HELLENIC TELECOMMUNICATIONS & POST COMMISSION

2019

MARKET REVIEW

OF ELECTRONIC COMMUNICATIONS
& POSTAL SERVICES

Market Review

of Electronic Communications & Postal Services

2019

January 2021

HELLENIC TELECOMMUNICATIONS & POST COMMISSION

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Summary

a) Electronic communications

In 2019, the key figures of the domestic telecommunications market presented an upward trend compared to the previous year. Furthermore, competition was particularly intense in bundled offers, driven by high-speed broadband access, mobile broadband and pay-TV services. Regarding data presentation, it should be mentioned that CYTA operated as a separate business entity until 31/03/2019, and then was fully absorbed by VODAFONE. The contribution of the industry's turnover to Greece's Gross Domestic Product (GDP) was 2.7% in 2019, slightly increased compared to 2018, given that the telecommunications sector exhibited a larger annual growth compared to that of the GDP (2.4% compared to 1.5% respectively).

Financial data

The industry's turnover increased to five billion euros, with telecommunications services accounting for its largest segment (87.2%). Total investments of electronic communications operators improved by 3% compared to 2018. The investments made by the major operators, ranged approximately between 6% and 27% of their total revenues from electronic communications services. The focus of these investments was mainly on the telecommunications infrastructure.

Fixed communications

In December 2019, the number of fixed telephony access lines amounted to 4,645,310, with the respective penetration in the population at 43.3%. The fixed telephony traffic registered a decrease by 7.9%, mainly due to the decline in the traffic of national fixed calls as well as of the international calls. OTE remains the incumbent operator with 57% share of the fixed telephony lines and a share in terms of traffic at a slightly higher level (46.6%) compared to the previous year. The fixed telephony lines of the other operators decreased by 4.9%.

Retail revenues from telephony and Internet services at a fixed location amounted to 1.41 billion euros, remaining at the same level as in 2018, with OTE's relative share estimated at 63% for 2019. The revenues from Internet services continued to grow (6.3% increase compared to 2018), counterbalancing the ongoing decline of the retail fixed telephony revenues.

Mobile communications

In 2019, the number of mobile telephony connections amounted to 14.5 million registering a decrease of 5.8% compared to 2018, while active connections declined less by 2.4% amounting to approximately 11.9 million. As regards mobile operators' market shares in terms of total connections, COSMOTE's and VODAFONE's shares decreased to 46.6% and 28.9% respectively, whereas WIND's share increased to 24.5%. In terms of active connections, COSMOTE's share lies in the range of [45%-55%], followed by VODAFONE with a share in the range of [25%-35%].

The use of mobile communications networks was characterized by the 2.2% growth in the domestic voice traffic, the 7.9% increase of SMS volume, for the first time since 2010, and the on-going remarkable increase by 56% in the volume of data services, which reached 225 million GB. 56% of the volume of calls was made to mobile phones within the same mobile network (on-net). Finally, the retail revenues from mobile communications services (post-paid and pre-paid) increased by 2.8% amounting to 1.7 billion euros. The average annual revenue per post-paid and pre-paid user (connection) stood at 269 and 68 euros respectively.

Broadband

At the end of 2019, fixed broadband connections amounted to 4,105,561 registering an annual increase of 3.7%, with the fixed broadband penetration in the population (connections per 100 people) reaching 38.1%. In June 2019, the average EU broadband penetration rate was 35.6%, while the Greek corresponding one was 37.1%. Local Loop Unbundling (LLU) lines, including Virtual Local Unbundling (VLU) lines, increased by 2.7%, reaching 2,202,007 at the end of the year versus 2,142,492 at the end of 2018. At the same time, VDSL lines amounted to 995,816 compared to 677,867 in December 2018 (annual increase of 47%), accounting for 24.3% of all fixed broadband lines. Their penetration in the population is still low (9.3%).

In contrast to the fixed broadband penetration, mobile penetration rate in June 2019 (connections per 100 people) was 86.5%, thus ranking Greece among the last EU member states. However, the penetration in Greece grows faster than the average EU penetration, since its annual increase was 11.8 percentage points versus the European one of 4.4 percentage points. Furthermore, the 4G coverage percentage neared that of 3G's (98.8% versus 99.7%) and the overwhelming majority of internet traffic was delivered via 4G networks (91.5%).

