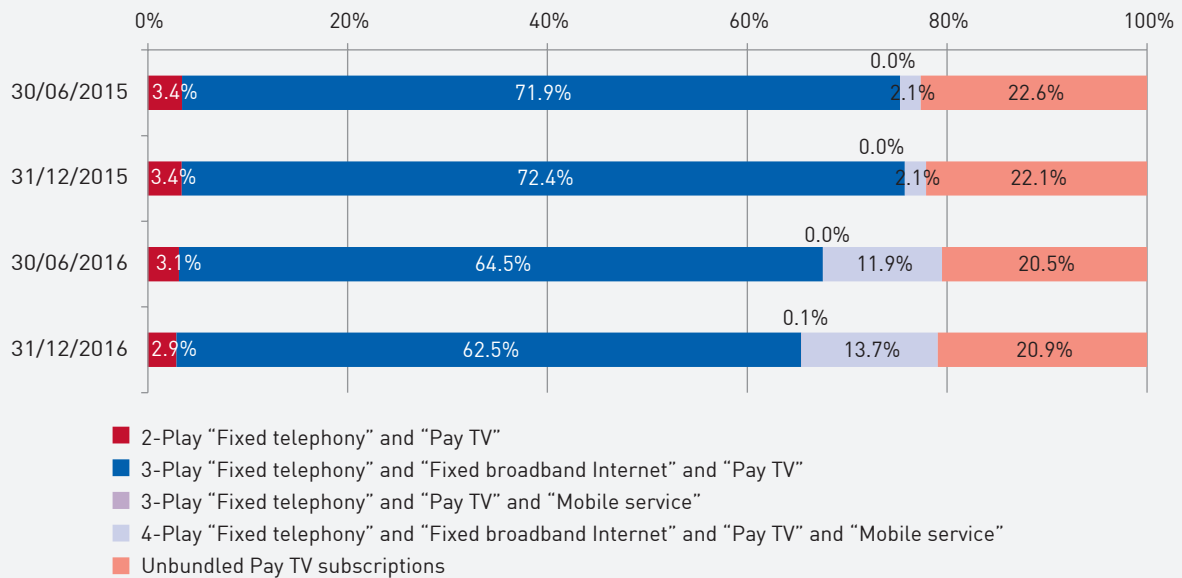
**Chart 1.73: Fixed broadband Internet; Bundled offers (per specific type) and unbundled subscriptions breakdown (%)**



Source: EETT (based on data provided by the active licensed operators)

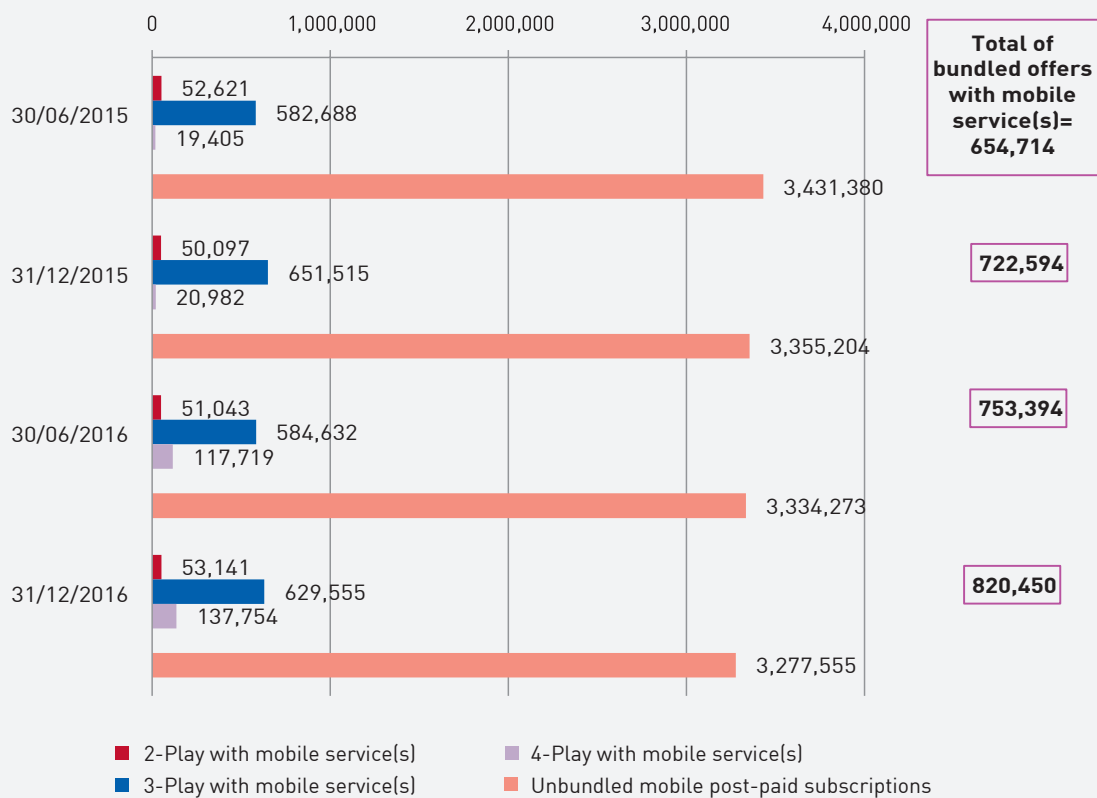


**Chart 1.74: Pay TV; Bundled offers (per specific type) and unbundled subscriptions breakdown (%)**



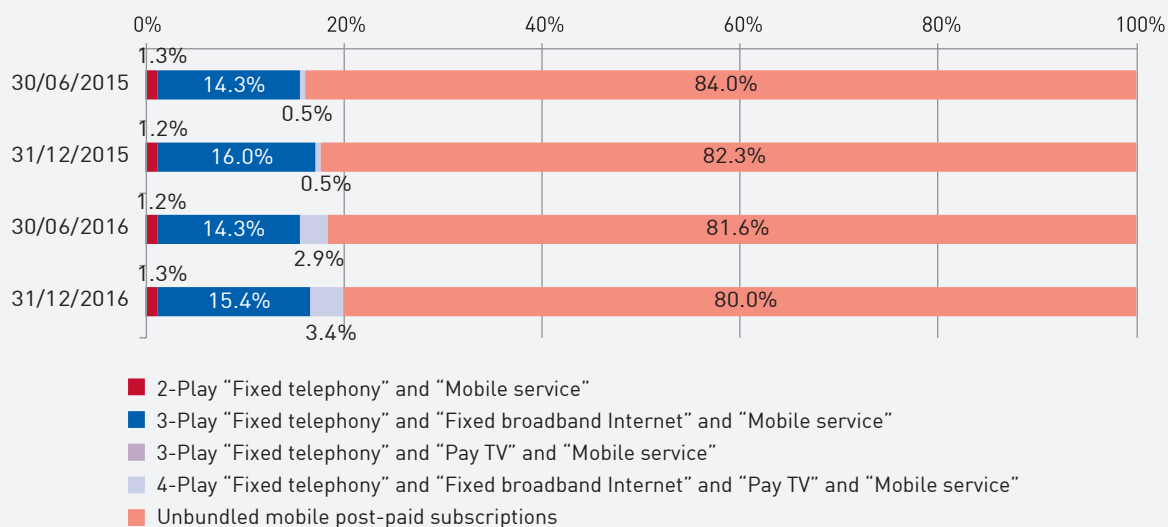
Source: EETT (based on data provided by the active licensed operators)

**Chart 1.75: Mobile post-paid subscriptions; Bundled offers (per general type) and unbundled subscriptions**



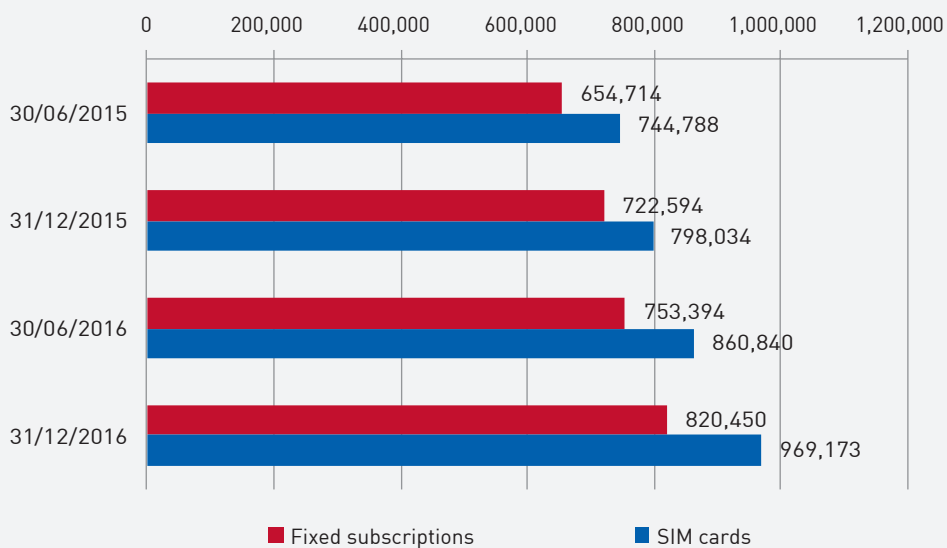
Source: EETT (based on data provided by the active licensed operators)

**Chart 1.76: Mobile post-paid subscriptions; Bundled offers (per specific type) and unbundled subscriptions breakdown (%)**



Source: EETT (based on data provided by the active licensed operators)

**Chart 1.77: Bundled subscriptions with fixed and mobile services based on subscriptions and SIM cards**



Source: EETT (based on data provided by the active licensed operators)

Table 1.19: Number of bundled offers and unbundled subscriptions

A. Fixed services provider's perspective (based on fixed subscriptions)		30/06/2015	31/12/2015	30/06/2016	31/12/2016	
Bundled offers	"Fixed telephony" and "Fixed broadband Internet"	1,909,919	1,896,454	2,031,505	2,092,681	
	2-Play	"Fixed telephony" and "Pay TV"	32,187	33,514	30,835	28,968
		"Fixed telephony" and "Mobile service"	52,621	50,097	51,043	53,141
	<b>2-Play Total</b>		<b>1,994,727</b>	<b>1,980,065</b>	<b>2,113,383</b>	<b>2,174,790</b>
	3-Play	"Fixed telephony" and "Fixed broadband Internet" and "Pay TV"	674,346	715,289	638,216	630,690
		"Fixed telephony" and "Fixed broadband Internet" and "Mobile service"	582,688	651,515	584,405	629,050
		"Fixed telephony" and "Pay TV" and "Mobile service"	-	-	227	505
	<b>3-Play Total</b>		<b>1,257,034</b>	<b>1,366,804</b>	<b>1,222,848</b>	<b>1,260,245</b>
	4-Play	"Fixed telephony" and "Fixed broadband Internet" and "Pay TV" and "Mobile service"	19,405	20,982	117,719	137,754
		<b>4-Play Total</b>		<b>19,405</b>	<b>20,982</b>	<b>117,719</b>
	<b>Unbundled subscriptions total (i.e. 2-Play, 3-Play, 4-Play)</b>		<b>3,271,166</b>	<b>3,367,851</b>	<b>3,453,950</b>	<b>3,572,789</b>
	Bundled offers with one of these services (a)	"Fixed telephony"	3,271,166	3,367,851	3,453,950	3,572,789
		"Fixed broadband Internet"	3,186,358	3,284,240	3,371,845	3,490,175
"Pay TV"		725,938	769,785	786,997	797,917	
"Mobile service"		654,714	722,594	753,394	820,450	
Unbundled subscriptions per service (b)	"Fixed telephony"	1,439,225	1,332,434	1,247,055	1,139,629	
	"Fixed broadband Internet"	106,270	116,891	122,355	112,619	
	"Pay TV"	212,383	218,433	203,217	211,137	
Subscriptions with each of these services (totals, i.e. (a)+(b))	"Fixed telephony"	4,710,391	4,700,285	4,701,005	4,712,418	
	"Fixed broadband Internet"	3,292,628	3,401,131	3,494,200	3,602,794	
	"Pay TV"	938,321	988,218	990,214	1,009,054	
<b>B. Mobile services provider's perspective (i.e. based on mobile SIM cards)</b>		<b>30/06/2015</b>	<b>31/12/2015</b>	<b>30/06/2016</b>	<b>31/12/2016</b>	
Number of SIM cards combined with mobile telephony or/and mobile broadband Internet which service(s) is (are) provided as bundled with at least one fixed service.		744,788	798,034	860,840	969,173	

Source: EETT (based on data provided by the active licensed operators)

### 1.2.8. Premium Rate Services (PRS) and directory services

The figures have been based on data from 29 active operators out of a total of 60 licensed companies. The total invoiced traffic was 62.1 million minutes versus 72.8 million minutes in 2015 and 89.7 million calls and/or messages (83.5 million at the end of 2015), generating revenues amounting to 120.5 million euros, thus reduced by 3.1% compared to 2015. Revenues from

118XX directory services reached 44 million euros corresponding to 36.6% of the total market. Revenues from SMS services (SMS 54XXX and 19XXX-195XX) came second in line, representing 27.1% of the total market value and amounting to 32 million euros, followed by revenues from premium rate series 14XXX, holding a share of 23.7% and an estimated absolute value of 28.5 million euros (Charts 1.78 and 1.79).

Chart 1.78: PRS and directory services shares based on revenues

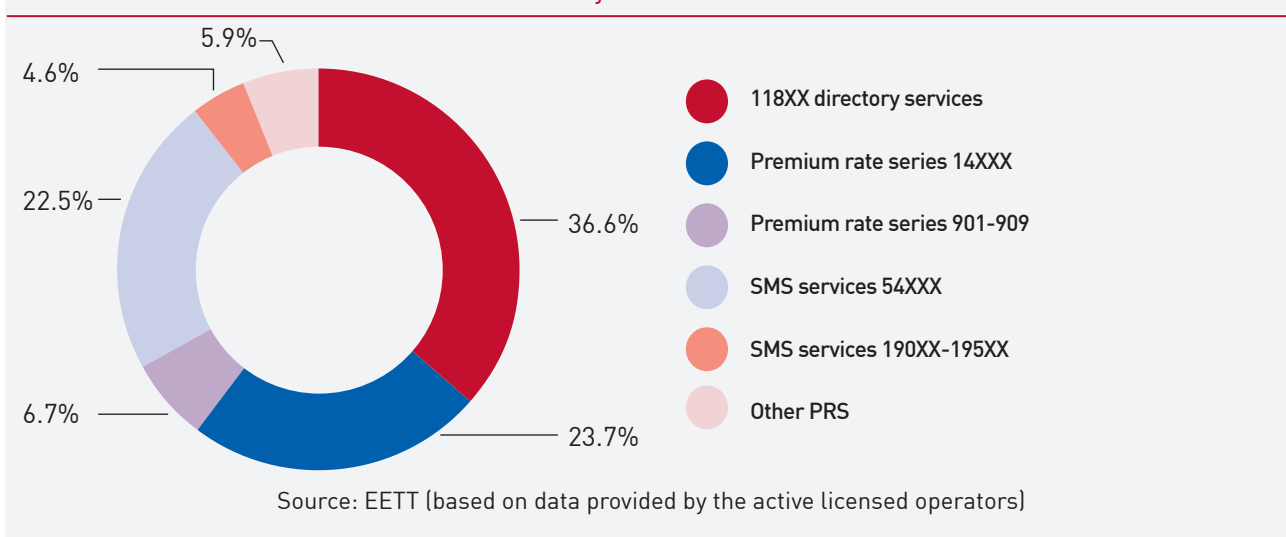
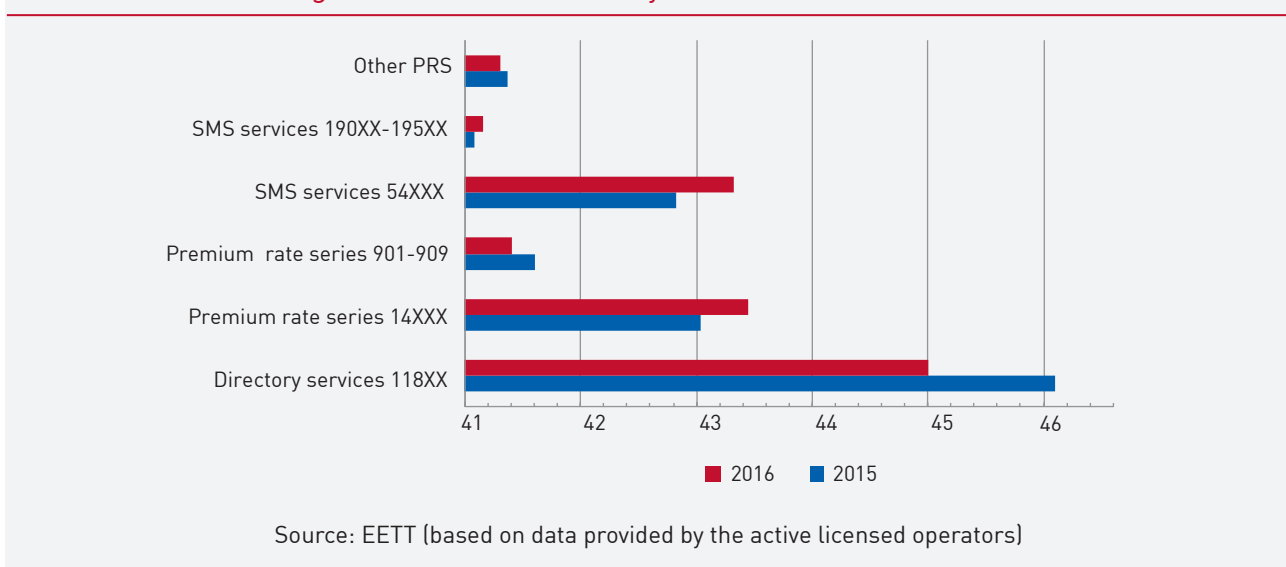


Chart 1.79: Progress of PRS and directory services total revenue (in million euros)



### 1.2.9. Price Observatory's comparison of retail prices (Pricescope)

Based on data entered by the telecommunications operators in 2016 in the Price Observatory or the so-called Pricescope<sup>19</sup>, the companies CYTA, FORTHNET, OTE-COSMOTE, VODAFONE, WIND offered more than 1,200 products/packages in the domestic market<sup>20</sup>. In many cases the companies are enabling ad hoc combinations of the above products aiming at meeting consumer needs and being efficiently competitive. Approximately 90,000 possible and dynamically produced combinations (henceforth product solutions) have been registered, a fact that highlights the intensity of competition as well as the size of the telecommunications market. The products are classified as basics and add-ons. A basic product can be sold as stand alone, meaning that a customer can meet his/her needs by buying only that. An add-on product/package is not commercially available by itself but in combination with a basic product. For example, a pre-paid package is an add-on. The aforementioned 90,000 product solutions are the outcome of combining basic products with add-ons or with other basic products. Finally, a third semi stand alone category is the offers, meaning the provision of basic or add-on products under specific restrictive clauses. Based on the above classification:

- COSMOTE seems to have marginally more products than the other operators (Chart 1.80).
- COSMOTE's product mix is almost evenly allocated between basic and add-on programs (~42-43%), VODAFONE is based mainly on basic programs (72%) whilst WIND seems to primarily emphasise on its add-ons (46%) (Chart 1.81).
- One out of ten products is marketed as an offer, while more than one out of three products is characterized as an add-on, demonstrating the need for multiple product solutions, that can be bundled, differentiated and customized (Chart 1.82).

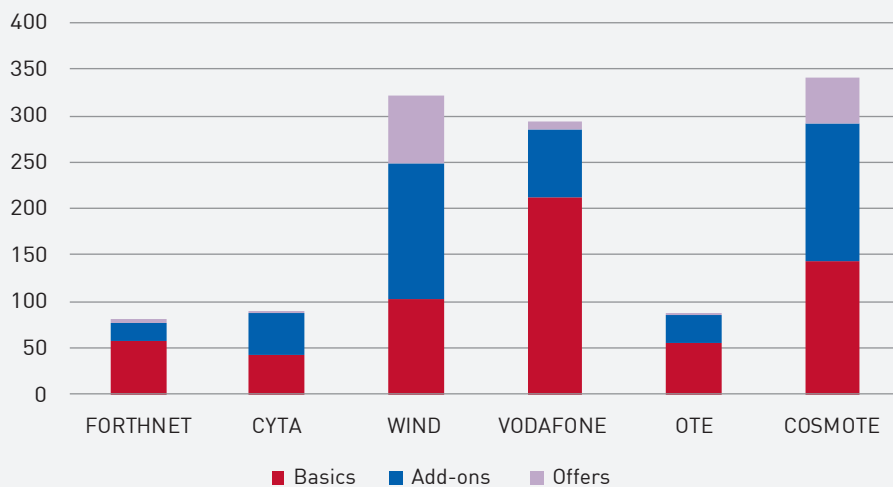
- Most of the products are in the mobile market. Approximately 62% are mobile voice products, while another 13% refer to mobile broadband products. Thus, approximately one out of four products has fixed services, which is also explained by the lower number of fixed add-ons compared to the mobile ones (Chart 1.83).
- Just 3% of the mobile pre-paid voice products are categorized by the operators as basic, whereas in the post-paid section of the mobile market and in the fixed market as well, the analogy between basic and add-ons is roughly the same (Charts 1.84 to 1.86)
- Approximately six out of ten products are exclusively addressed to residential customers. Conversely, just one out of four products is business-related, whereas there is also a range of products which are seemingly addressed to both groups (Chart 1.87)
- The pre-paid mobile products are mainly addressed to residential customers, while the post-paid section of the mobile market seems to offer the biggest number of customized products-programs for businesses (Chart 1.88).
- COSMOTE and WIND programs are mainly (>80%) addressed to residential customers, while over half of the VODAFONE programs (55%) are business-oriented (Chart 1.89).
- Most of the programs (~53%) consist of a monthly rental up to 40 euros (26 euros on average) and a call allowance up to 1,000 minutes (375 minutes on average). For about 30% of programs, monthly rental is up to 80 euros (58 euros on average) and the call allowance reaches 1,500 minutes (992 minutes on average) (Chart 1.90).

All the above provide an useful insight on the way each operator plans its product mix and executes its business plan, while the number of products and their dynamic combinations are indicative of the market segmentation.

19. The information of this section derives from data entered by the operators OTE-COSMOTE, VODAFONE, WIND, CYTA, FORTHNET in the data repository of Pricescope.

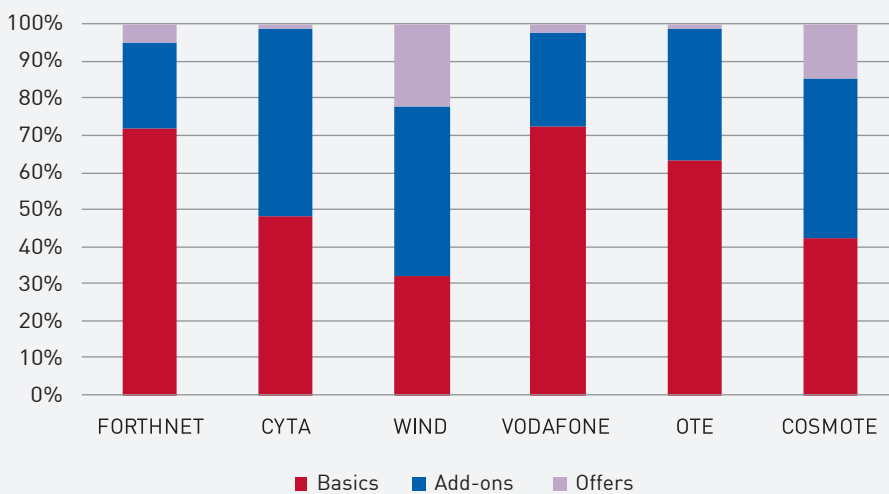
20. Setting aside commercially available products, there are also additional products registered that, even though are not commercially active, customers favor them and still use them. In addition, product differentiation does not solely depend on a different brand name but also on other specific features, such as the binding duration attached to a telecommunications service contract.

Chart 1.80: Commercially available products per operator



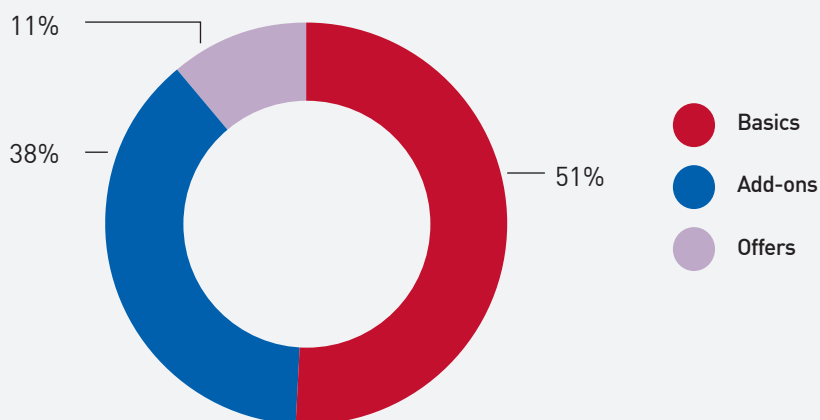
Source: EETT

Chart 1.81: Commercially available products per operator (%)



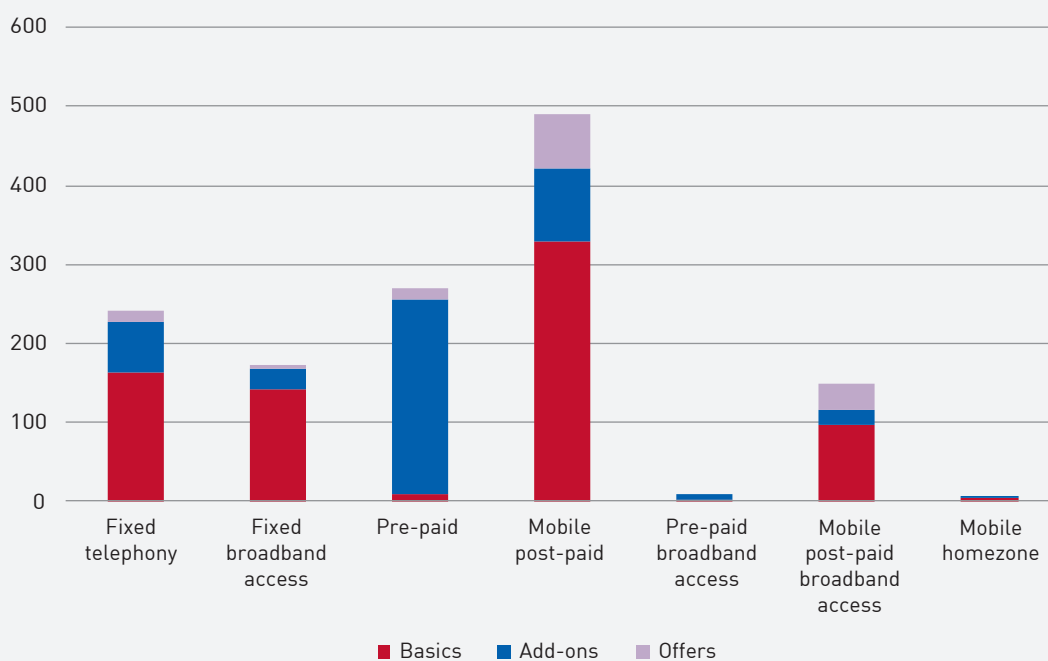
Source: EETT (based on data provided by the active licensed operators)

Chart 1.82: Product type breakdown in the market



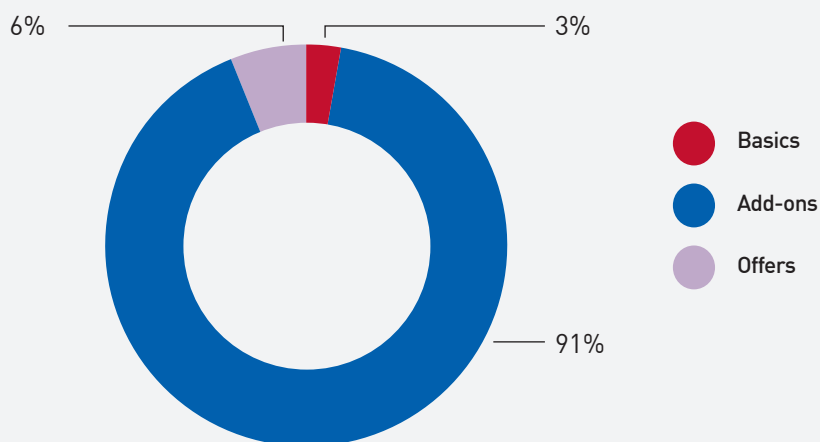
Source: EETT

Chart 1.83: Number of products per service



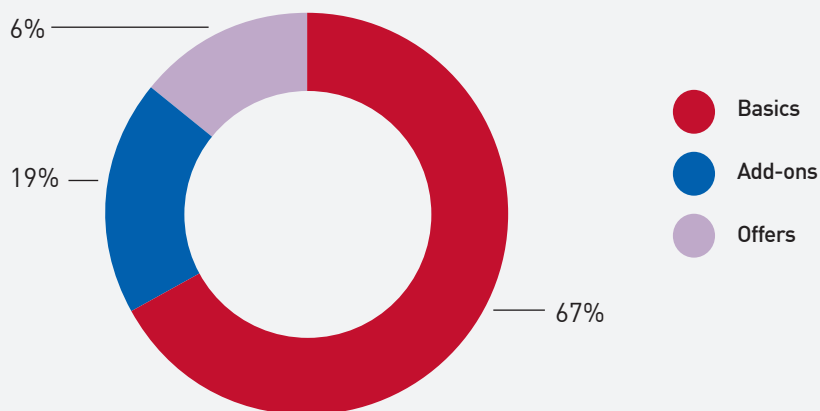
Source: EETT

Chart 1.84: Basics to add-ons ratio in pre-paid telephony



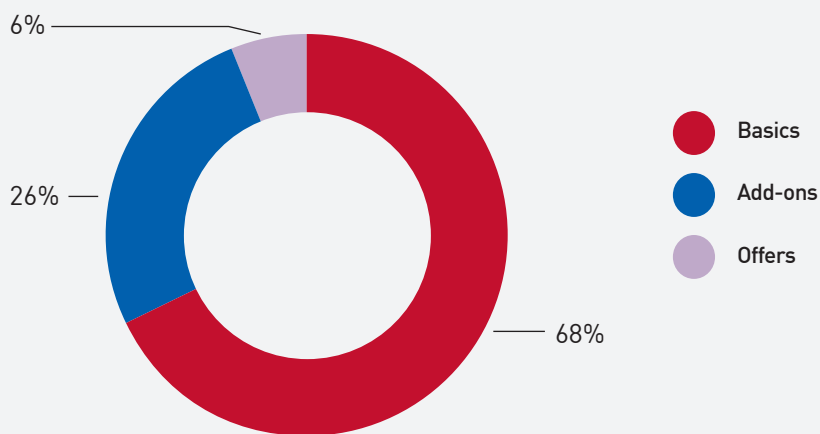
Source: EETT

Chart 1.85: Basics to add-ons ratio in mobile post-paid telephony



Source: EETT

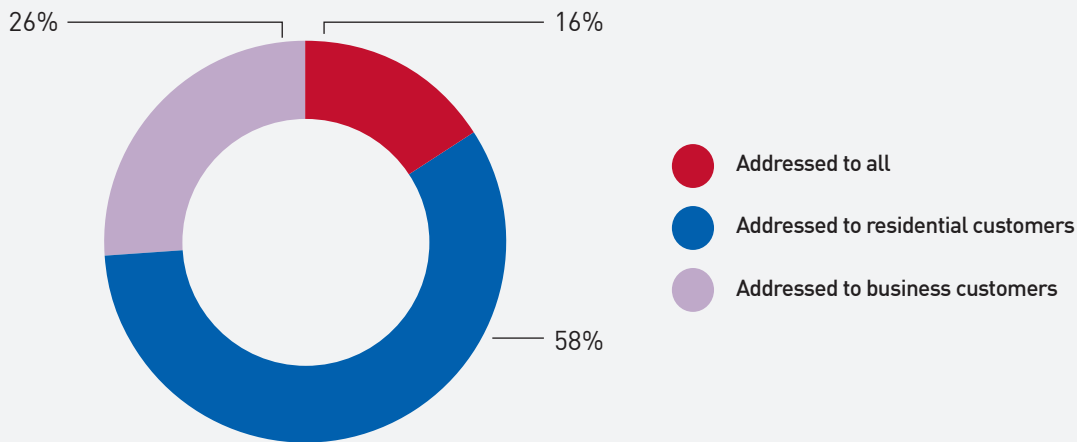
Chart 1.86: Basics to add-ons ratio in fixed telephony products



Source: EETT

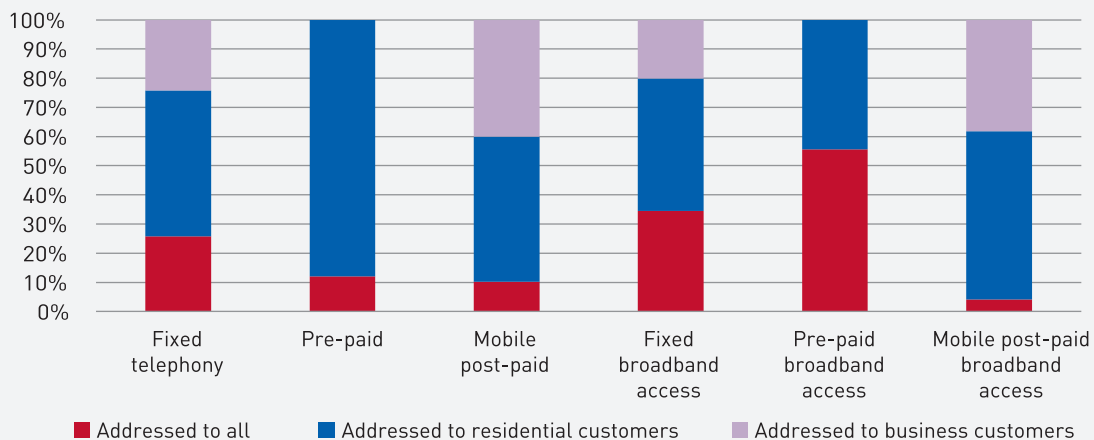


Chart 1.87: Target-markets of telecommunications products



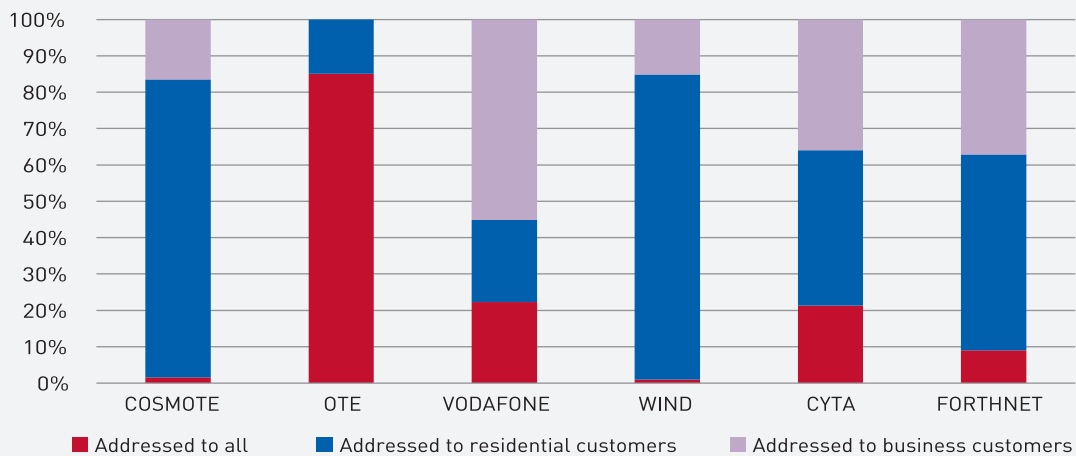
Source: EETT

Chart 1.88: Product breakdown per service in the target-markets



Source: EETT

Chart 1.89: Product breakdown per operator in the target-markets



Source: EETT

Chart 1.90: Product concentration in the mobile post-paid

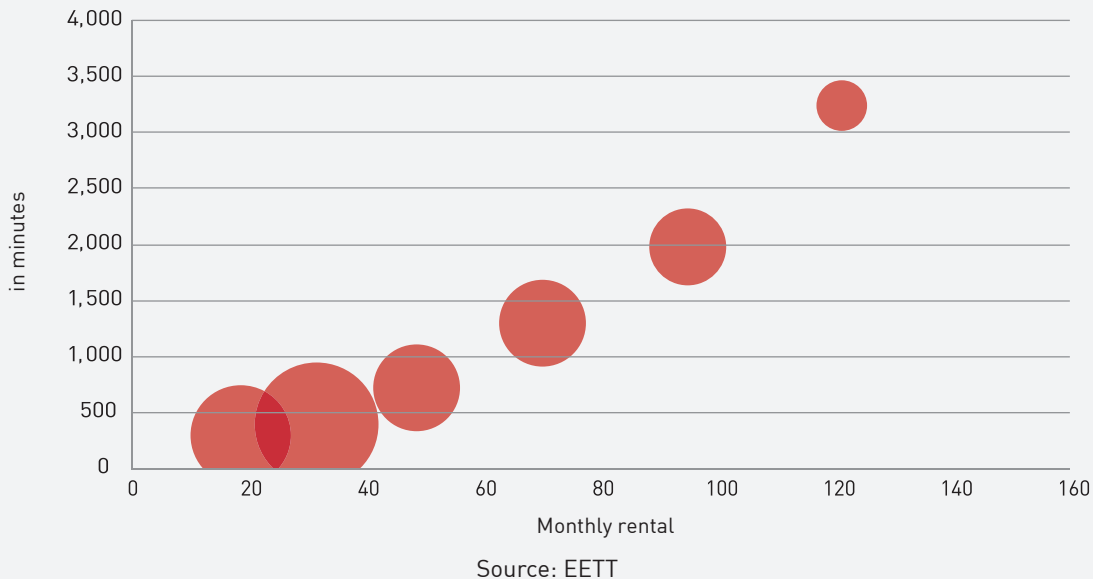
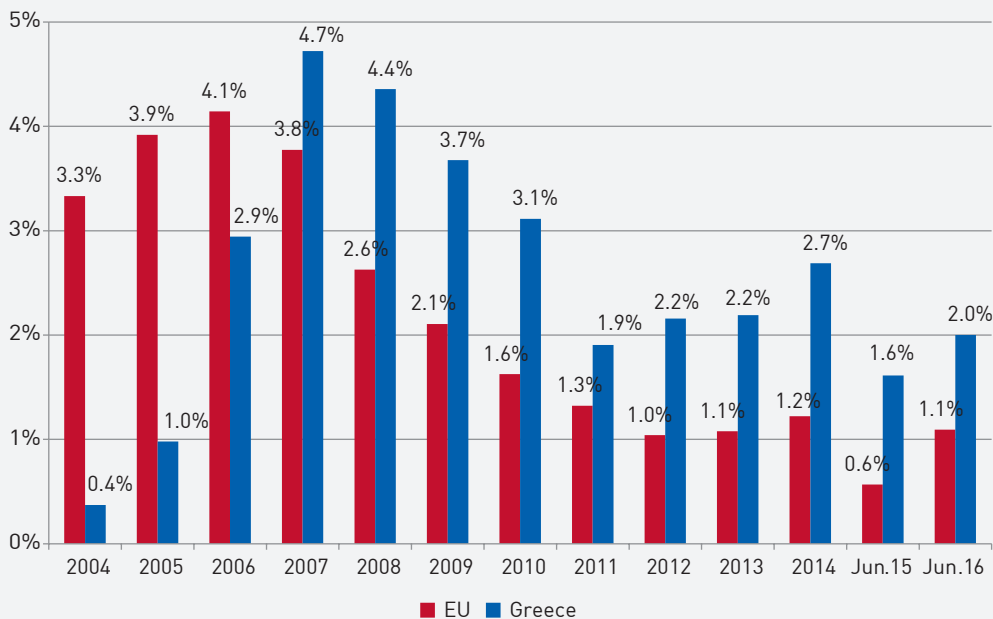


Chart 1.91: Broadband penetration increase in Greece and the EU



1.2.10. Comparison of Greek and European market indicators<sup>21</sup>

**Fixed broadband**

Broadband connections penetration in Europe increases at decelerating pace. In June 2016, the

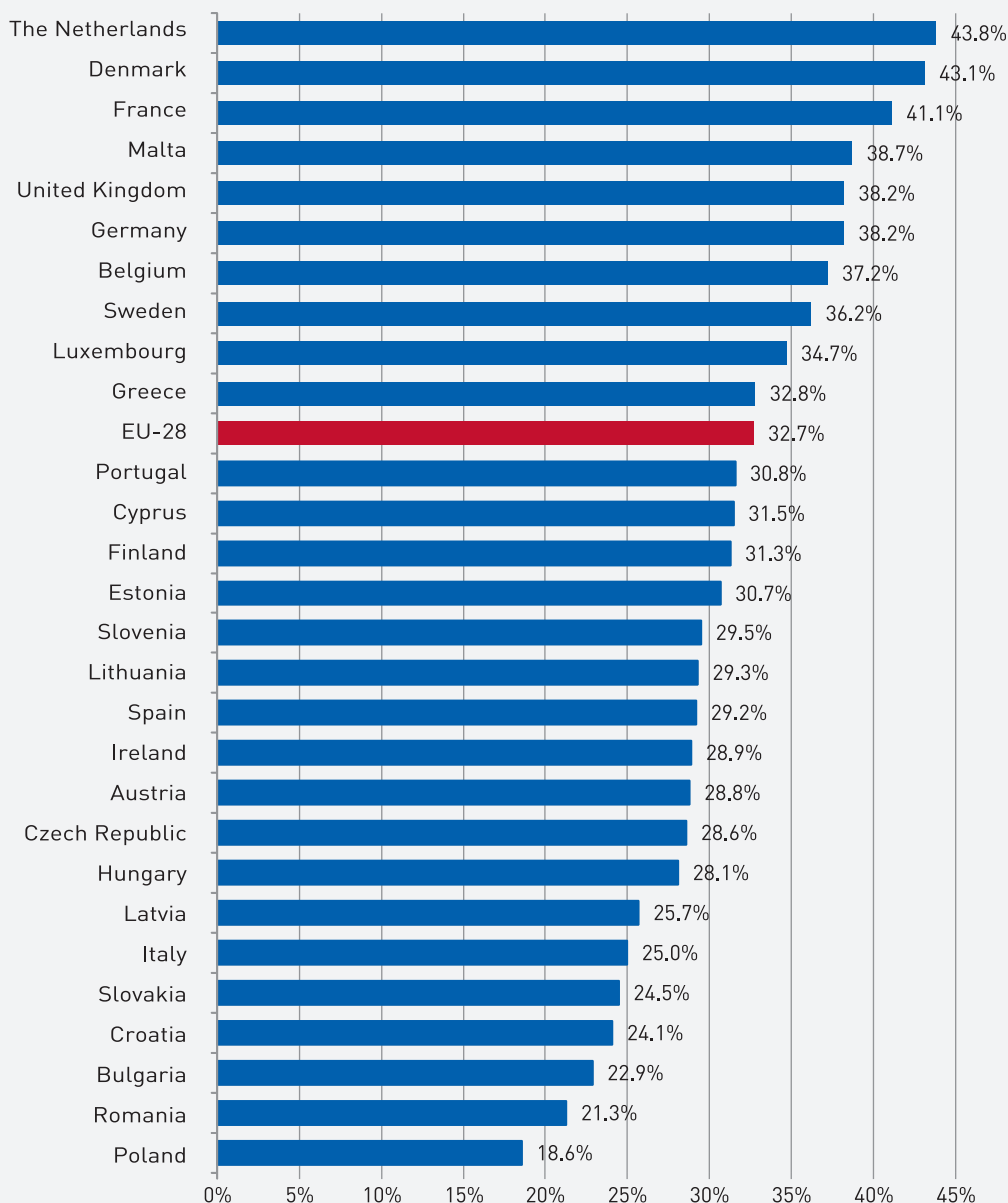
penetration of the fixed broadband, i.e. the number of broadband connections per 100 residents, reached 32.7% compared to 31.6% in June 2015. The respective rates for Greece were 32.8% and 30.8%, thus ranking it in the 10<sup>th</sup> position among

21. The data presented for Greece lagged at least a semester compared to the data mentioned earlier.

EU member states, one place higher compared to June 2015 (11<sup>th</sup> position). For the first time, Greece is marginally above the European average. Furthermore, during the same period, the growth rate of broadband penetration in Greece was almost double than the European average, i.e. 2% against 1.1% respectively (Charts 1.91-1.94).