Bundled offers

The penetration of bundled offers continued to increase in 2019, with their number exceeding 4.13 million at the end of the year, corresponding to 87.1% of the country's fixed telephony subscriptions. The most popular type of bundled offer remained that of fixed telephony and fixed broadband access (approximately 2.33 million), remotely followed by the triple play combination of fixed telephony, fixed broadband access and mobile service(s) (1.32 million), the triple play of fixed telephony, fixed broadband access and pay-TV (328 thousand) and finally, the 4-play (~102 thousand).

Price Observatory (Pricescope)

Based on the data submitted by the telecommunications operators to the Price Observatory (Pricescope) at the end of 2019, the majority of products concerned fixed communications (~53%). The operators COSMOTE and WIND focused mainly on add-on programs (58% and 57% respectively), while FORTHNET, OTE and VODAFONE laid emphasis on basic programs (94%, 75% and 61% respectively). The programs of COSMOTE, FORTHNET and WIND targeted mainly residential customers, whereas a great percentage of VODAFONE's programs was addressed to business customers. Most of the mobile post-paid telephony programs (~63%) entailed monthly fees up to 60 euros, with an average monthly price of 39 euros (compared to 35 euros in 2018) and a call allowance of around 6,000 minutes per month (compared to 460 minutes per month in 2018), due to subscribers moving up to programs with unlimited call time.

b) Postal services

In 2019, the Greek postal market moved slightly downwards in terms of revenues, while the volume of postal items fell for another year, due to the decline in letter mail.

Specifically, revenues fell by 0.2% compared to 2018, reaching 563.73 million euros, derived from the handling of 346.38 million postal items, 1.2% less than previous year.

In 2019, the Universal Service Provider's (USP) revenues share dropped to 30.9% from 33% in 2018, while the share of courier companies increased to 65.4% from 64% in the previous year. The share of companies with Individual License had an increase to 3.7% from 3% in 2018. The share of parcels-small packages grew in 2019 in terms of volume as well as revenues, reaching 16% and 50%, respectively.

Domestic postal items delivery (90% of total volume) was the largest share of Greek postal market revenues (66%). It's worth noting that the majority of postal items was delivered from Attica (77%) and Macedonia (10%) to domestic and international destinations. Regarding international activities, the largest volume of postal items delivered in Greece from international destinations was coming from the European Union (EU) (41%) and Asia (48%), while the deliveries of postal items to international destinations were mainly sent to the EU (65%) and the USA-Canada (13%).

More specifically, in 2019, in terms of the Universal Service sector (US), besides the USP, nine companies with Individual License operated, which held 19% of volume and 11% of revenues of the US sector. Letters are undoubtedly the dominant postal item of the US sector, since they represent 89.3% of handled postal items, accounting for 85.2% of the sector's revenues.

In 2019, 56 new companies entered the courier services sector, thus increasing the total number of companies under General Authorization to 539. Letters constitute 38% of postal items handled by courier companies and parcels-small packages constitute 62%. Letters generated significantly less revenues (28%) than parcels-small packages (72%).

01

Electronic communications

1.1. The Greek electronic communications market[1]

By the end of 2019, the number of licensed operators (active or not) in the electronic communications market rose to 592 versus 577 at the end of 2018. Chart 1.1 shows the number of providers that were licensed for each service in 2019[2]. 47.5% of the licensed services was related with the provision of broadband access/Internet access services and telephony services. The number of Mobile Network Operators (MNO) and of the main fixed telephony and broadband operators (i.e. OTE and the main alternative operators), at the end of 2019, was reduced to four[3], namely three in mobile telephony and four in fixed telephony (Table 1.1). It should be mentioned that as of June 2018, CYTA was acquired by VODAFONE, with the former being operatively active up till its absorption by the latter on 31/03/2019.

The sector's turnover was increased to five billion euros (growth by 2.4%), while its contribution to Greece's Gross Domestic Product (GDP) was 2.7% in 2019, having increased compared to 2018, as GDP grew annually at a comparatively smaller rate (1.5%) (Chart 1.2). It is noted that for the period 2010-2019, the weighted average GDP reduction is 1.7%, while for the telecommunications revenue is almost double, at 3.4%.