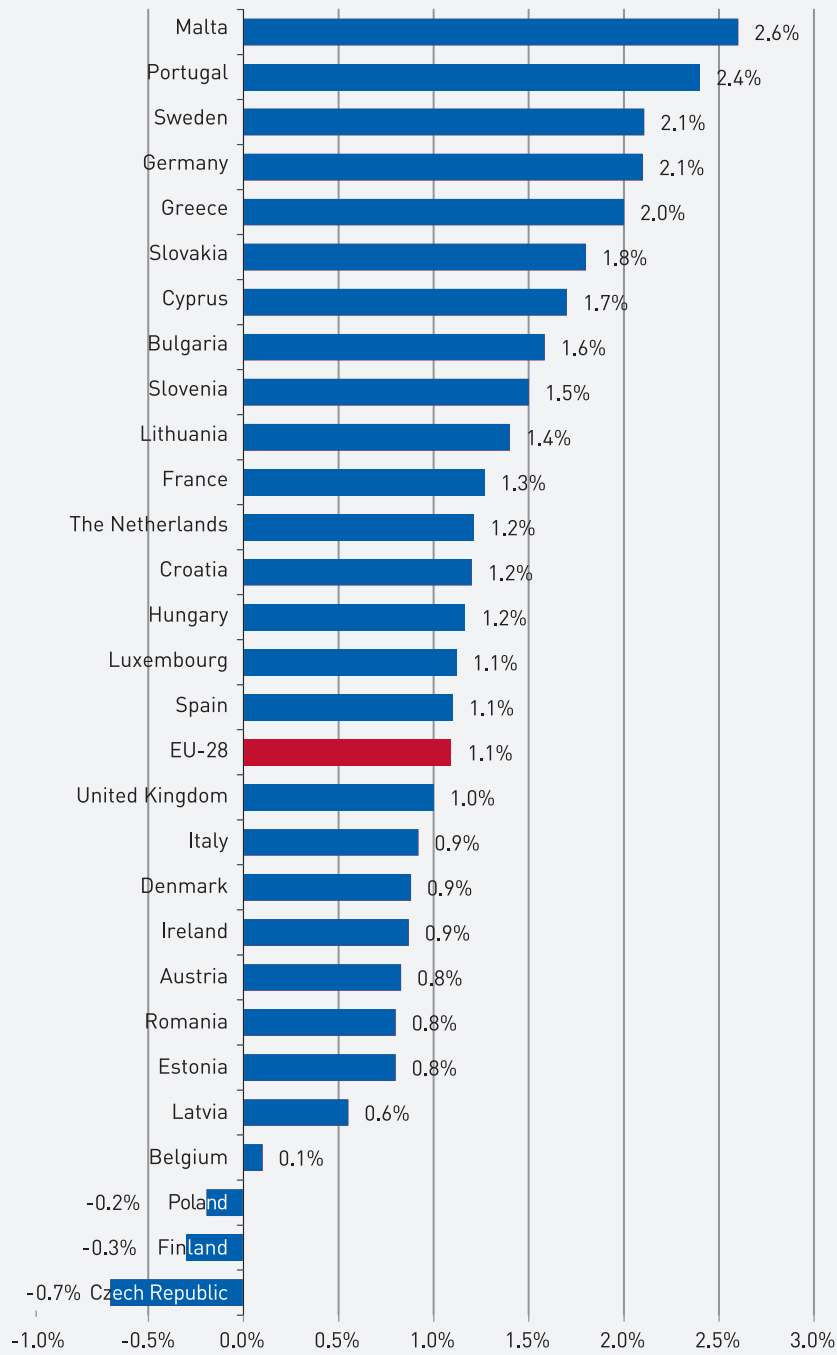
Also, the demand for ultra-fast broadband lines continued to increase, and as a result, broadband connections at speeds over 30Mbps accounted approximately for 37% of total connections in June 2016 (against 30% in June 2015), with Greece being among the last ones with 7.1% versus 4.2% in June 2015 (Chart 1.95).

Chart 1.92: Broadband penetration in Greece and the EU (June 2016)



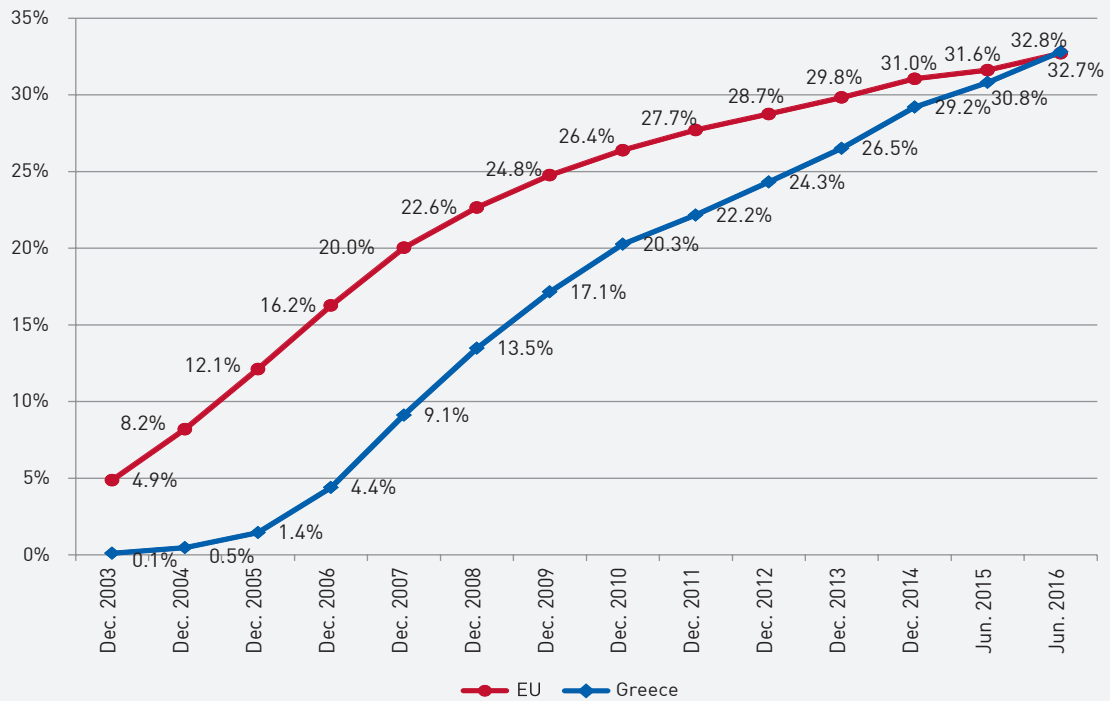
Source: EETT (based on Digital Economy & Society Index data)

Chart 1.93: Broadband penetration change in the EU (June 2016)



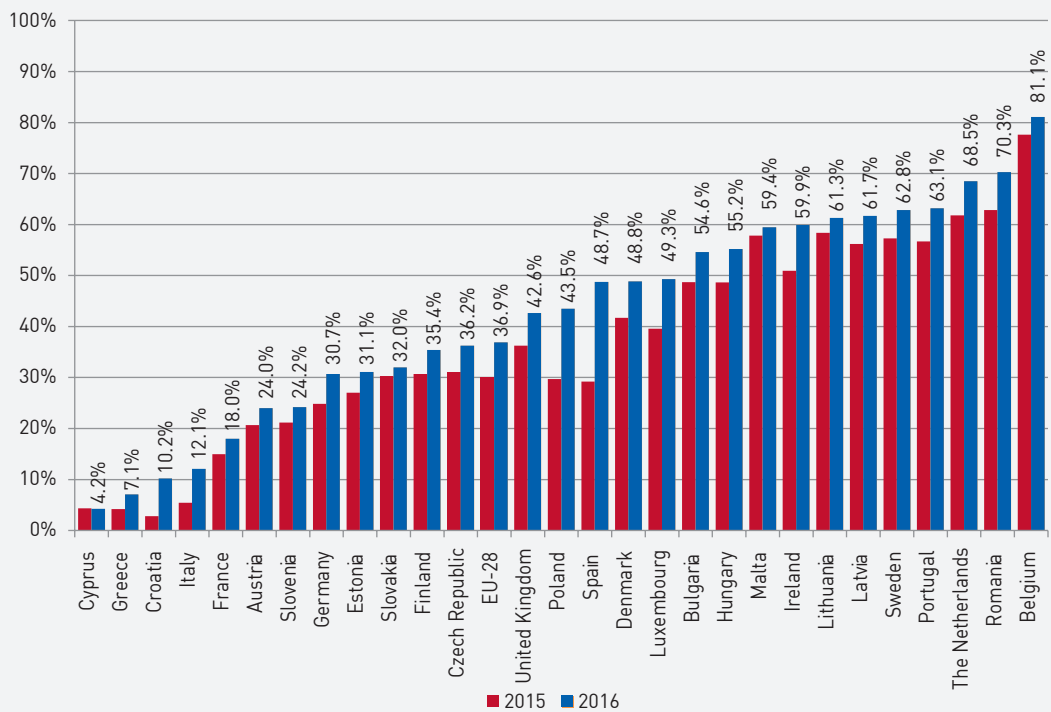
Source: EETT (based on Digital Economy & Society Index data)

Chart 1.94: Broadband penetration progress in Greece and the EU



Source: EETT (based on Digital Economy & Society Index data)

Chart 1.95: Percentage of lines at speed >30 Mbps in the EU (June 2016)



Source: EETT (based on Digital Economy & Society Index data)

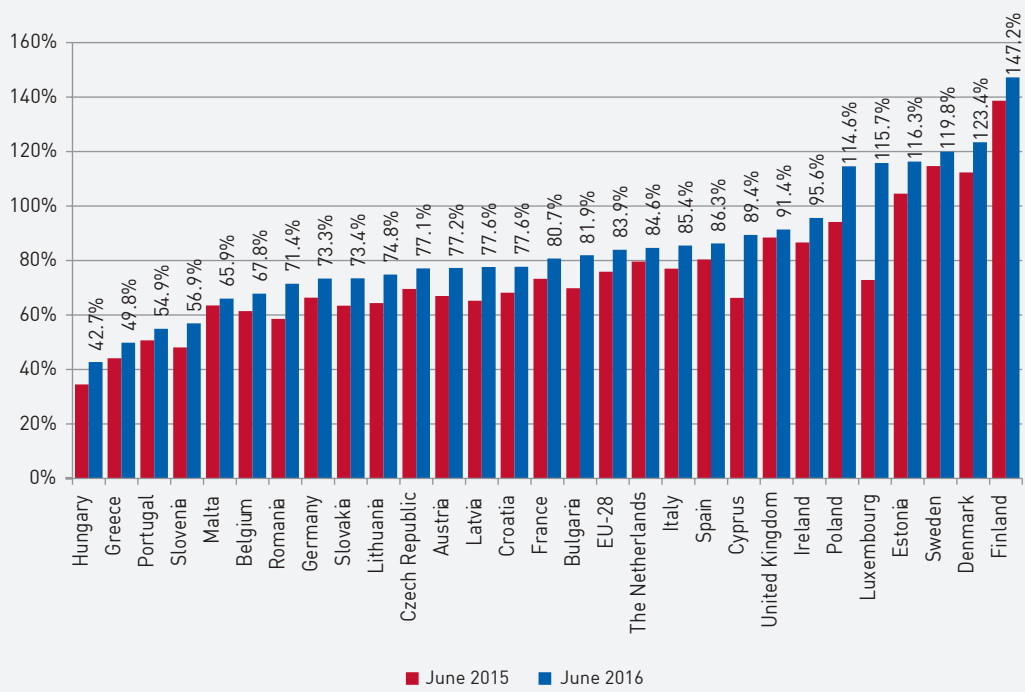
**Mobile broadband**

Mobile broadband keeps growing at a rapid pace, attaining in the EU penetration rate of 83.9% in June 2016 (connections per 100 residents) compared to 75.3% in June 2015 (Chart 1.96). Luxembourg and Poland had mobile broadband penetration rates over 100% joining the group of Finland, Denmark, Estonia and Sweden that had already achieved it last year. Greece, with a mobile broadband penetration rate of 49.8%, is among the last in row in mobile broadband access, while its penetration rate increase from June 2015 to June 2016 was still lower than the European average (5.5% compared to 8.6%).

**Network infrastructure development**

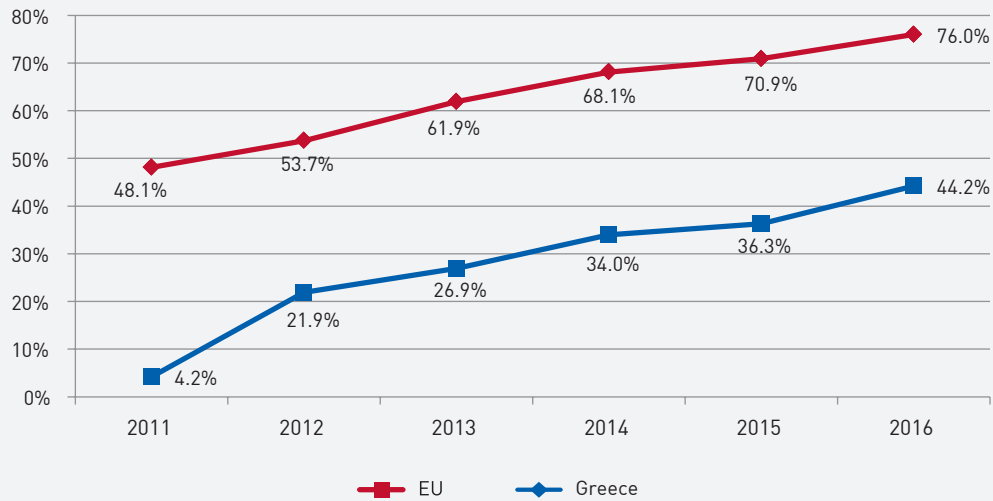
The Next Generation Access networks (NGAs) development has expanded covering 76% of households in 2016 compared to 70.9% in 2015 (Chart 1.97). Greece attained a 44.2% coverage ranking below the European average, achieving though a growth rate higher than the European one (7.9% against 5.1%). At the same time, the 4G coverage of residential areas (average coverage by the telecommunications providers in each country) stood at 84.9% of the population in June 2016, with Greece lagging slightly behind with 79.8% of the population (Chart 1.98).

Chart 1.96: Mobile broadband penetration (per 100 residents)



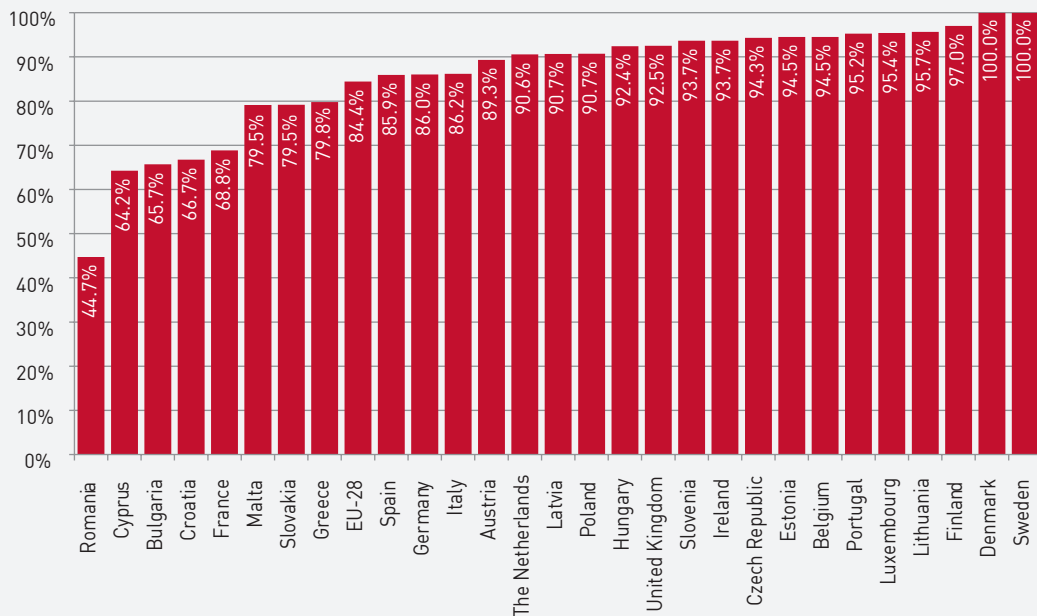
Source: EETT (based on Digital Economy & Society Index data)

Chart 1.97: Broadband coverage of NGAs in the EU and Greece



Source: EETT (based on Digital Economy & Society Index data)

Chart 1.98: Rate of residential areas covered by 4G



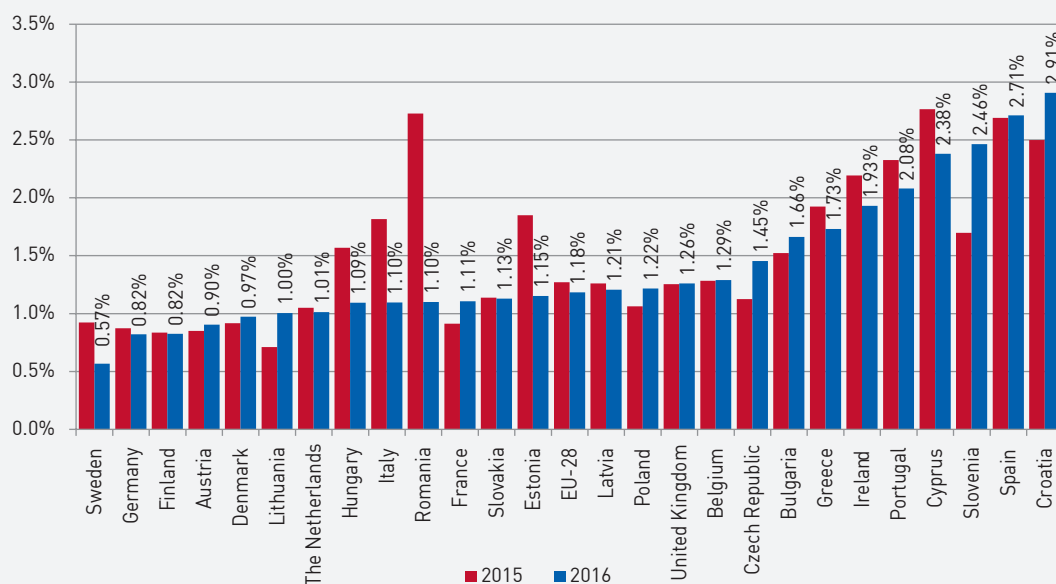
Source: EETT (based on Digital Economy & Society Index data)

**Internet access**

Greek households had to spend on average 1.73% of their available income to pay for annual Internet access services whereas the respective EU figure was 1.18% (Chart 1.99). 66% of Greeks connected

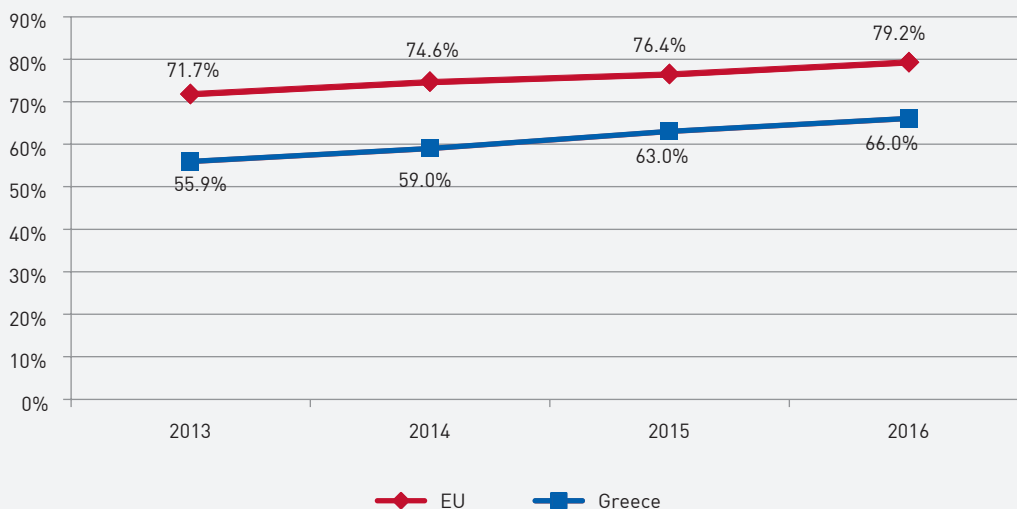
to the Internet at least once a week, converging gradually to the European average (79%) (Chart 1.100). Most of them connected to the Internet for news/information and entertainment (85.3% and 76.6% respectively) (Chart 1.101).

Chart 1.99: Internet accessibility based on the available income



Source: EETT (based on Digital Economy & Society Index data)

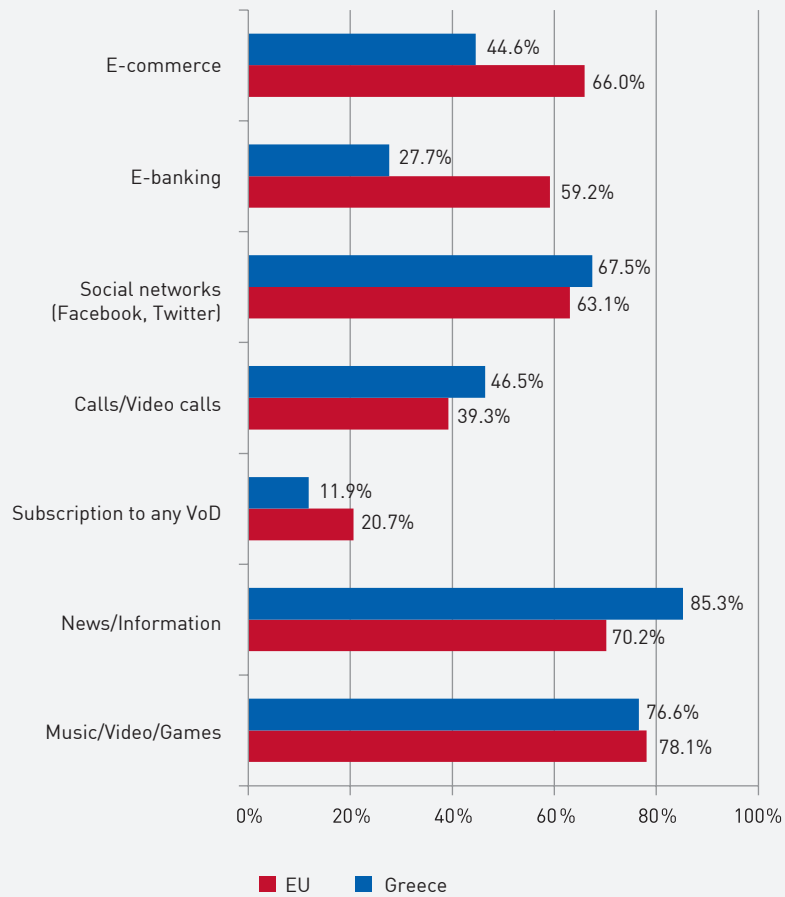
Chart 1.100: Internet access at least once a week



Source: EETT (based on Digital Economy & Society Index data)



Chart 1.101: Use of Internet, 2016



Source: EETT (based on Digital Economy & Society Index data)



02

## POSTAL SERVICES

### 2.1. The course of the postal market

#### 2.1.1. Globally

##### **Key financial figures**

The global postal market continued to grow in 2016 despite the competitive conditions and the continuous decline of letter mail volume. The postal companies increased the volumes of their parcels and express shipments, especially regarding B2C e-commerce items, and further diversified their activities, in order to support the increase of their revenues. In 2016, many postal companies concentrated on the improvement of the operational efficiency of their delivery networks, e.g. with investments in the automation of their sorting centers, and focused on the development of innovative solutions for e-commerce consumers, especially for the cross-border markets.

According to preliminary results for 2016<sup>22</sup>, the global postal market continued to show growth trend. The market's revenue increased by 1.5% compared to 2015. Despite the decline of letter mail volume, the sector's revenue increased by 0.5%, while the revenue of the parcels and ex-

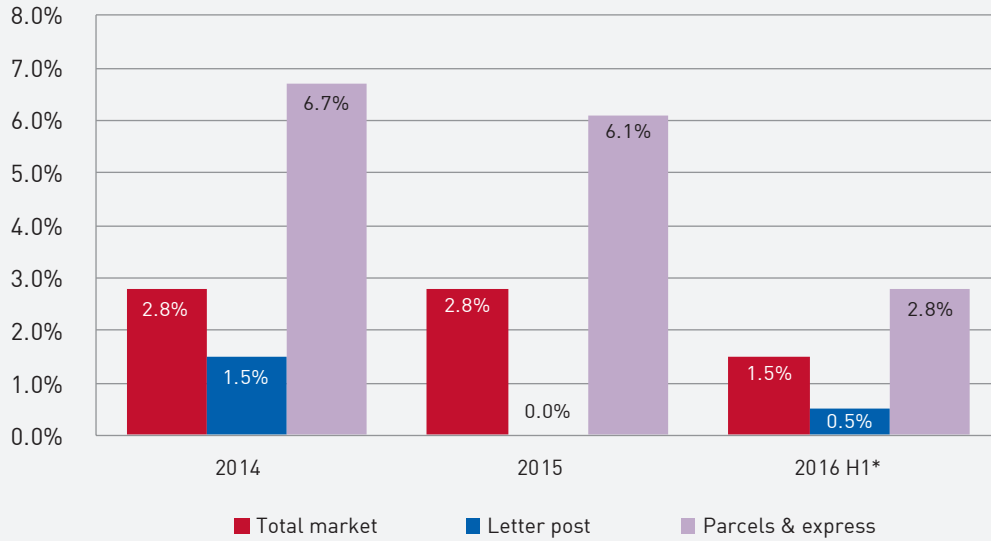
press services sector increased by 2.8%, thanks to the ongoing growth of e-commerce.

Despite the positive trend, the postal market grew at a slower pace in 2016 compared to the previous years. While the volume of letter mail shipments decreased in most markets, the letter mail sector remained profitable on average, as the postal companies further improved their postal operations and increased their efficiency. The postal companies also continued to expand their parcels delivery networks in order to take advantage of the e-commerce growth and to improve their customers' service. In 2016, international operations remained an important revenue source for many postal businesses, both in the sector of letter mail and in the sector of parcels.

In 2015, the global postal market revenue reached 424.4 billion euros, with an average growth rate of 2.8% and an average EBIT margin of 4.4%. Despite the trend of diversification of activities by the postal companies, the letter post sector represented the 37.7% of the global market revenue in 2015 (from 48.5% in 2010), while the parcels, express services and financial services sector represented 45%. International operations of postal companies

22. IPC "2016 Key Findings, Global Postal Industry Report", December 2016.

Chart 2.1: Average revenue growth rate in the global postal market

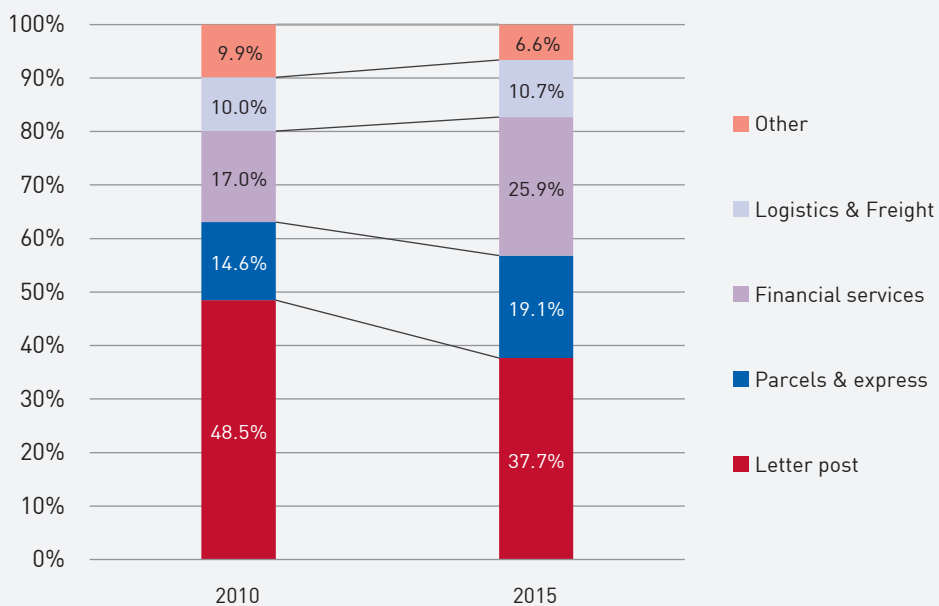


Source: IPC, "Global Postal Industry Report", December 2016

brought on average 23% of their revenues mainly thanks to cross-border e-commerce. Letter post volume dropped by 4.8% in 2015 compared to the previous year, while revenue remained stable. The electronic substitution of letter mail continues to lead to the decline of the global vo-

lume of postal deliveries, since consumers, businesses and public organisations turn to alternative digital solutions. The postal companies worldwide are aiming at increasing their efficiency by using new technologies in order to ensure a high quality viable service for all citizens and to create added

Chart 2.2: Revenue shares of the postal market per sector of activity (2010, 2015)



Source: IPC, "Global Postal Industry Report", December 2016

value for the letter mail services. Many postal companies are taking advantage of multichannel marketing opportunities and are aiming at making direct mail services more attractive for their customers in order to overcome the high competition from digital advertising networks.

The parcels and the express services volume increased by 7.2% in 2015 year-on-year, while revenue increased by 6.1%. E-commerce is clearly the most important driver of the future growth of the parcel and express services sector, as on-line buyers are increasing their demand for delivery services worldwide. Large companies such as UPS, Amazon and Uber are competing on prices, since customers demand faster, cheaper and more flexible delivery services. On the other hand, postal companies are investing on their distribution channels and are focusing on innovative solutions in order to increase their share in the developing parcel sector. The fast growing cross-border e-commerce along with the domestic e-commerce market, remain the main growth factor in the postal market. According to a study by AliResearch and Accenture, the B2C global cross-border e-commerce market totalled 280 billion euros in 2015, increased by 30% year-on-year, and is expected to increase over 25% annually by 2020. Although international parcel deliveries still represent less than one fifth of the total volume of the parcel deliveries, many companies yet report an increase in their cross-border deliveries.

### **Cross-border e-commerce and parcel delivery services**

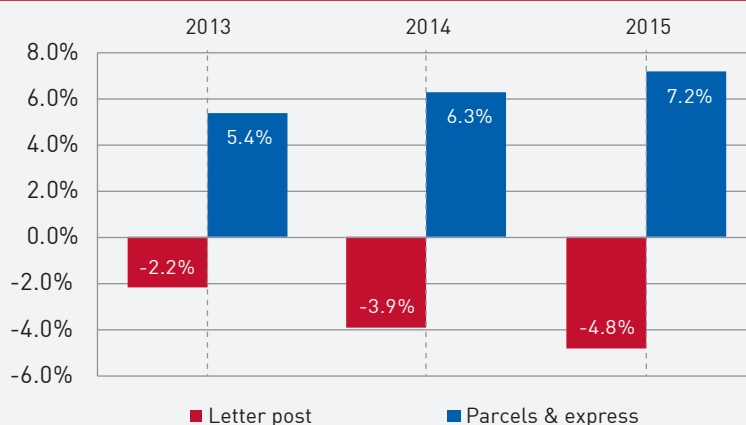
During the last five years e-commerce has grown significantly at a global level, approximately 20% on average annually and is estimated to overcome 2.67 billion dollars in revenue in 2016. The same year, Forrester Research forecasts that global cross-border B2C e-commerce will reach 424 billion dollars by 2021, making up 15% of the total e-commerce<sup>23</sup>.

In October 2016, International Post Corporation (IPC) carried out a research on over 24,000 consumers in 26 countries in Europe, Asia-Pacific and North America, regarding cross-border e-commerce shopping<sup>24</sup>. The purpose of the research was to gain a better understanding on consumers' preferences and experience in regard to online cross-border shopping, in order to identify specific areas that postal operators can influence and improve.

The study showed that online consumers purchased mainly from China, U.S.A., Germany and the United Kingdom. Specifically, the Greek on-line consumers preferred China (36%), the United Kingdom (22%), Germany (12%), U.S.A. (11%) and Italy (5%) for their cross-border purchases.

At the global level, the most important electronic merchants were Amazon, eBay, Alibaba/AliExpress, Wish, Zalando, Apple and Asos. In Greece consumers showed a particularly high preference for eBay (44%).

**Chart 2.3: Global volume growth rate of letters vs parcel and express**

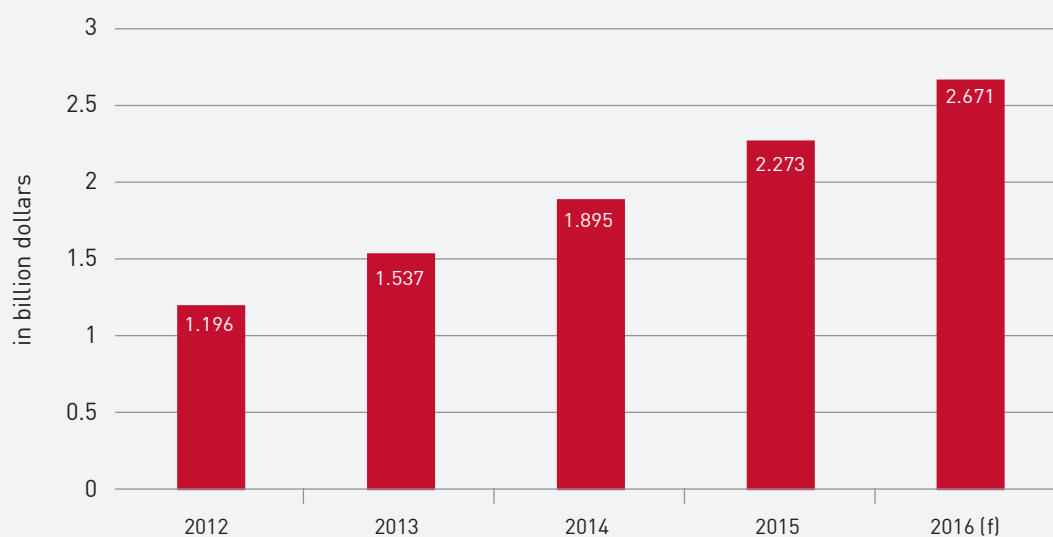


Source: IPC, "Global Postal Industry Report", December 2016

23. eMarketer Report "Cross-Border Ecommerce 2017: A Country-by-Country Look at Consumer Behavior and Trends".

24. IPC, "Cross-Border E-Commerce Shopper survey 2016", January 2017.

Chart 2.4: Global B2C e-commerce sales



(f) annual forecast

Source: Ecommerce Foundation, "Global B2C E-commerce Report 2016"

The top four product categories purchased cross-border by the consumers are clothing, footwear and accessories (33%), consumer electronics (21%), books, music and media (14%) and health and beauty products (13%).

Laptops (41%) and desktops (36%) were the preferred devices for placing an online order. However, a key trend has been the increasing use of smartphones (14%) for both researching and carrying out online purchases, mainly by younger consumers.

Consumers' preferred payment option for online purchases was Paypal (41%), credit cards (33%), debit cards or bank transfer (18%) and cash on delivery (4%). In Greece, cash on delivery payment was most popular (15%) while payment by credit card was less popular (12%) compared to other countries.

Most of the e-commerce parcels delivered cross-border (81%) were packages up to 2 kg and not heavier parcels (13%). The most common weight category (28%) was 200-500 grams. In Greece, 57% of cross-border purchases weighed up to 0.5 kg.

The cross-border online purchase value may be considered relatively low, as 56% of purchases costs up to 49 euros and 81% of purchases costs up to 99 euros. Luxembourg and Switzerland were

the two countries with the highest percentage of high-value purchases, 100 euros and above.

Regarding the delivery options offered by e-tailers, the most important factors are related to saving money for the consumer (i.e. 86% wanted free returns or free delivery on purchases over a certain value) and providing more transparency on delivery costs (92% wanted clear information about delivery charges before purchase). Only 51% of consumers found important the option of selecting the delivery company.

Regarding the delivery options offered by the postal operators, 82% of the consumers found it important to receive delivery within an agreed time range, to have full visibility on the delivery process via a "track and trace" system and to receive an electronic notification of the delivery. There was less interest in weekend delivery or being able to re-route packages while in transit.

The results regarding delivery location showed that consumers preferred home delivery (76%). Delivery to a postal office (8%) was marked as the second choice, followed by delivery to the office or work place (5%), to a specified safe place at home (5%), to a retail store (2%), to a parcel locker (1%) or to a neighbor (1%). The above preferences varied among countries e.g. in the northern and

Scandinavian countries the delivery to a post office was much higher (35-50%) as well as the delivery to parcel locker (13-14%).

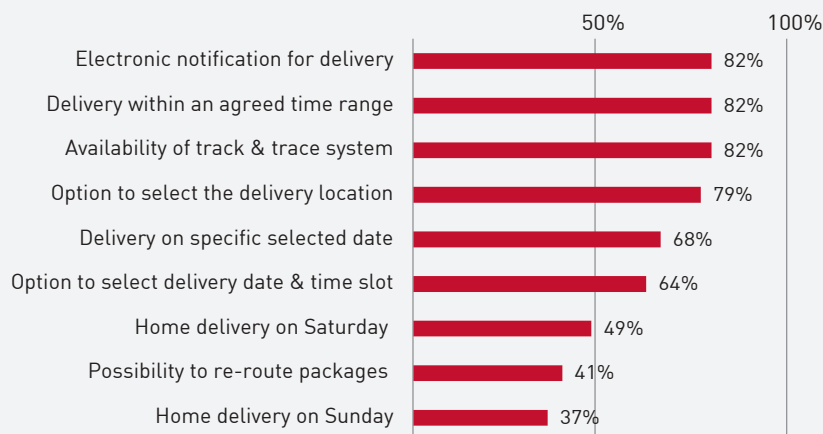
Consumers considered tracking information for every stage of a cross-border parcel delivery very important. Information that “the parcel will be delivered today, specific day and time” and that “the parcel has been posted by the foreign seller” was rated as the most important.

Delivery experience showed that 59% of the buyers enjoyed free shipping either due to retailer offer or due to purchase value, specific promotion or loyalty program. In addition, 69%

of buyers were offered the option to track their delivery status. Furthermore, 72% of cross-border deliveries were performed by the post and 16% by other providers, e.g. courier services providers. In Greece, the percentage of deliveries performed by ELTA reached 73%. Almost 6% of the buyers returned an item from their cross-border purchases and 94% of them used the post for the return.

The consumers were generally satisfied from their online shopping experience (93%) and from the parcel delivery process (87%) during their cross-border purchases.

**Chart 2.5: Desired characteristics of delivery services provided by the postal operators (% of respondents)**



Source: IPC, “Cross-Border E-commerce Shopper survey 2016”, January 2017

### 2.1.2. In Europe

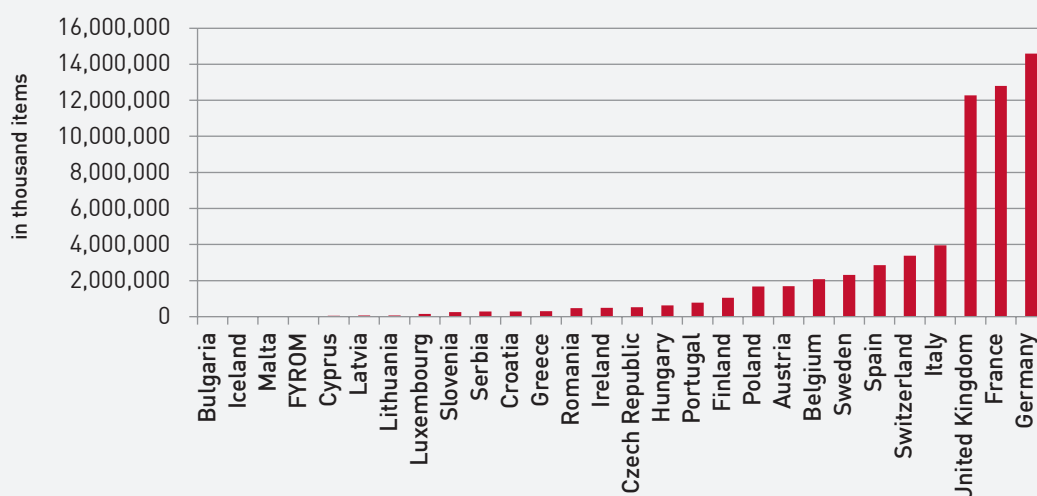
#### Key financial figures

In 2015, the total volume of domestic letter mail (excluding unaddressed mail) exceeded 63 billion items in the EU, with the markets of the United Kingdom, France and Germany showing the highest volumes of all the countries.

Between 2013 and 2015, the total volume of postal items decreased by approximately 4.7 billion items, which corresponds to an average annual

decrease of 4.3%<sup>25</sup>. This decrease is driven mainly by the drop in letter mail (4.6% per year, on average). Despite the fact that during the same period the average annual growth rate of the parcel volume was 6.9%, this increase was not able to offset the higher drop of the postal mail items. In 2015, the parcels accounted on average for 6.7% of the total volume of postal items (compared to 5.2% in 2013).

Chart 2.6: Domestic letter mail volume (excluding unaddressed mail) in the EU, 2015



Source: EU Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW)

Table 2.1: Total volume of the European postal market

Total volume	Average annual change (2013-2015)
Total market	-4.3%
Letter post	-4.6%
Parcels	6.9%

Source: Flash of the ERGP Report on core indicators for monitoring the European postal market, 2016

25. ERGP, Report on core indicators for monitoring the European postal market, 2016.

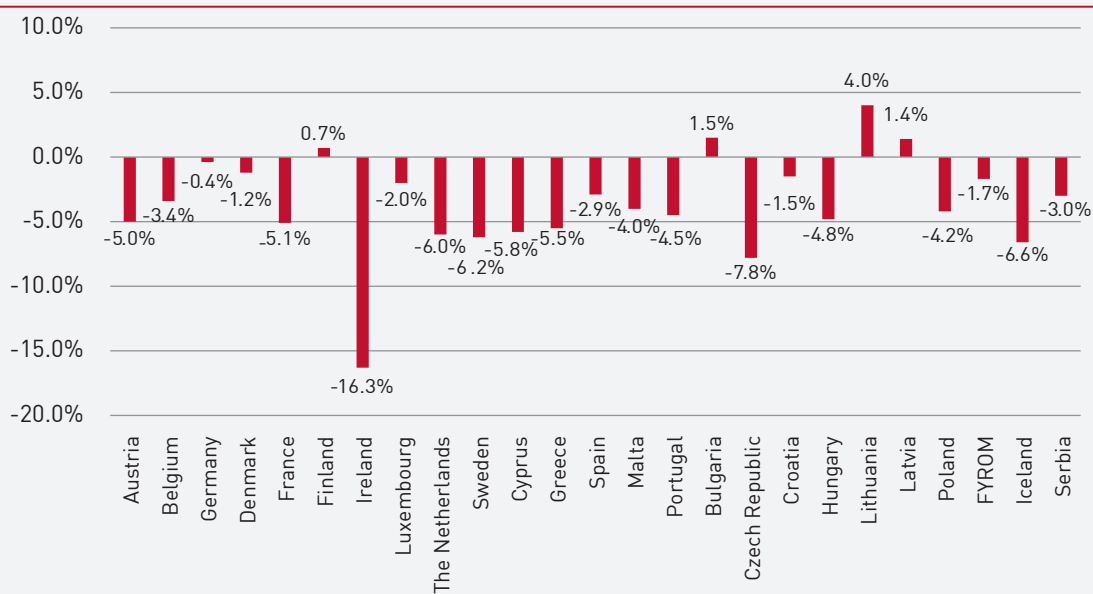


The total volume of postal items increased in Finland, Lithuania, Bulgaria and Latvia. In Lithuania and Latvia the increase was noted on both parcels and letters.

The total revenue of the European postal market decreased with an average annual rate of 0.3%, during the period 2013-2015<sup>26</sup>. This decrease is

due to the revenue drop in the letter post sector (-1.8% annually) which could not be compensated by the revenue increase of the parcel sector (5.1% annually). In 2015, the parcels accounted for 37.4%, on average, of the total revenue of the European postal market (compared to 34.8% in 2013).

Chart 2.7: Total volume per European country - Annual average change (2013-2015)



Source: ERGP, Report on core indicators for monitoring the European postal market, 2016

Table 2.2: Total revenue of the European postal market

Total revenue	Average annual change (2013-2015)
Total market	0.3%
Letter post	-1.8%
Parcels	5.1%

Source: Flash of the ERGP Report on core indicators for monitoring the European postal market, 2016

26. ERGP, Report on core indicators for monitoring the European postal market, 2016.

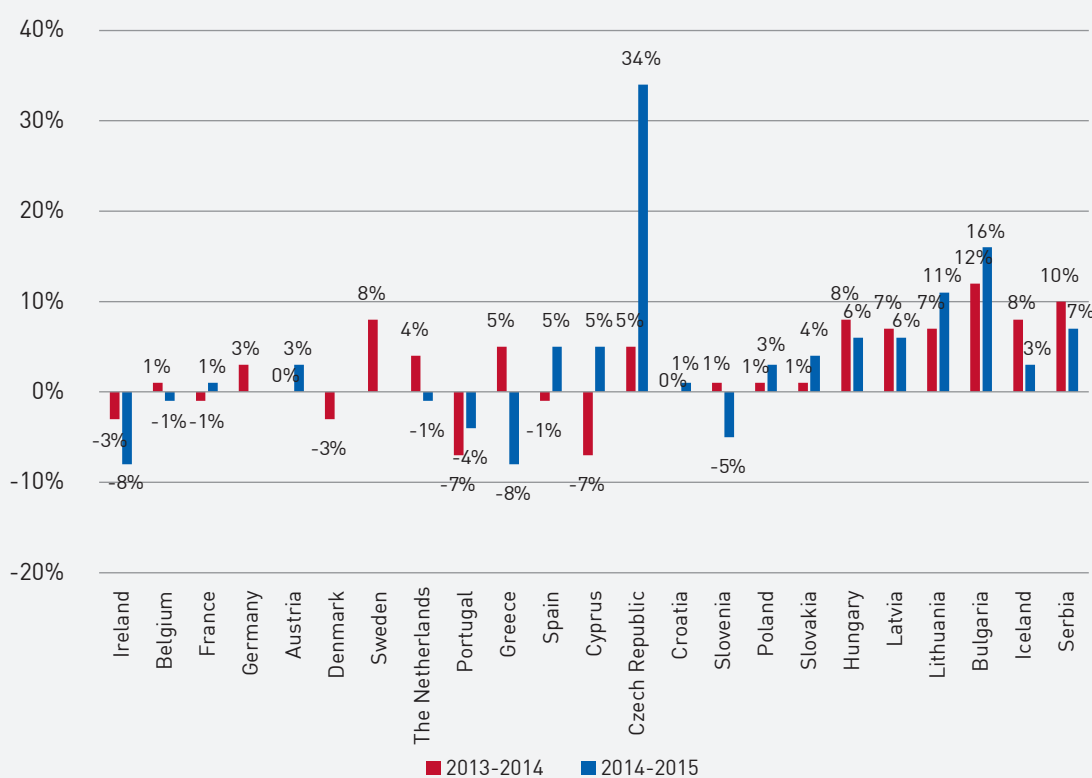
In the Eastern European countries and the Non-EU countries, revenue increased on average, with the Czech Republic showing the highest growth. In most countries, letter mail revenue dropped, with the exception of Austria, Bulgaria, Lithuania, Iceland and Serbia. On the contrary, parcel revenue has grown in all the countries except in Poland and Portugal.

The express services sector showed growth during the period 2013-2015, mainly thanks to the increase of parcel traffic, often containing additional services such as faster delivery and guaranteed delivery time. The express volume increased by 13.1% annually resulting in an annual growth of 8.6% in revenue.

### Competition

The European postal market is highly concentrated, as indicated by the Herfindahl-Hirschman Index (HHI), since almost all countries had a HHI superior to 2000, both in terms of revenue volume. In general, the level of concentration in the market is higher in terms of volume than in revenue. Greece and Lithuania were the countries with the lowest market concentration in 2015. It is worth mentioning that the Eastern Europe countries had lower market concentration than the other countries.