The number of employees in the electronic communications sector was roughly 15 thousand, decreased by 9.7% compared to 2018 (approximately 16.5 thousand) (Chart 1.3).

Lastly, the general cost trend for electronic communications services is reflected in the evolution of the Consumer Price Index (CPI) over time, as presented in Charts 1.4 and 1.5. The CPI was almost the same as of last year (marginal increase by 0.3%), whereas the Communications Sub-index rose by 4% compared to 2018.

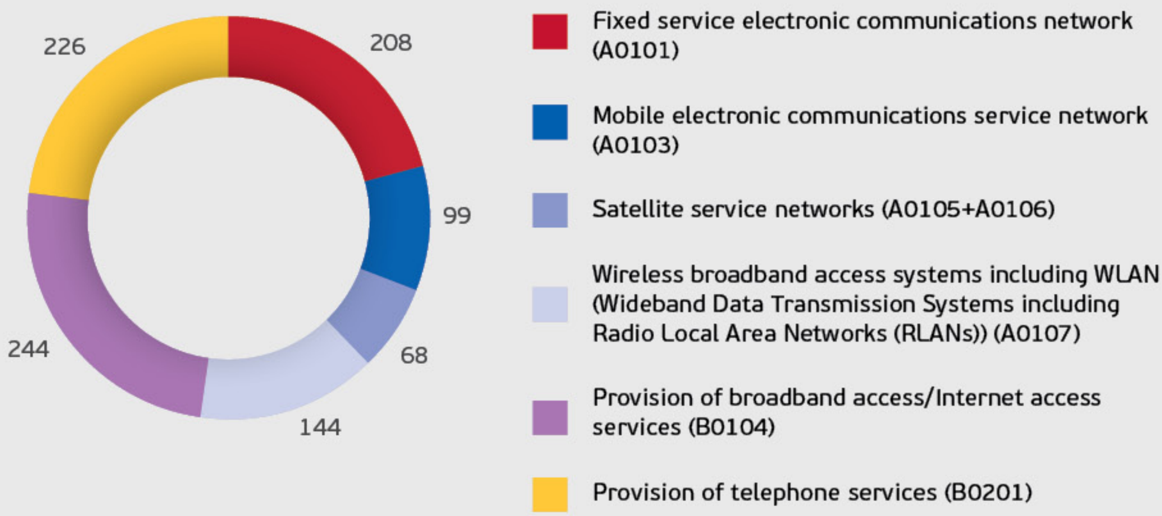
Table 1.1: Mobile Network Operators (MNOs) and main fixed telephony and broadband operators

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mobile	3	3	3	3	4	4	4	4	4	3
Fixed	11	11	9	8	8	6	5	5	5	4

Source: EETT

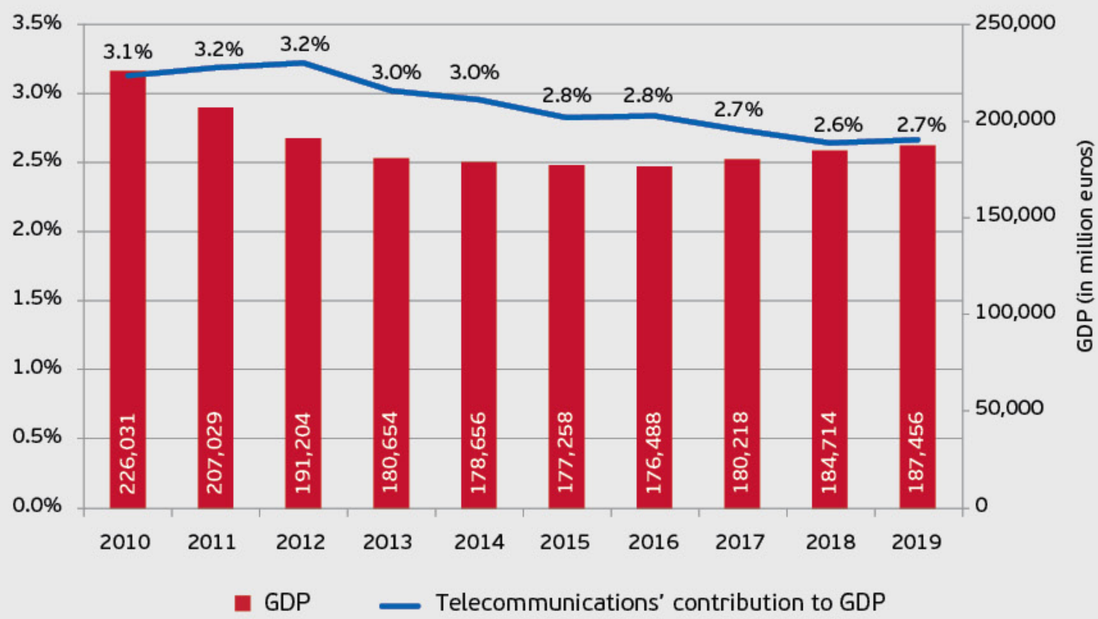
1. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.
2. It is noted that an operator can be licensed for more than one service.
3. Since 2009, WIND (after acquiring TELLAS) operates in the fields of both fixed and mobile communications and consequently is listed under both categories. As of 2014, the same applies for CYTA which operated also as a Mobile Virtual Network Operator (MVNO) and for VODAFONE which acquired HOL (HELLAS ON LINE) on 01/04/2016.