Chart 2.8: Total revenue per European country - Annual average change (2013-2015)



Source: ERGP, Report on core indicators for monitoring the European postal market, 2016

Table 2.3: Herfindahl-Hirschman Index (HHI) (2014 &amp; 2015)

	HHI-Volume			HHI-Revenue		
	2014	2015	Trend	2014	2015	Trend
Austria	7,195	7,297	Increase	6,017	5,988	Decrease
Belgium	9,069	8,997	Decrease	4,777	4,666	Decrease
Bulgaria	WA	WA	-	5,230	4,882	Decrease
Croatia	5,196	6,164	Increase	4,796	5,111	Increase
Czech Republic	8,964	8,496	Decrease	7,692	4,742	Decrease
Denmark	6,400	6,000	Decrease	WA	WA	-
Estonia	5,244	5,036	Decrease	3,312	3,313	Increase
France	9,818	9,828	Increase	9,657	9,625	Decrease
FYROM	8,694	WA	-	4,257	NA	-
Greece	6,871	6,083	Decrease	2,465	2,143	Decrease
Italy	5,924	5,945	Increase	2,533	2,329	Decrease
Hungary	9,156	9,247	Increase	4,380	4,262	Decrease
Latvia	2,441	2,077	Decrease	3,488	4,337	Increase
Lithuania	4,075	4,752	Increase	2,189	2,251	Increase
Malta	9,500	9,400	Decrease	4,600	4,300	Decrease
The Netherlands	6,098	5,692	Decrease	7,307	6,943	Decrease
Portugal	8,939	8,944	Increase	4,847	5,340	Increase
Romania	3,751	3,095	Decrease	1,226	1,240	Increase
Serbia	9,357	9,458	Increase	4,518	4,582	Increase
Slovakia	6,772	6,698	Decrease	3,125	2,931	Decrease
Sweden	7,420	7,230	Decrease	8,559	8,325	Decrease
United Kingdom	9,745	9,897	Increase	9,093	9,151	Increase

Source: ERGP, Report on core indicators for monitoring the European postal market, 2016

Despite the liberalization of the postal market in the European countries, competition levels still remain low, since 51% of the postal items volume was handled by countries, where the competition represents less than 5% of the market<sup>27</sup>. Countries with higher competition levels handled 37% of postal items. In 2016, competition in Greece reached 10% and therefore, the country would be marked with orange color in Chart 2.9.

In 2015, the Universal Service Providers (USPs) maintained a high market share in the letter post sector that reached 87%<sup>28</sup> on average, while in the parcels sector their market share was significantly lower, up to 30.3% on average. The average market share of the USPs for express mail items was 20.4% and much higher, i.e. 70%, for non express items.

27. PostNL, "European postal markets, 2017 an overview".

28. ERGP, Report on core indicators for monitoring the European postal market, 2016.

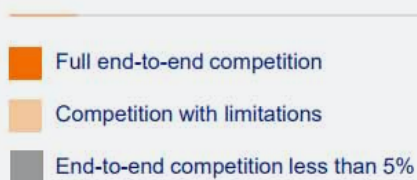
**Pricing trends**

In 2015, the European average price for posting a domestic priority letter of the first weight step was 0.69 euros, which represents a 6.3% average annual increase between 2008 and 2015. In this period, the Western countries had the highest annual nominal price increase (8.7%) while the Non-EU countries had the lowest (3.7%). The average price for posting a priority letter mail, cross-border within Europe, was

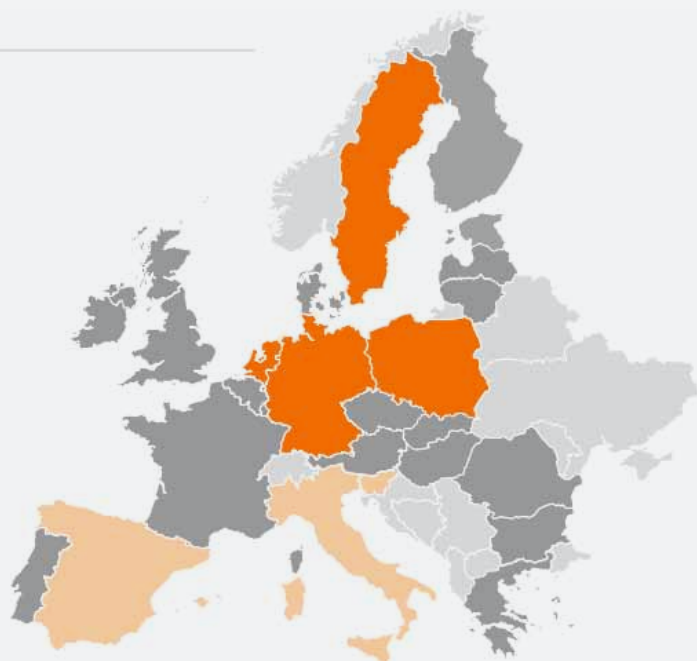
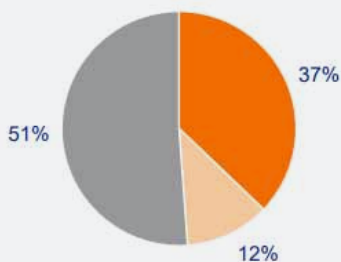
1.03 euros in 2015, an 8% increase compared with the previous year.

In 2015, the European average price for posting a 2kg domestic parcel provided by the USP was 6.10 euros, which represents a 4.1% average annual increase between 2013 and 2015. The average price for posting a cross-border parcel item within Europe was 19.54 euros in 2015, showing a 1.8% annual increase between 2013 and 2015.

Chart 2.9: Postal market liberalization in Europe



**Volumes addressed mail in %\***

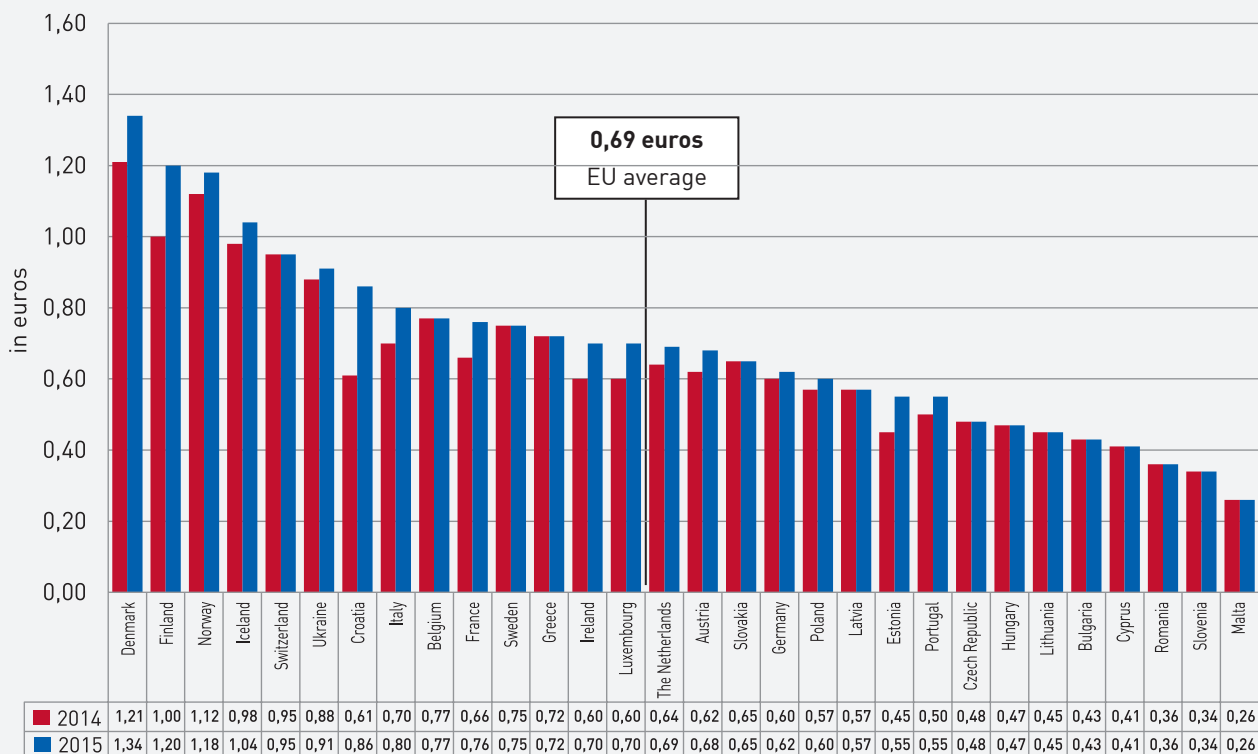


\* Figures are based on market volumes of Austria, Belgium, Denmark, Finland, France, Germany, Italy, The Netherlands, Spain, Sweden, UK in 2015

5 Sources: Annual Reports, IPC, National Regulators, PostNL Team Analysis

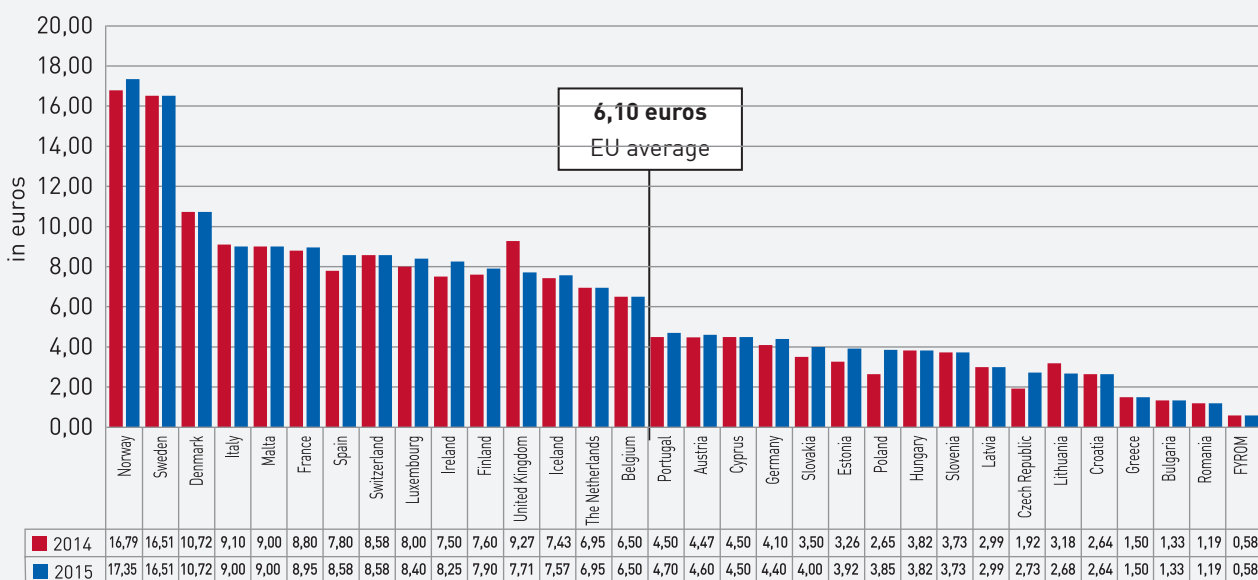
Source: PostNL, "European postal markets, 2016 an overview"

Chart 2.10: Average prices of posting a domestic priority letter -1<sup>st</sup> weight step (2014 & 2015)



Source: ERGP, Report on core indicators for monitoring the European postal market, 2016

Chart 2.11: Average prices for posting a domestic 2 kg priority parcel (2014 & 2015)



Source: ERGP, Report on core indicators for monitoring the European postal market, 2016

**Cross-border e-commerce and parcel delivery services**

In 2016 e-commerce in Europe increased by 15% to 530 billion euros. Despite the fact that, e-commerce growth is declining (13.6% in 2017, as forecasted), B2C e-commerce is expected to reach 602 billion euros in 2017<sup>29</sup>.

Western Europe is the largest market for European e-commerce (53.19% of total sales) with the United Kingdom, Germany and France having the largest markets with sales over 365 billion euros in total.

The percentage of consumers that buy on-line varies among European countries. The highest percentages were marked in the United King-

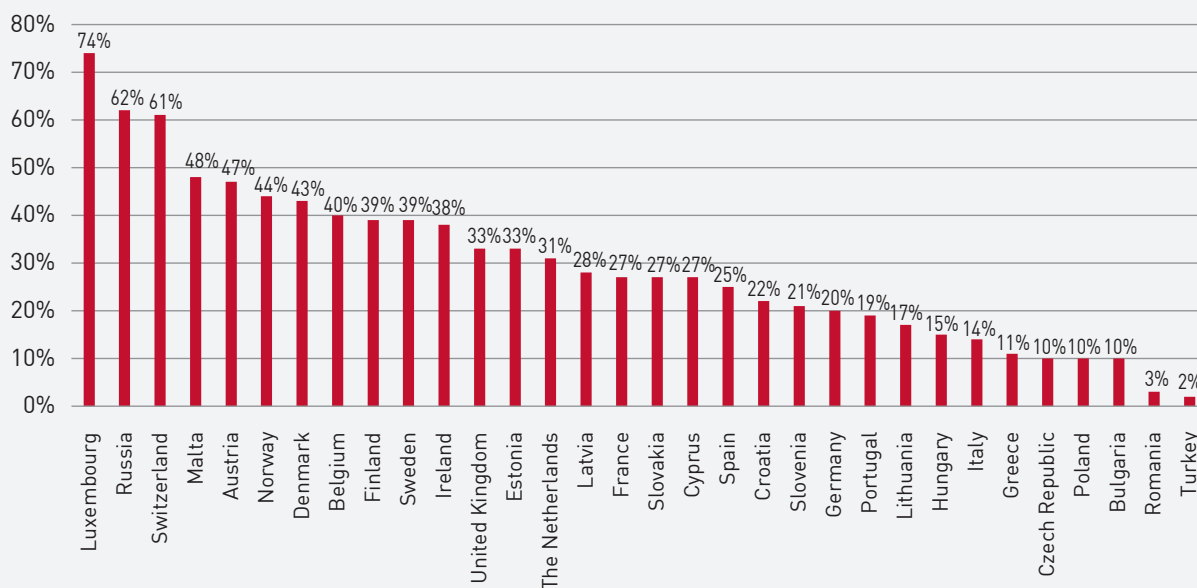
dom (87%), Denmark (84%), Germany (82%), Luxembourg (80%) and Sweden (80%) while the lowest was marked in Romania (18%). The percentage in Greece reached 45%.

Amazon, Apple, Dixons Carphone, Zalando, Next and John Lewis are among the leaders of online retailers in Europe.

As regards to cross-border e-commerce in Europe, in 2016, 33% of online consumers bought from abroad, 18% of which purchased from sellers in another European country.

Luxembourg has the highest percentage of cross-border purchases (74%), followed by Russia (62%), Switzerland (61%), Malta (48%), Austria (47%), Norway (44%), Denmark (43%), Belgium (40%), Finland (39%), Sweden (39%), Ireland (38%), United Kingdom (33%), Estonia (33%), The Netherlands (31%), Latvia (28%), France (27%), Slovakia (27%), Cyprus (27%), Spain (25%), Croatia (22%), Slovenia (21%), Germany (20%), Portugal (19%), Lithuania (17%), Hungary (15%), Italy (14%), Greece (11%), Czech Republic (10%), Poland (10%), Bulgaria (10%), Romania (3%), Turkey (2%).

Chart 2.12: Percentage of cross-border e-commerce purchases per European country in 2016



Source: Ecommerce Europe, "European Ecommerce Report 2017"

29. Ecommerce Europe, "European Ecommerce Report 2017".

Despite the fact that 68% of online consumers reported that they did not face any problem with their online purchase, cross-border e-commerce continues to face serious challenges, with the most serious problems relating to the following factors: delivery time longer than expected (17%), technical issues (13%), wrong or damaged goods (9%), difficulty in finding information concerning guarantees or other legal rights (5%) and difficult or non satisfactory handling of complaint or compensation (4%).

On May 25 2016 the European Commission adopted a proposal for a Regulation on cross-border parcel delivery services, as part of a set of measures to allow consumers and companies to buy and sell products and services online more easily and confidently across the EU. This Regulation is based on the Postal Directive 97/67/EK and is complementary to the rules governing cross-border parcel delivery services.

Consumers and small businesses complain that the problems with parcel delivery, in particular high delivery charges for cross-border services, prevent them from selling or buying more across the EU. The aim of the Proposal is to increase price transparency and regulatory oversight of cross-border parcel delivery services so that individual consumers and small e-retailers can benefit from more affordable delivery services and convenient return options, even in the most remote regions.

The Regulation which is under consultation is expected to increase the competences of the National Regulatory Authorities, and EETT will be the competent body for its implementation in Greece. Specifically, the Regulation will give the National Postal Regulators the data they need to monitor cross-border markets and check the affordability of prices. It will also encourage competition, by requiring transparent and non-discriminatory third-party access to certain cross-border parcel delivery services and infrastructure. The Committee will publish the public price lists of USPs in order to increase peer competition and tariff transparency.

The proposal complements self-regulatory initiatives to improve the quality and convenience of cross-border parcel delivery services linked to the roadmap for completing the Single Market for parcel delivery.

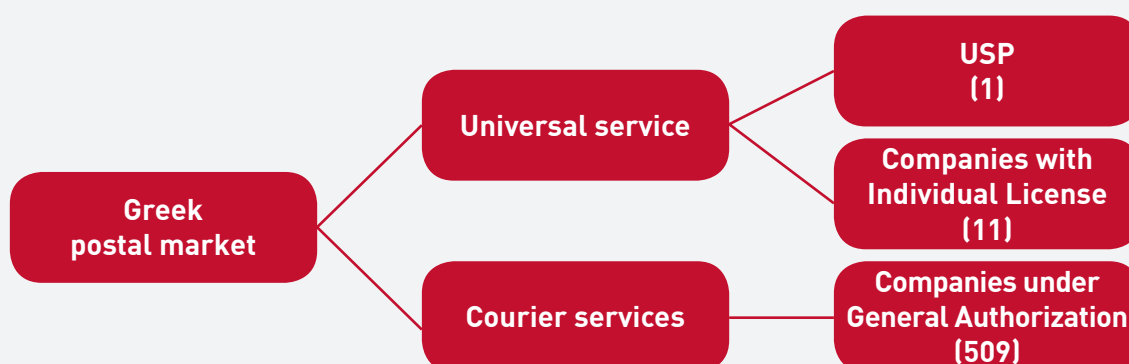
### 2.1.3. In Greece

The postal market in Greece in 2016 consists of two sectors:

- the Universal Service sector, with the USP and 11 private companies holding an Individual License and
- the courier services sector, with 509 companies under General Authorization.

The designated by law USP, is Hellenic Post (ELTA).

Chart 2.13: Number of companies in the Greek postal market



Source: EETT (Register of postal services providers)

## 2.2. Evolution of key figures of the postal services market in Greece

### 2.2.1. Financial data from the published financial statements.

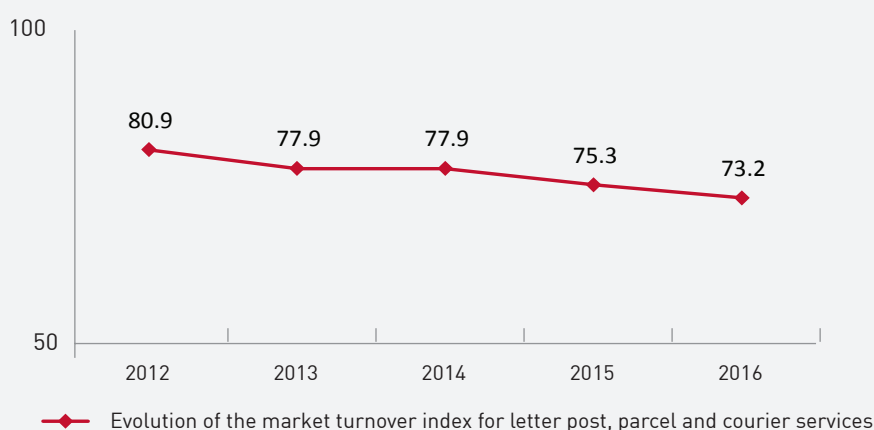
The following analysis presents the key financial figures of the postal market companies, according to the financial statements of the licensed providers, for the year 2016. With respect to companies under General Authorization, the figures provided, are based on the largest companies of the sector, as the majority of the courier companies are not obliged to publish financial statements, since they are sole proprietorship.

### Turnover

The postal services industry followed the negative trend which prevails in almost all sectors of the Greek economy, as shown in Chart 2.14.

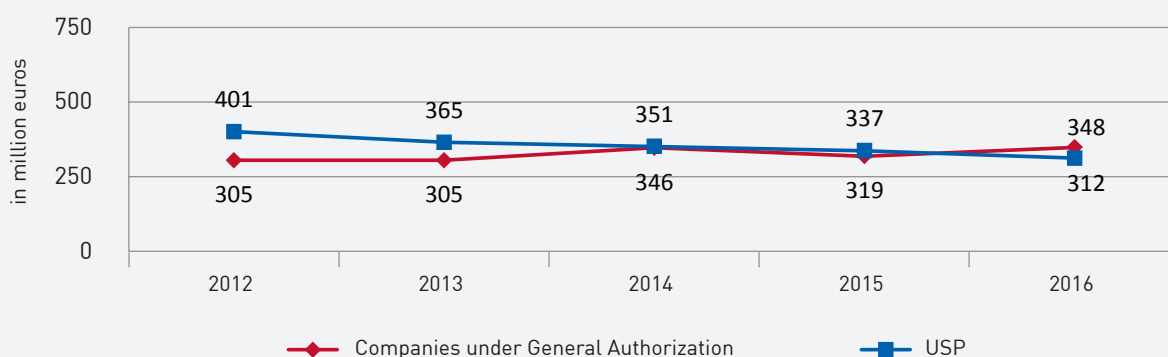
The turnover of the postal market in the last five years is presented in Chart 2.15. In 2016, the postal companies under General Authorization showed an improving trend on turnover of 9% compared to previous year. The USP's turnover showed a decrease of 7% respectively.

Chart 2.14: Evolution of the postal market turnover index (base year 2010)



Source: HELLASTAT, Evolution of the turnover index in the service sector (September 2017)

Chart 2.15: Turnover of postal companies



Source: Annual published financial statements, 2016



The postal companies' turnover might include data from non postal activities. Consequently, there are differences with the revenues analyzed in the following paragraphs that refer exclusively to the postal market. It is finally noted that the financial data for one of the companies under General Authorization are estimations (based on the industry course) as they were not available until the time of drafting this report.

### Profitability

The key financial data relevant to the profitability of the postal companies are listed in Table 2.4. Despite the high turnover, the gross profit margin is quite low for the postal companies and the USP.

### Balance sheet analysis

The allocation of assets for the USP and the companies under a General Authorization is shown in Chart 2.16. The latter held the majority of their capital (83%) in current assets, while the USP held 64% of its capital in current assets and the remaining 36% in fixed assets.

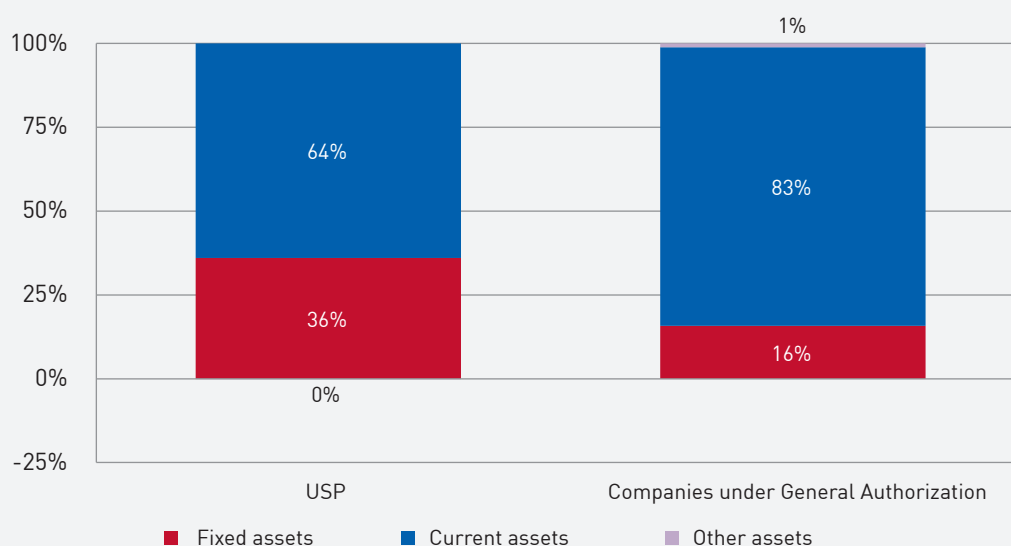
Regarding the structure of liabilities, the USP's obligations accounted for 95% of its liabilities, while the obligations of the companies under General Authorization accounted for 78% of liabilities.

Table 2.4: Key financial data of postal companies (in million euros) (2016)

	Turnover	Gross profit	Gross profit margin	Net	Net profit margin
USP	312	29	9.2%	0	0.1%
Companies under General Authorization	348	61	17.6%	12	3.4%

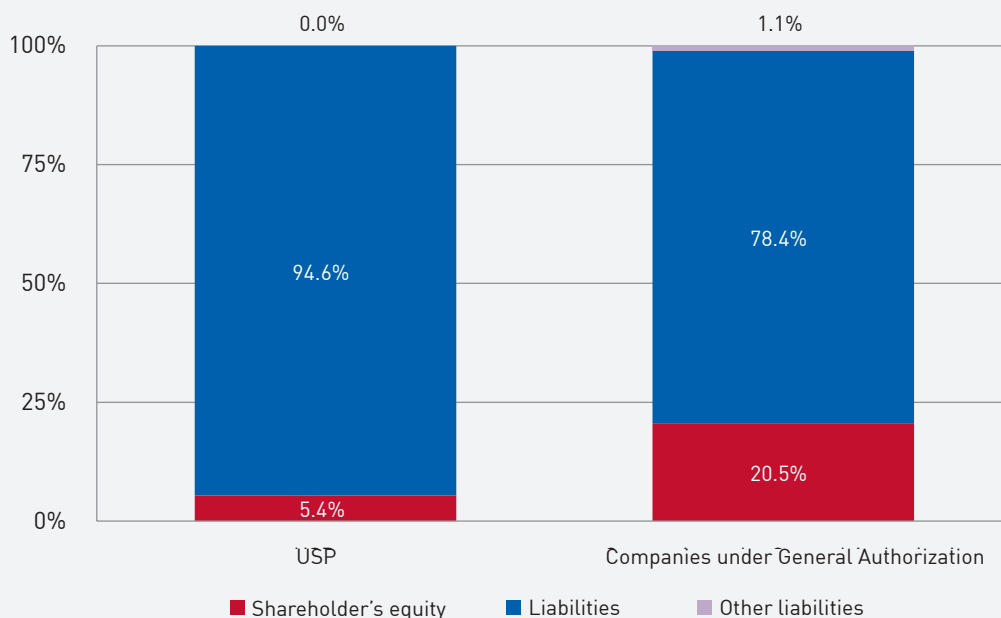
Source: Annual published financial statements, 2016

Chart 2.16: Assets share in the postal market (2016)



Source: Annual published financial statements, 2016

Chart 2.17: Liabilities share in the postal market (2016)



Source: Annual published financial statements, 2016

**Ratio analysis**

The main ratios derived from the analysis of the balance sheets of the postal companies, are presented in Table 2.5.

The liquidity ratio, both for companies under General Authorization as well as the USP, remained higher than one, which demonstrates their ability to confront short term liabilities by using current assets.

The turnover ratio remained higher than one for companies under General Authorization, due to their current asset intensive character (mainly receivables). The respective USP index remained below one, due to its fixed asset intensive presence.

The day sales outstanding ratio for companies under General Authorization remained stable. In 2016, the ratio for the USP increased sharply for a second consecutive year, due to an increase in the asset account "Receivables from US".

The return on capital ratio declined both for the USP and the companies under General Authorization, due to a progressive decrease of the profits before tax of the postal companies compared to the previous year.

**2.2.2. Postal revenue and volume**

**Total postal market**

In 2016, the Greek postal market showed signs of recovery, as regards revenue, while the volume of postal items continued to drop. Specifically, 376.3 million items were handled, generating revenue of 547.3 million euros.

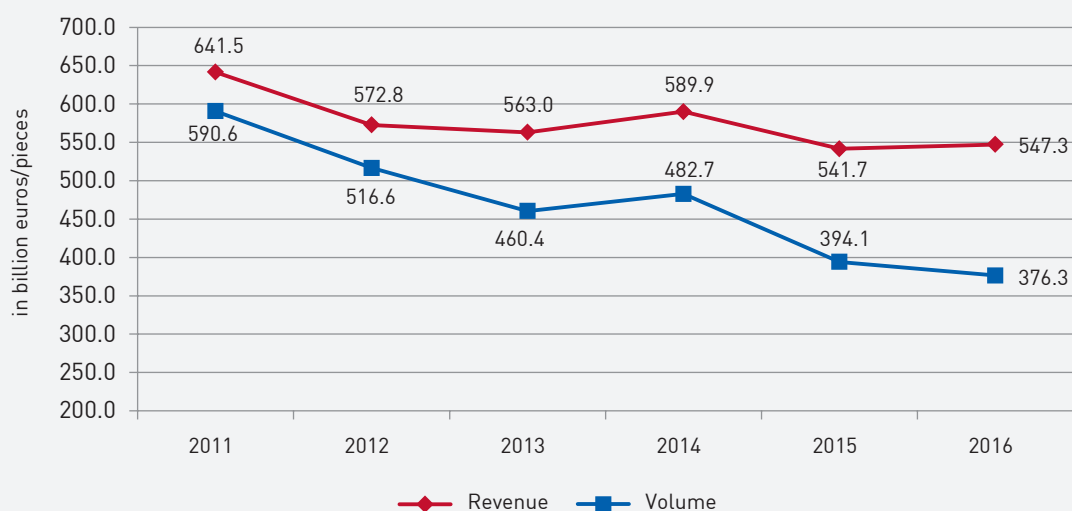
The course of the postal market over the last six years is shown in Chart 2.18.

Table 2.5: Postal market financial indicators (2012-2016)

	2012	2013	2014	2015	2016
<b>Liquidity ratio</b>					
USP	0.93	0.86	0.89	1.07	1.08
Companies under General Authorization	1.14	1.37	1.33	1.09	1.11
<b>Turnover ratio</b>					
USP	0.61	0.84	0.81	0.69	0.60
Companies under General Authorization	2.16	2.12	2.48	2.00	2.16
<b>Day sales outstanding ratio</b>					
USP	58.62	74.14	99.19	179.62	287.94
Companies under General Authorization	120.51	107.75	89.56	96.19	97.04
<b>Return on capital</b>					
USP	-10.9%	-14.7%	12.6%	7.4%	1.4%
Companies under General Authorization	-45.4%	30.8%	73.0%	59.5%	36.3%

Source: Annual published financial statements, 2016

Chart 2.18: Revenue and volume of the Greek postal market, (2010-2015)



Source: EETT (based on data provided by postal services providers)

### Per postal sector

The three sectors of the Greek postal market have evolved differently over the last six years, as shown in Tables 2.6 and 2.7. The slight upward trend of the market in 2016 was mainly favored by companies under General Authori-

zation, while the USP showed significant decrease in both the volume of postal items and total revenue. Apparently, both companies with Individual License and under General Authorization handled more postal items in 2016 and increased their revenue compared to last year.

Table 2.6: Postal market volume (in thousand items)

	2011	2012	2013	2014	2015	2016	2016/15
USP	531,343	461,361	402,818	398,325	308,300	278,523	-9.7%
Companies with Individual License	10,933	8,065	5,326	26,854	27,251	32,060	17.6%
Companies under General Authorization	48,286	47,162	52,278	57,563	58,578	65,752	12.2%
<b>Total</b>	<b>590,562</b>	<b>516,588</b>	<b>460,422</b>	<b>482,742</b>	<b>394,129</b>	<b>376,334</b>	<b>-4.5%</b>
Annual change	-13.0%	-12.5%	-10.9%	4.8%	-18.4%	-4.5%	-

Source: EETT (based on data provided by postal services providers)

Table 2.7: Postal market revenue (in thousand euros)

	2011	2012	2013	2014	2015	2016	2016/15
USP	370,864	317,486	282,919	272,658	227,417	207,313	-8.8%
Companies with Individual License	4,066	3,486	2,471	14,496	14,309	15,865	10.9%
Companies under General Authorization	266,612	251,814	277,628	302,753	299,954	324,086	8.0%
<b>Total</b>	<b>641,542</b>	<b>572,786</b>	<b>563,018</b>	<b>589,907</b>	<b>541,680</b>	<b>547,265</b>	<b>1.0%</b>
Annual change	-9.1%	-10.7%	-1.7%	4.8%	-8.2%	1.0%	-

Source: EETT (based on data provided by postal services providers)

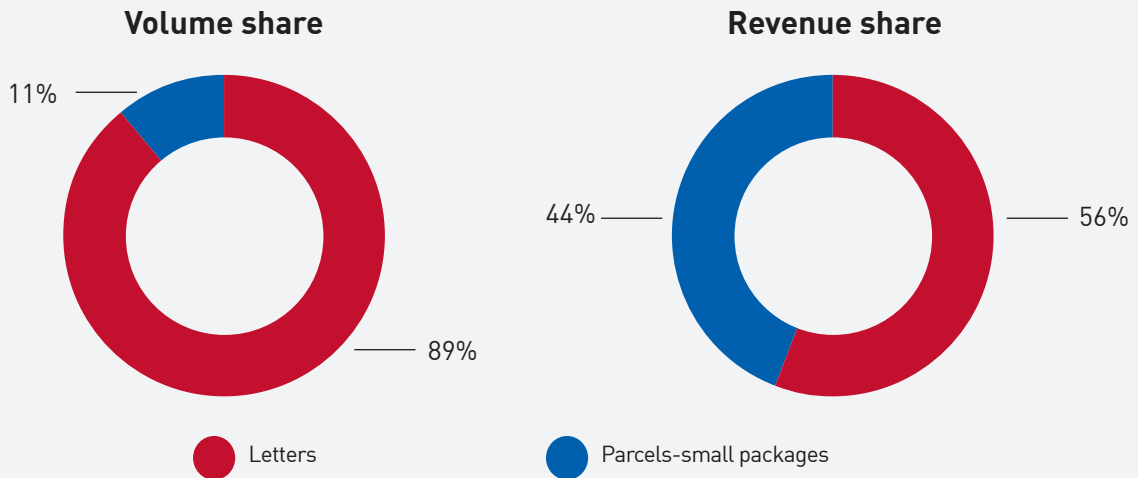
### Per postal service

Postal items are divided into letters and parcels (including small packages). The shares of postal items for the total postal market in 2016 are depicted in Chart 2.19.

Although letter mail handling is traditionally the

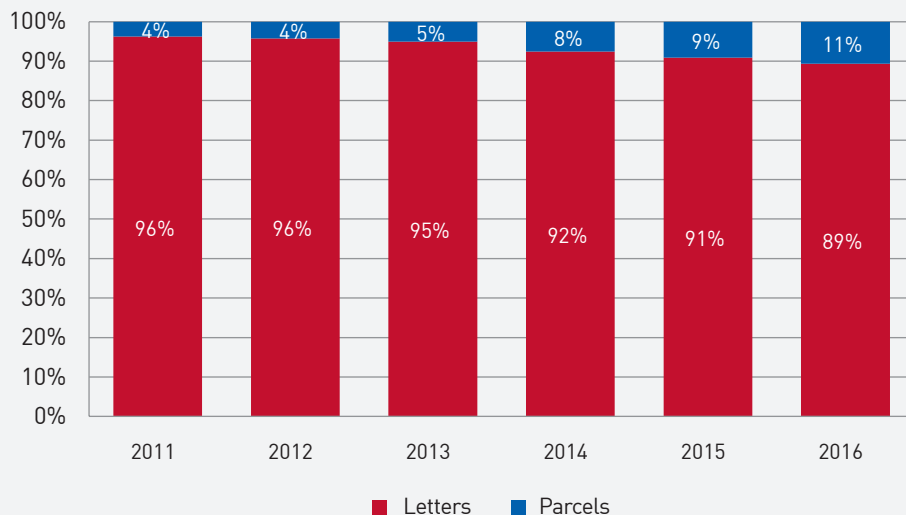
main activity of postal companies, the parcels sector, which handled 11% of the total volume, accounted for 44% of the total revenue. The volume and revenue share of parcels - small packages is growing over time, mainly due to e-commerce growth and e-substitution of letter mail.

Chart 2.19: Volume and revenue share per postal service (2016)



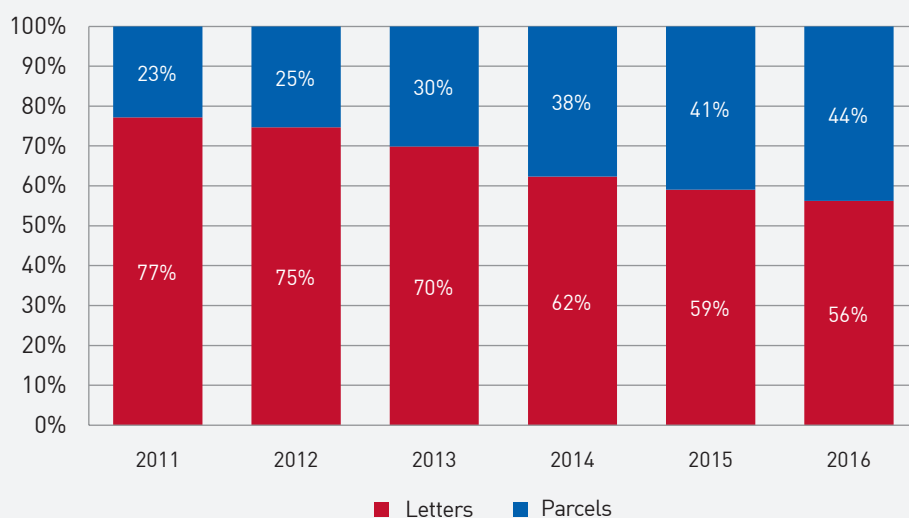
Source: EETT (based on data provided by postal services providers)

Chart 2.20: Volume share of letters and parcels (2011-2016)



Source: EETT (based on data provided by postal services providers)

Chart 2.21: Revenue shares of letters and parcels (2011-2016)



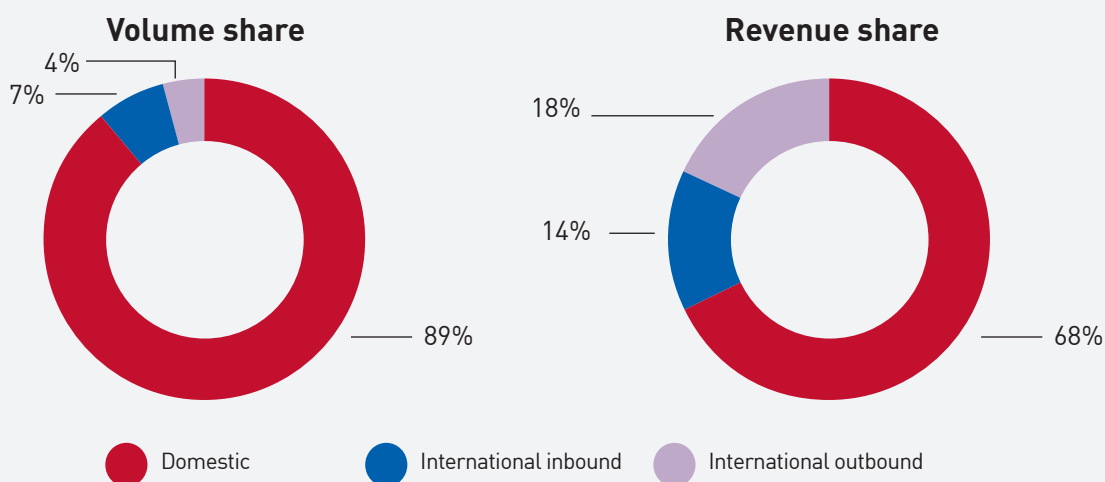
Source: EETT (based on data provided by postal services providers )

**Per domestic-international service**

In 2016, the highest percentage of revenue in the Greek postal market (68%) resulted from domestic traffic (89%). The revenue and vol-

umes share of domestic, international inbound and international outbound items is depicted in Chart 2.22.

Chart 2.22: Volume and revenue share per domestic-international service (2016)

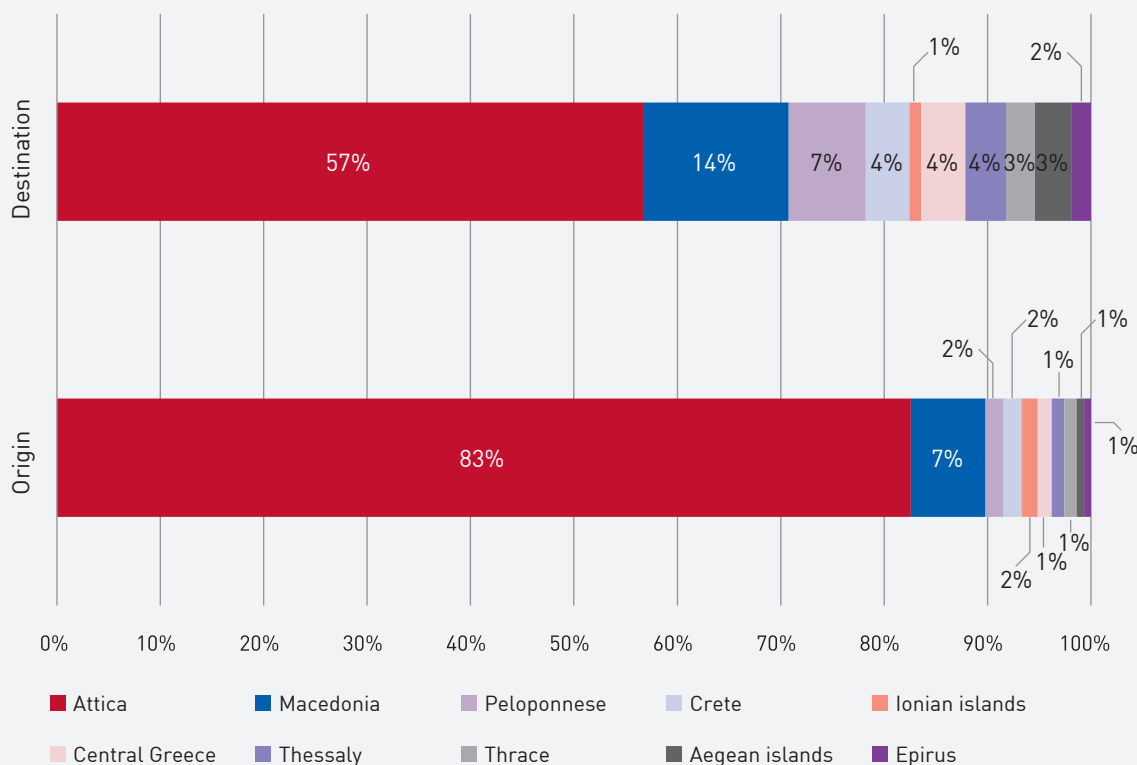


Source: EETT (based on data provided by postal services providers)

The majority of postal items (83%) were delivered from Attica to domestic and international destinations. Attica was also the most popular destination of the items being sent domestically and from international destinations (57%).

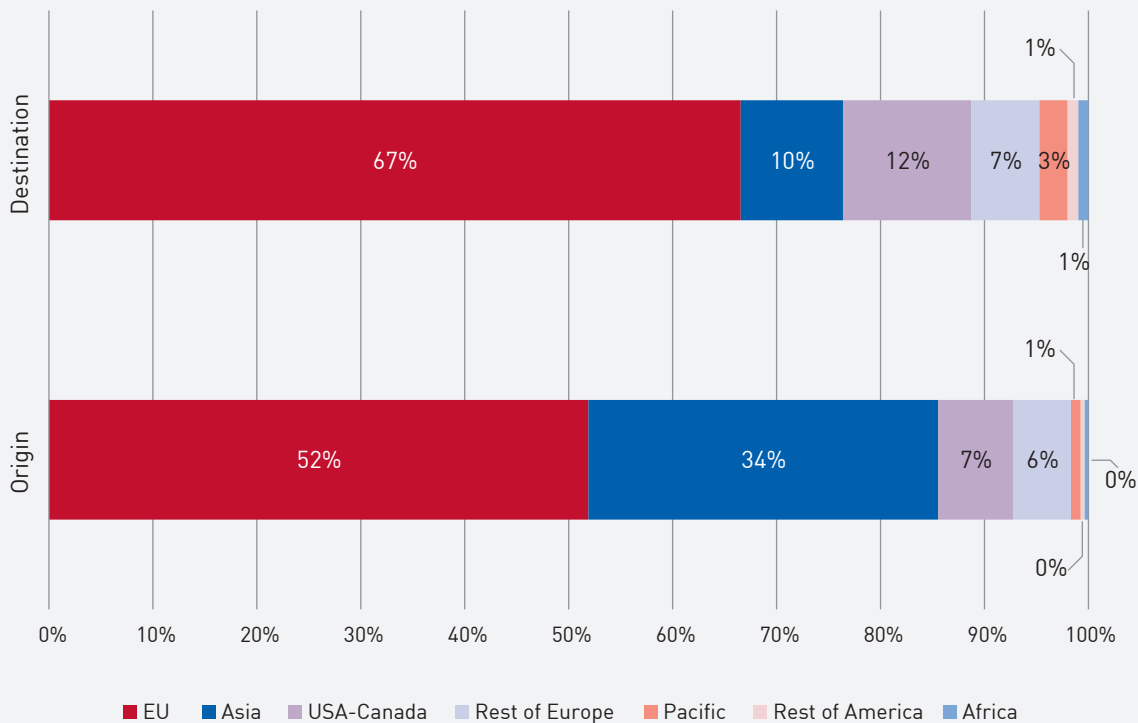
The largest volume of postal items delivered in Greece from international destinations were from the European Union (EU) (52%) and Asia (34%), while the deliveries of postal items to international destinations were mainly sent to the EU (67%) and the USA - Canada (12%).