Chart 1.1: Licensed operators per service, 2019



Source: EETT (based on operators' statements in EETT's registry)

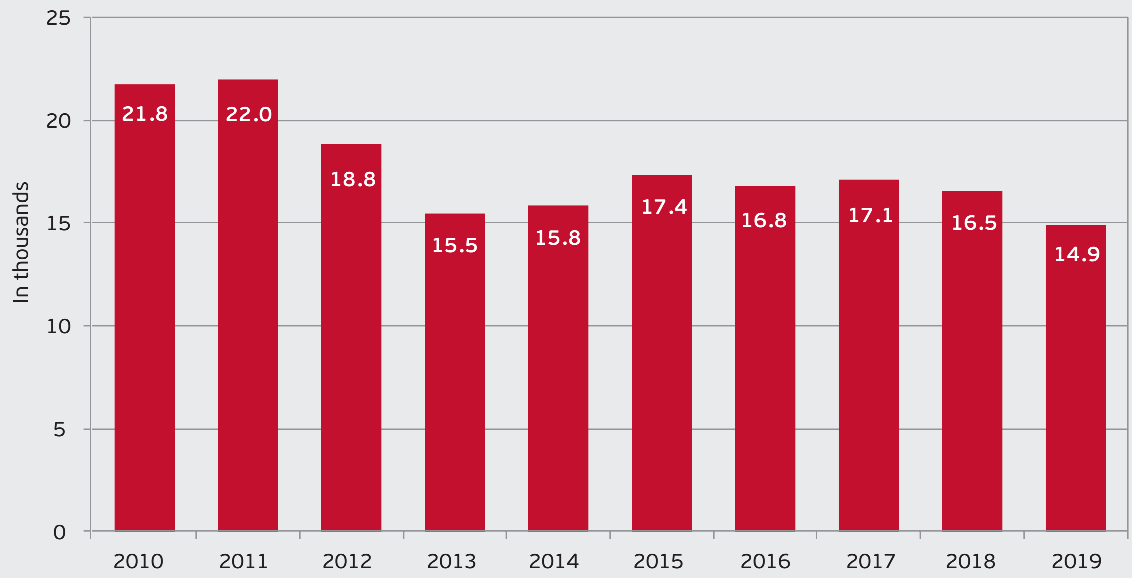
Chart 1.2: Telecommunications' contribution to GDP