Chart 2.23: Destination and origin of postal item deliveries per geographic region (2016)



Source: EETT (based on data provided by postal services providers)

Chart 2.24: Destination and origin of international postal item deliveries (2016)



Source: EETT (based on data provided by postal services providers)

### 2.2.3. Employment and infrastructure of postal companies

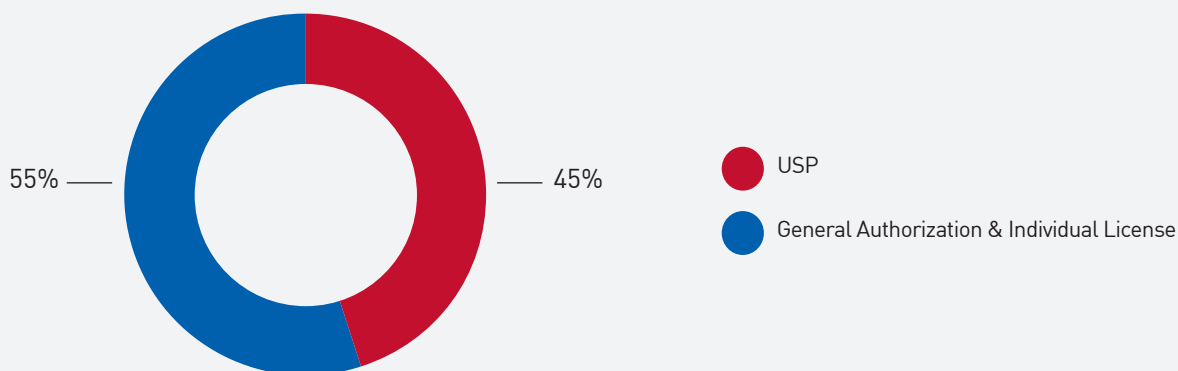
The total number of people employed in the Greek postal market in 2016 was 18,041 persons, increased compared to 2015 (15,711).

As shown in Chart 2.25, 45% of the people were employed by the USP, while the remaining 55% were

employed by the other postal services providers.

Regarding infrastructure, in 2016 the USP owned 1,403 post offices and 2,437 vehicles, while the remaining providers with Individual License or under General Authorization owned 1,700 post offices and 6,064 vehicles.

Chart 2.25: Employment share in the postal market (2016)



Source: EETT (based on data provided by postal services providers)



## 2.3. Competition in the postal market

### 2.3.1. Market shares

In 2016, UPS held 74% of the market in terms of volume and 38% in terms of revenue of the postal market (Chart 2.26).

The USP's revenue share decreased over the last six years, while the annual revenue from courier services increased significantly during the same period. The operators with Individual License showed a slight increase following the postal market liberalization in 2013.

Chart 2.26: Volume and revenue share of postal operators (2016)

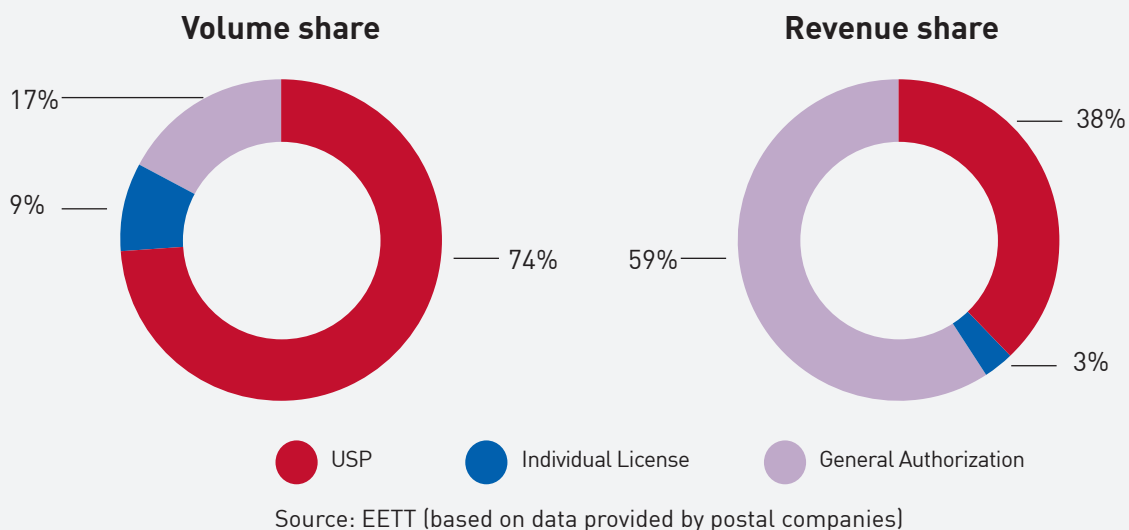
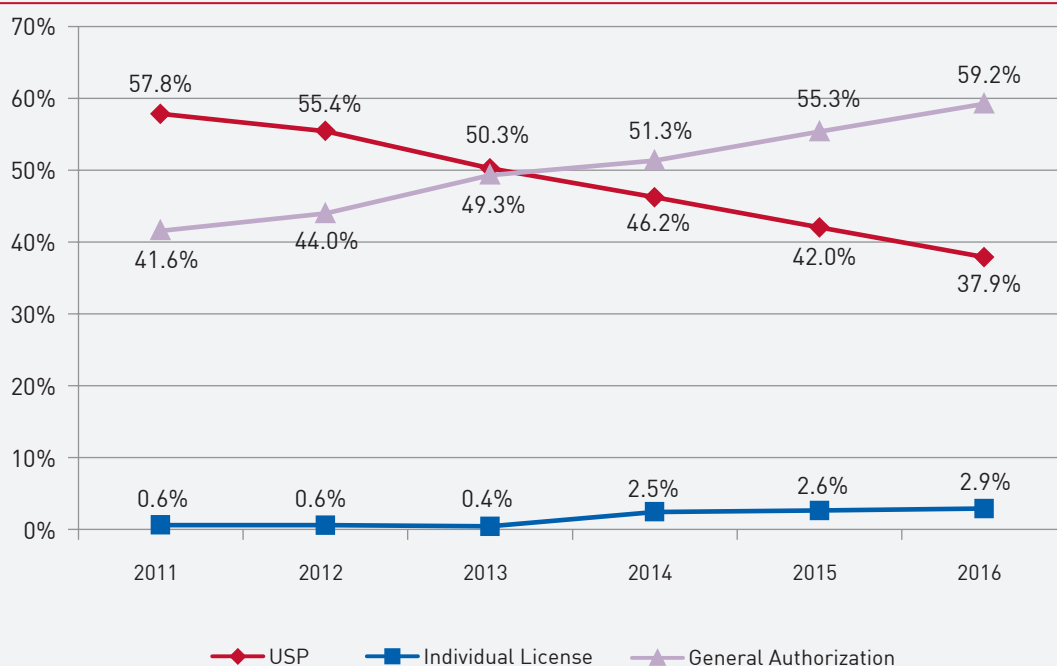


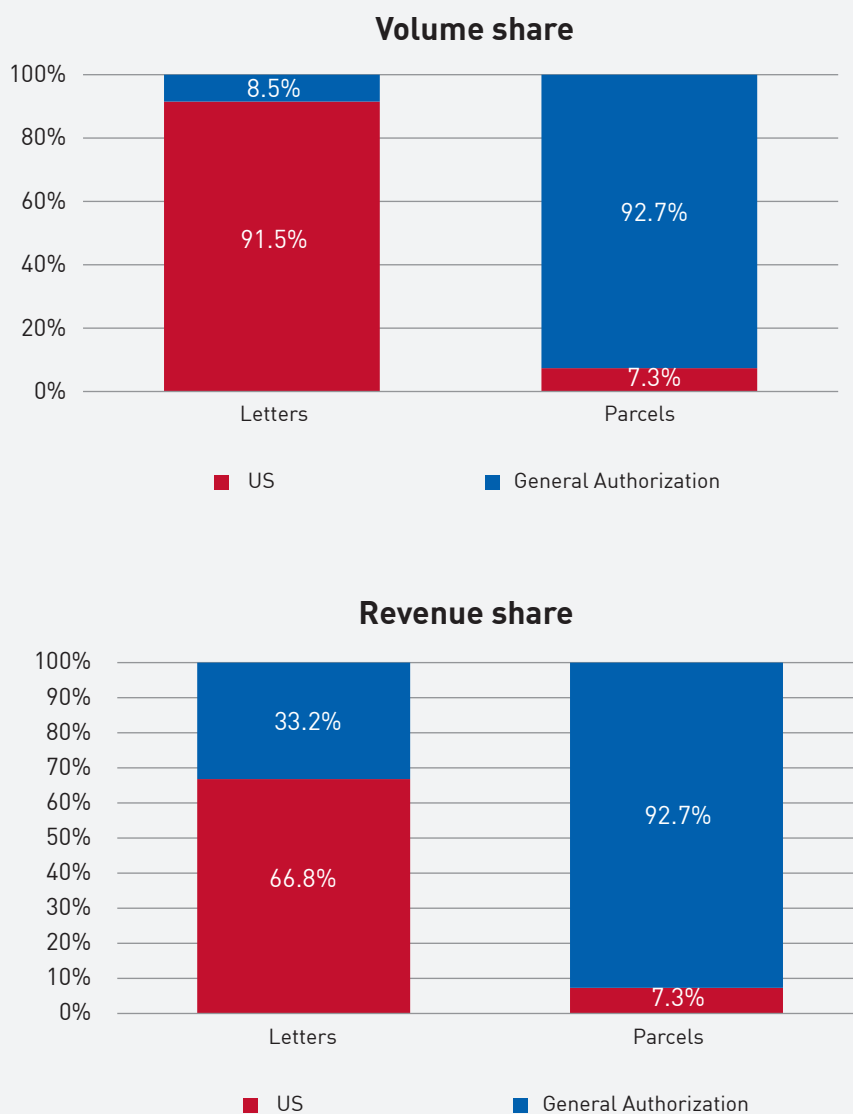
Chart 2.27: Revenue share of postal operators (2011-2016)



In terms of the services provided, it is obvious that the US dominates the letter mail sector<sup>30</sup>, holding 91.5% of the volume and 66.8% of the revenue. As regards to the sector of parcels-

small packages, courier companies had a dominant role, holding 92.7% of the volume and the revenue.

Chart 2.28: Letters and parcels share for US and courier services (2015)



Source: EETT (based on data provided by postal services providers)

30. Including direct mail, newspapers, books, catalogues and periodicals.

### 2.3.2. The Universal Service sector

There are two types of providers operating in Universal Service sector, the USP and the companies with Individual License. According to the current legal framework, ELTA is the USP in Greece and has undertaken the provision of the US for a period of 15 years since the beginning of the postal market liberalization, i.e. until 31/12/2028<sup>31</sup>.

The provision of the US includes the handling of letters, direct mail, newspapers, books, ca-

talogues and periodicals weighing up to 2 kg, as well as parcels up to 20 kg. The share of these postal items in the US sector is shown in Table 2.8.

In 2016, the USP was the dominant player in the US market, with 90% of the volume and 93% of the revenue from postal items.

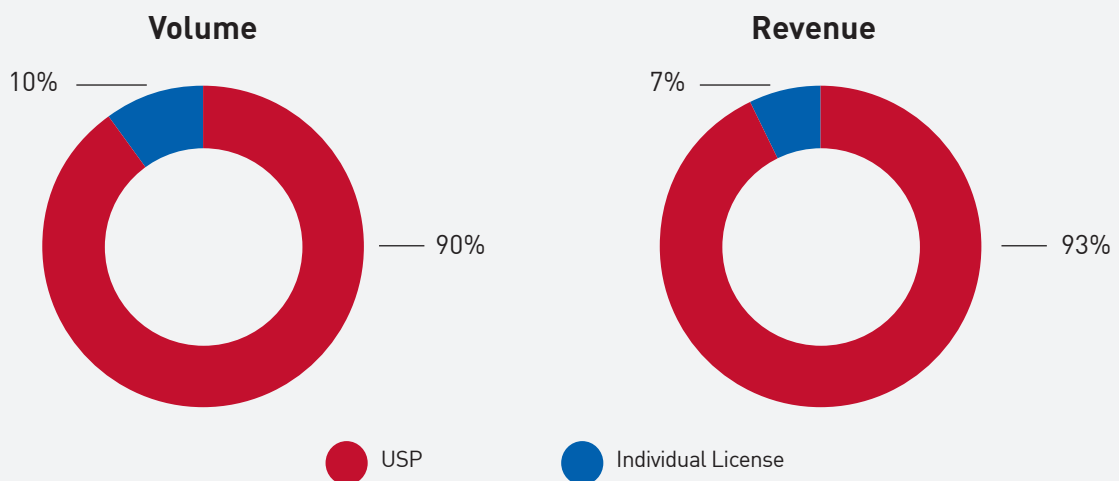
The increase of the market share of companies with Individual License, compared to the previous year, was mainly the result of the handling of letters and direct mail items.

**Table 2.8: Volume and revenue share of postal items within the US sector (2016)**

	Volume	Revenue
Letters	89.5%	86.1%
Direct mail	4.8%	2.8%
Newspapers	4.8%	3.2%
Books/catalogues/periodicals	0.1%	0.03%
Parcels & small packages	0.9%	7.8%
<b>US total</b>	<b>100%</b>	<b>100%</b>

Source: EETT (based on data provided by postal services providers)

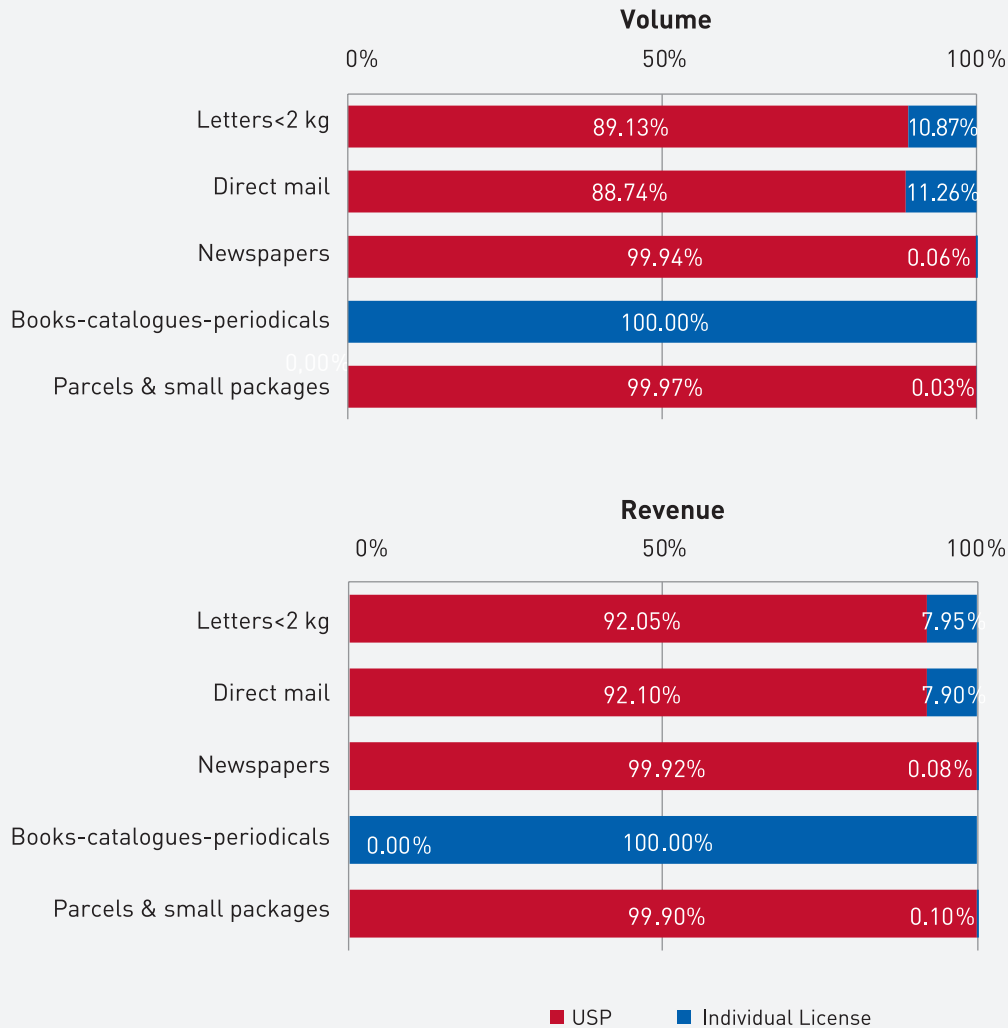
**Chart 2.29: Volume and revenue share of postal operators within the US sector (2016)**



Source: EETT (based on data provided by postal services providers)

31. L.4053/2012 "Regulation for the operation of the postal market, e-telecommunication issues and other rules", Government Gazette 44/A/2012.

Chart 2.30: Volume and revenue share of services within the US sector (2016)



Source: EETT (based on data provided by postal services providers)

### **The Universal Service Provider (USP)**

In 2016, USP's revenue totalled in 207.3 million euros, decreased by 8.8% compared to the previous year. These revenues came from the handling of 278.5 million postal items, 9.7% less compared to 2015. The overtime progress of the USP's revenue and volume of the USP during the last six years is presented in Chart 2.31.

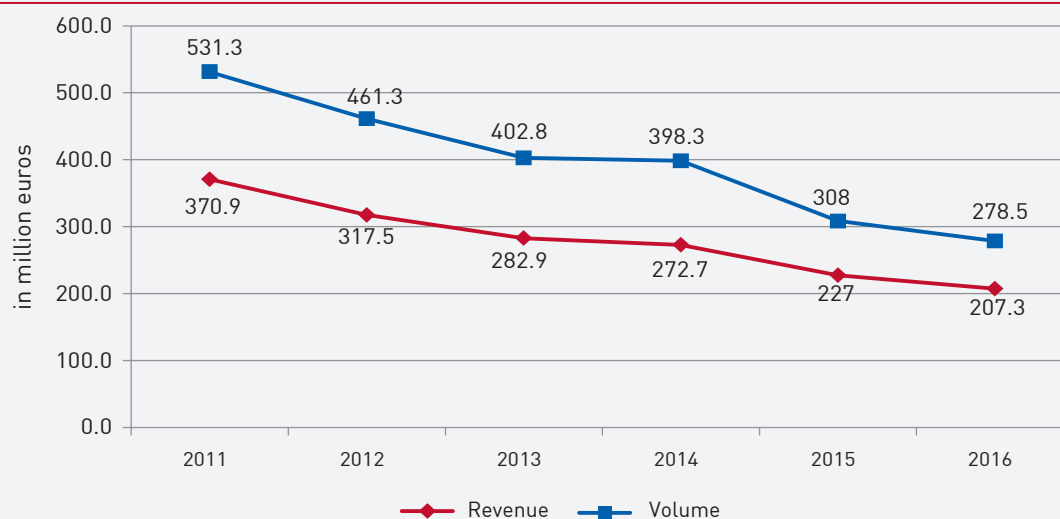
The majority of the USP's revenue was generated mainly from the handling of letters up to 2kg, followed by parcels up to 20 kg and newspapers. In 2016, the average revenue per service decreased significantly for small packages up to 2 kg and newspapers, compared to the previous year, while

it increased for direct mail.

66% of the USP's revenue was generated by customers holding a contract and 34% from cash-paying customers. Public sector organizations were 20% of the USP's customer portfolio, the same as banks/assurance companies. Moreover, telecommunications providers were 10%, while individuals were 25%.

In 2016 the USP's personnel increased compared to 2015, to 8,039 employees. Regarding infrastructure, the USP owned 1,403 post offices and 694 agencies. In addition, the USP owned 650 cars and 1,787 motorbikes.

Chart 2.31: USP volume and revenue (2011-2016)



Source: Annual financial statements, 2016

Table 2.9: USP volume and revenue share per service

	Total items	Total revenue	Average revenue (in euro)	D 2015-2016
Letters	88.9%	85.3%	0.71	0.12%
Direct mail	4.7%	2.8%	0.43	38.22%
Newspapers	5.3%	3.5%	0.49	-35.52%
Books-catalogues-periodicals	0.0%	0.0%	0.00	0.00%
Small packages	0.3%	0.7%	1.88	-31.76%
Parcels	0.8%	7.7%	7.47	-5.42%
Total	100.0%	100.0%		

Source: Annual financial statements, 2016

### Companies with Individual License

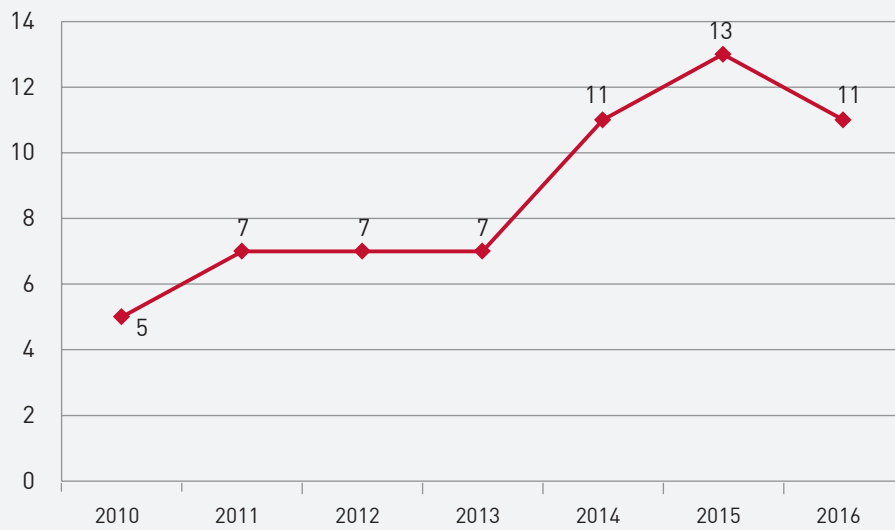
Besides the USP, 11 companies with Individual License<sup>32</sup> were operating in the US sector in 2016.

The companies with Individual License generated 15.87 million euros revenue in 2016, increased by 10.9% year-on-year and handled 32.06 million postal items, 17.6% more than in 2015. The overtime progress of the revenue and

volume of companies with Individual License during the last six years, is presented in Chart 2.33.

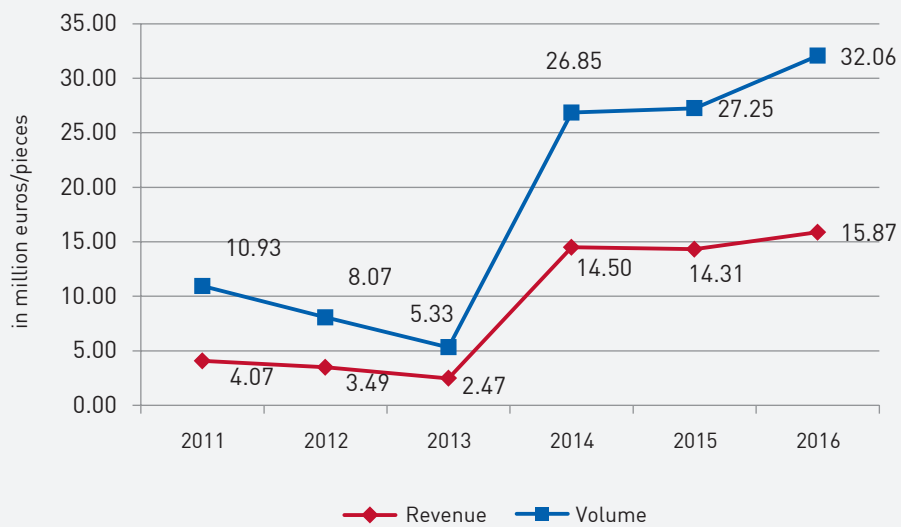
32. Including companies that were active even for a part of the reference year.

Chart 2.32: Number of companies with an Individual License



Source: EETT (Register of postal services providers)

Chart 2.33: Revenue and volume of companies with Individual License (2011-2016)



Source: EETT (based on data provided by postal services providers)

**Table 2.10: Volume and revenue share per service for companies with Individual License (2016)**

	Total items (%)	Total revenue (%)
Letters	94.2%	96.4%
Direct mail	5.2%	3.1%
Newspapers	0.03%	0.0%
Books-catalogues-periodicals	0.5%	0.4%
Parcels & small packages	0.003%	0.1%
<b>Total US</b>	<b>100%</b>	<b>100%</b>

Source: EETT (based on data provided by postal services providers)

Since the liberalization of the Greek postal market in 2013, large courier companies are showing great interest in letter mail services, and this trend is reflected in the fact that in 2016 companies with Individual License held 8% of revenue and 10% of volume of the US sector.

Particularly, three companies operated in letter mail handling, four in direct mail handling, one in the handling of newspapers and books/catalogues/periodicals and two of them in parcel handling. It is worth noting that 81% of the revenue was generated by a single company, which handled 92% of letters and 78% of parcels.

Despite the fact that until 2013 the core activity of the companies with Individual License was the distribution of direct mail, in 2016, similarly to 2015, letter mail handling monopolized almost the sector's activity.

### 2.3.3. The courier services sector

The courier services sector is a market of particular interest mainly because of its considerable activity in the area of parcels and small packages delivery. This sector's companies operate under a General Authorization and provide "courier" services, meaning express delivery of postal items including monitoring and track and trace systems.

In 2016, 76 new companies entered the courier services sector, raising the total number of companies operating under a General Authorization to 509<sup>33</sup>.

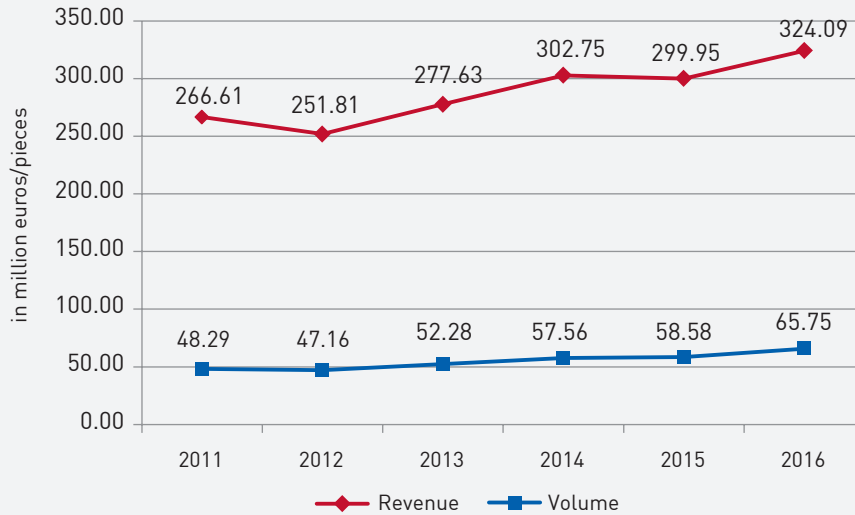
The activities of the courier services companies include the handling of:

- letters up to 2 kg,
- small packages up to 2 kg,
- parcels from 2 up to 20 kg and
- parcels heavier than 20 kg.

In 2016, the companies operating under General Authorization generated 324.09 million euros revenue, increased by 8% year-on-year and handled 65.75 million postal items, 12.2% more than in 2015. The overtime progress of revenue and volume of the companies under General Authorization during the last six years is presented in Chart 2.34.

33. Including companies that were active even for a part of the reference year.

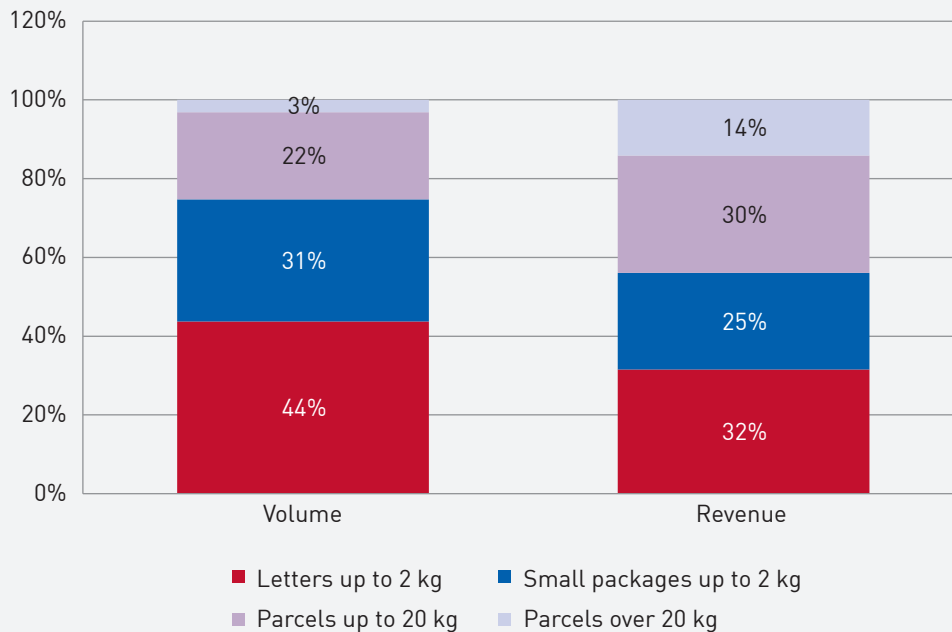
Chart 2.34: Revenue and volume of companies operating under General Authorization (2011-2016)



Source: EETT (based on data provided by postal services providers)

The volume and revenue share per category of postal items handled by the courier services operators in 2016 is presented in Chart 2.35.

Chart 2.35: Volume and revenue share per service in the courier sector (2016)



Source: EETT (based on data provided by postal services providers)



Letters continued to represent a smaller part of the volume of postal items handled by the courier services operators (44%). In 2016, the total volume of parcels-small packages was significantly higher than the volume of letters, while, in addition, letters generated significantly less revenue. The activity in the small packages sector was also noteworthy.

Courier services companies owned in total more than 1,950 branches, including mailing boxes and network outlets, owned more than 6,000 vehicles (cars and motorbikes) and employed more than 9,900 employees.

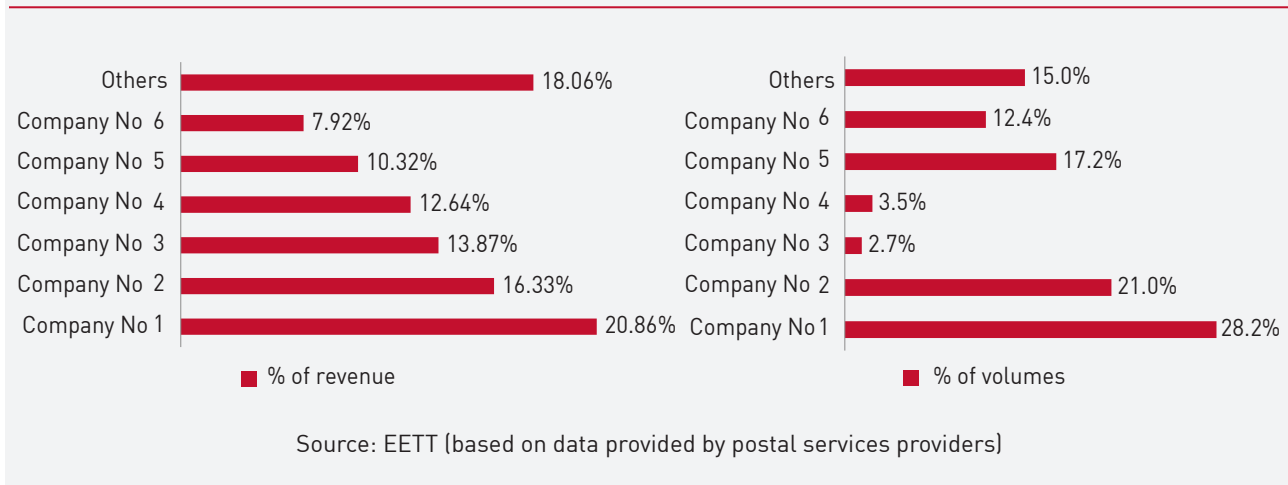
To better understand the competition in the courier services sector, Porter's five forces model is applied<sup>34</sup>. The model analyzes: a) the intensity of competition among the existing players, b) the threat of new entrants in the market,

c) the threat from potential substitute products, d) the customers' bargaining power and e) the suppliers' bargaining power. These five forces are indicative of the competition conditions in the courier sector that every postal services provider has to cope with, as well as the extent to which the courier market is competitive and offers opportunities for new business activity.

#### **(a) Intensity of competition**

Despite the large number of companies operating in the courier services sector (509 in 2016), the largest share of the volume of postal items was handled by just six companies that generated the majority of revenue in the market. As demonstrated in Chart 2.36, in 2016, the six major companies handled 85% of the postal items and generated 82% of the courier services market revenue.

Chart 2.36: Volume and revenue share of courier services companies (2016)



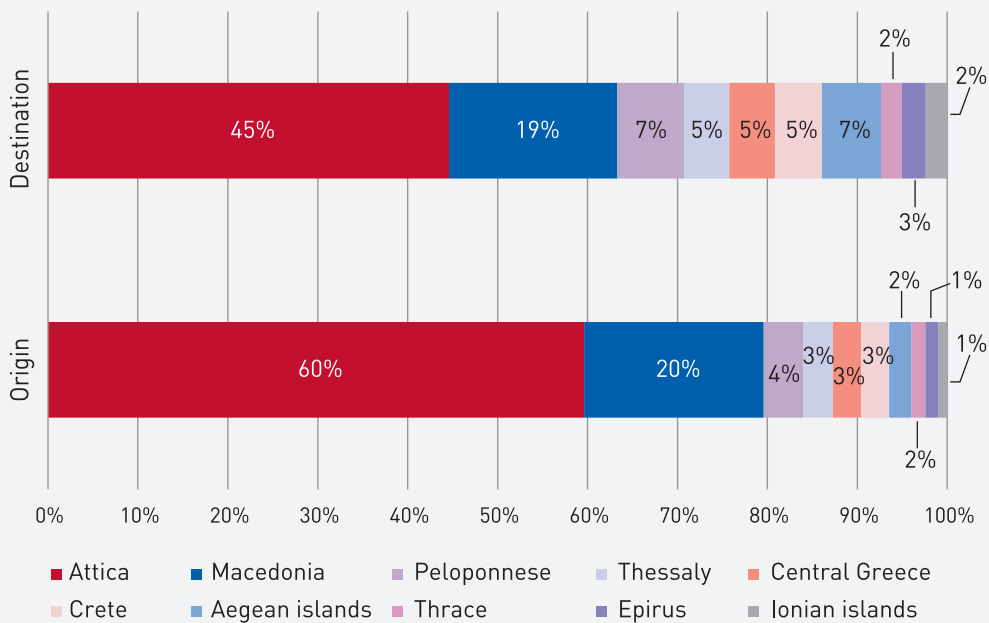
34. Porter M.E. (1979), "How Competitive Forces Shape Strategy", Harvard Business Review (March-April).

The competition was more intense in the regions of Attica and Macedonia, from where approximately 80% of the postal items were delivered to domestic and international destinations. Moreover, 64% of postal items originating from domestic and international destinations were delivered to these areas.

The growth of cross-border e-commerce has boosted the activity of courier operators, since, currently, one fifth of their revenue is generated by international outbound traffic. The most significant part of outbound traffic was directed to EU countries (71%) and Asia (10%), while the majority of inbound traffic also originated from the same regions (73% from the EU and 16% from Asia)<sup>35</sup>.

Herfindahl-Hirschman Index (HHI)<sup>36</sup> gives an indication of the level of competition among courier services operators. It is an index reflecting market concentration, which shows the degree to which a small number of companies represents a large part of the market. The higher the HHI, the higher is the concentration. Particularly, a HHI between 1,000 and 1,800 indicates a moderate level of market concentration. In 2016, the HHI for the entire courier services market was slightly higher than in the previous year, indicating a moderate concentration, while for the letter mail and parcels markets the HHI declined.

Chart 2.37: Destination & origin of courier items deliveries per geographic region

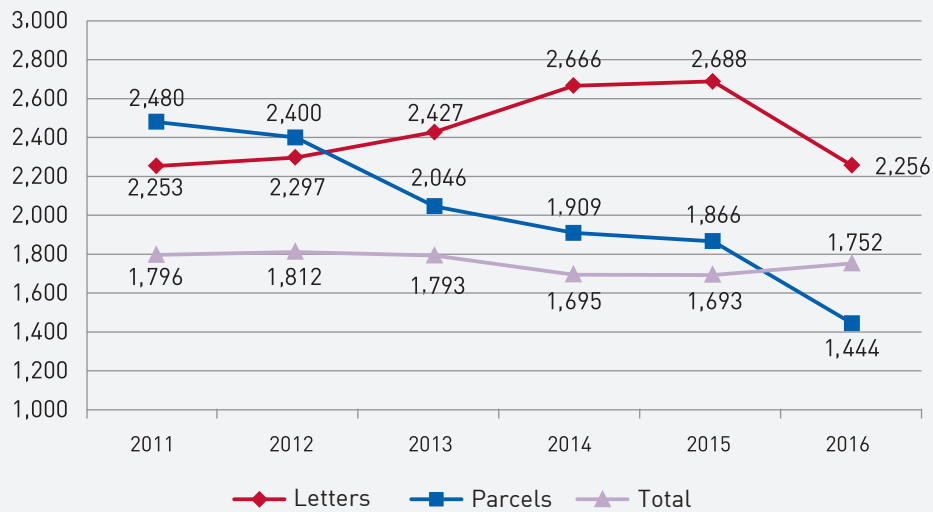


Source: EETT (based on data provided by postal services providers)

35. EETT (based on declared qualitative data from postal services providers).

36. Source: Hirschman A. (1945), National Power and the Structure of Foreign Trade, Berkley & Los Angeles: Publications of the Bureau of Business and Economic Research, University of California and Herfindahl, O.C. (1950), Concentration in the U.S. Steel Industry, Columbia University, unpublished Ph.D. thesis.  $HHI = \sum_{i=1}^n s_i^2$ , where  $s_i$  is the market share of company "i" and  $n$  is the number of companies.

Chart 2.38: Herfindahl – Hirschman Index



Source: EETT (based on data provided by postal services providers)

### (b) Barriers for new entrants

In the courier services sector, where competition has been intense, the main obstacles for new entrants relate to economic issues linked to the recession of the Greek economy and to business issues, as follows<sup>37</sup>:

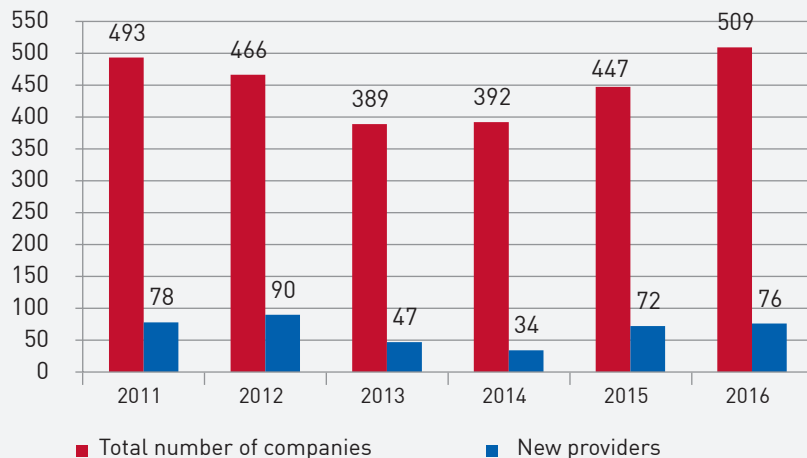
a) Consumers' demand, which is mainly affected by factors such as company's reliability, pricing and customer service quality and also considerably affected by the range of provided services, the company's strong brand name and the size

of the postal network.

b) Market problems, such as compression of the service prices, high cost of vehicle purchase and maintenance, the already high number of competitors in the postal market and competition from alternative transport networks.

Despite the multiple entry barriers in the postal market, the number of new companies that operated in 2016 increased compared to the previous year, showing signs of market recovery.

Chart 2.39: Companies operating under a General Authorization



Source: EETT (Registry of postal services providers)

37. EETT (based on data provided by postal services providers).

**(c) Substitute products/services**

Regarding letter mail, the most important threats are constant technology advancements and the substitution of traditional ways of communication by e-mail and new web applications, both by individuals and by companies.

As regards to parcels, it is almost impossible for either an individual or a company to undertake the delivery of their parcels, especially with courier (express) characteristics. Therefore, it is obvious that there are no direct substitutes, but probably supplementary services. Since the market is evolving, due to its direct relation to web marketing growth and e-commerce, it is probable that supplementary products of additional mail will be created, such as confirmations, bills, receipts and invoices.

**(d) Bargaining power of customers**

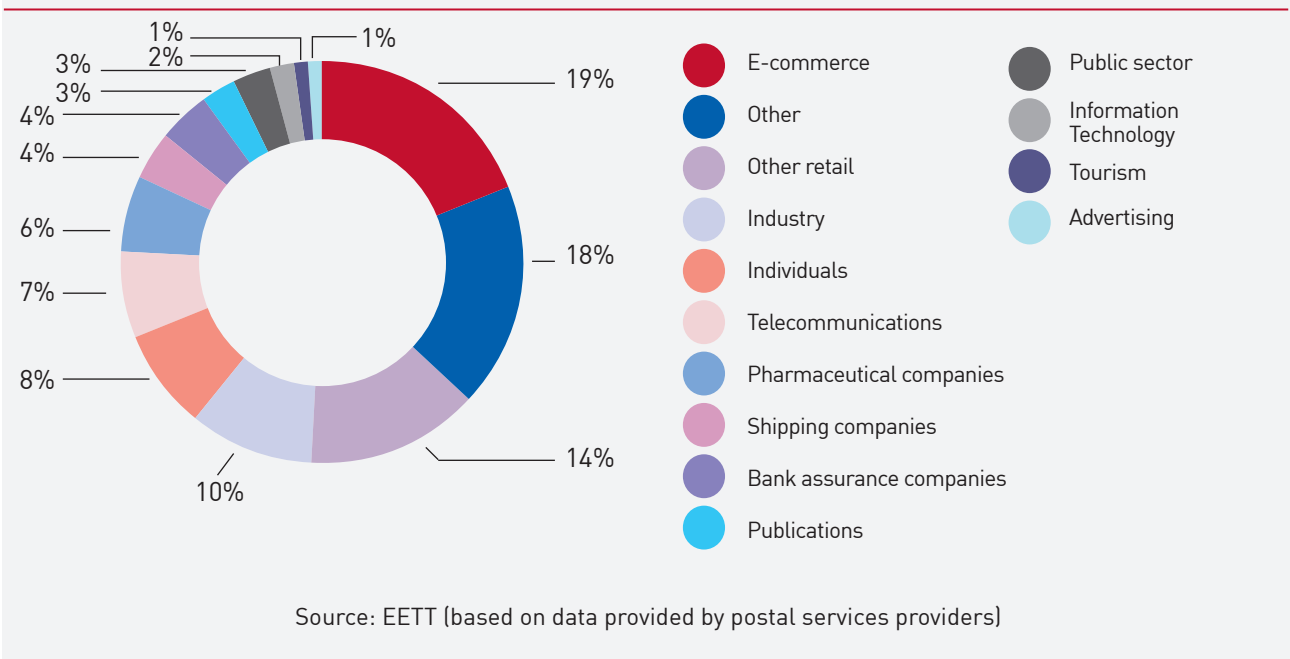
The large customers of courier services compa-

nies have a strong bargaining power, mainly due to the increased volume of postal items they handle and the increased frequency of use of postal services. On the contrary, individual customers have little bargaining power in defining the price of postal services that they demand.

Given the growth of e-commerce and consequently its significance for the viability of courier services companies, the bargaining power of merchants is increasing. This is more intense in cases where postal companies are completely dependent on individual customers whom they are trying to maintain, by compressing their prices and reducing their operating costs by any means.

The clientele of courier companies consisted mainly of companies and less of individual consumers, as shown in Chart 2.40<sup>38</sup>. Main business customers come from the e-commerce sector, followed by retail customers, industry, telecommunications, the pharmaceutical industry etc.

Chart 2.40: Revenue share of courier companies' clientele (2016)



38. EETT (based on data provided by postal services providers).

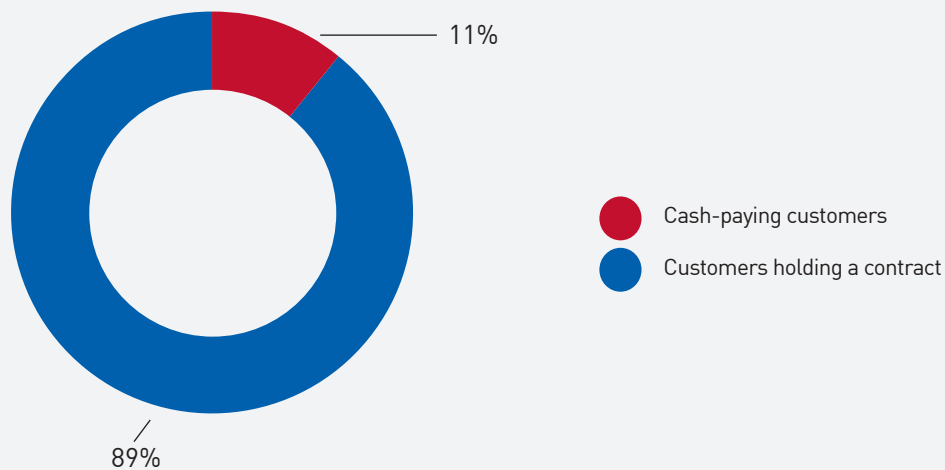
Customers with a contract generated 89% of courier companies' revenue while cash-paying customers generated 11%. Revenue per customer type is depicted in Chart 2.41.

**(e) Bargaining power of suppliers**

Postal market suppliers such as the manufacturers of sorting machines, transportation means, mail handling machines, fuel supply

etc., influence the operation of postal companies without, however, affecting competition in terms of pricing, delivery frequency or network coverage. Nevertheless, postal services providers, in order to cope with competition, are willing to invest mainly in new technologies and means of transport in the near future and less in their network development and advertising.

Chart 2.41: Revenue of courier companies per customer type (2016)



Source: EETT (based on data provided by postal services providers)





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HELLENIC TELECOMMUNICATIONS & POST COMMISSION

Hellenic Republic  
Hellenic Telecommunications & Post Commission

60 Kifissias Ave., 151 25 Maroussi, Greece

T +30 210 6151000

F +30 210 6105049

W [www.eett.gr](http://www.eett.gr)

E [info@eett.gr](mailto:info@eett.gr)