Source: EETT (based on questionnaires) and ELSTAT

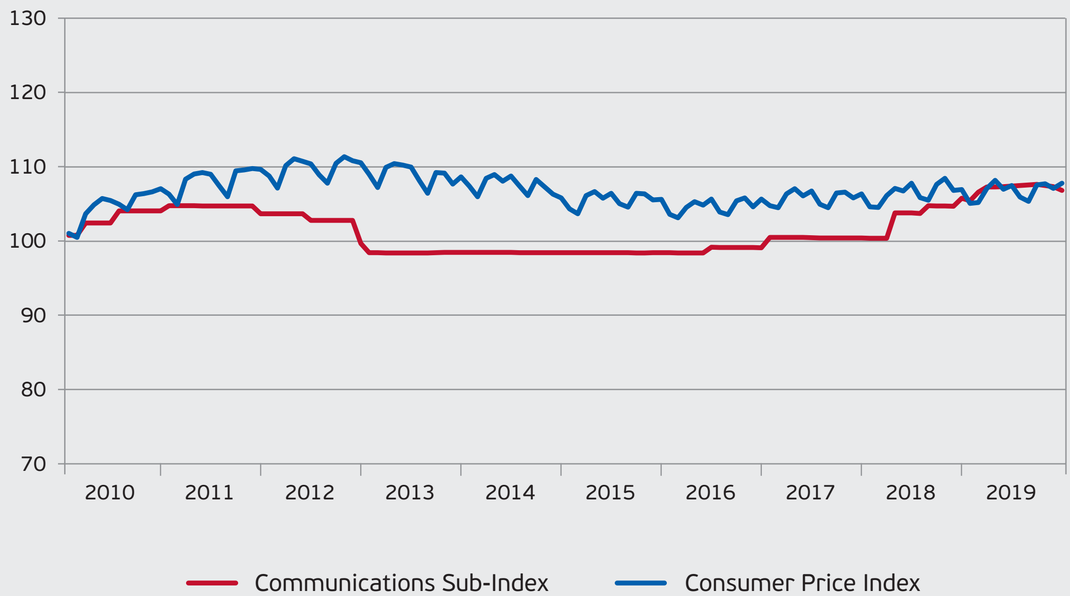
Note: The GDP data and its components for the period 1995-2019 have been revised with 2010 as the base year, in accordance with the Regulation EU 549/2013 of the European Union (ESA 2010).

Chart 1.3: Number of employees of electronic communications operators



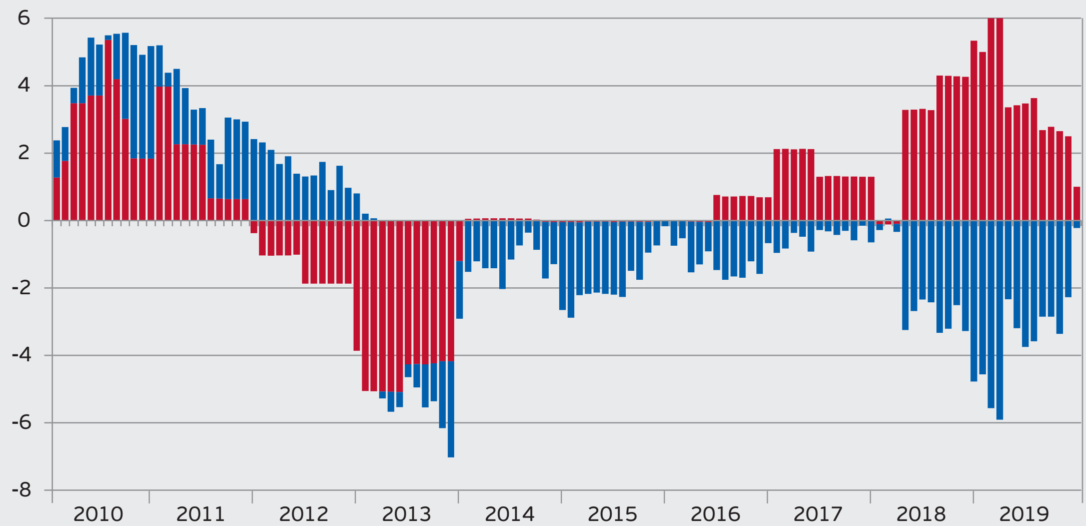
Source: EETT (based on data provided by the active licensed operators)

Chart 1.4: Evolution 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 key financials of the electronic communications market, taking into account the data (turnover, investments, etc.) collected by EETT, from the licensed operators, on a semi-annual basis. In this context, the revenues listed concern that from fixed and mobile communications, telecommunications equipment and pay-TV of active licensed operators with an annual turnover above 150 thousand euros.

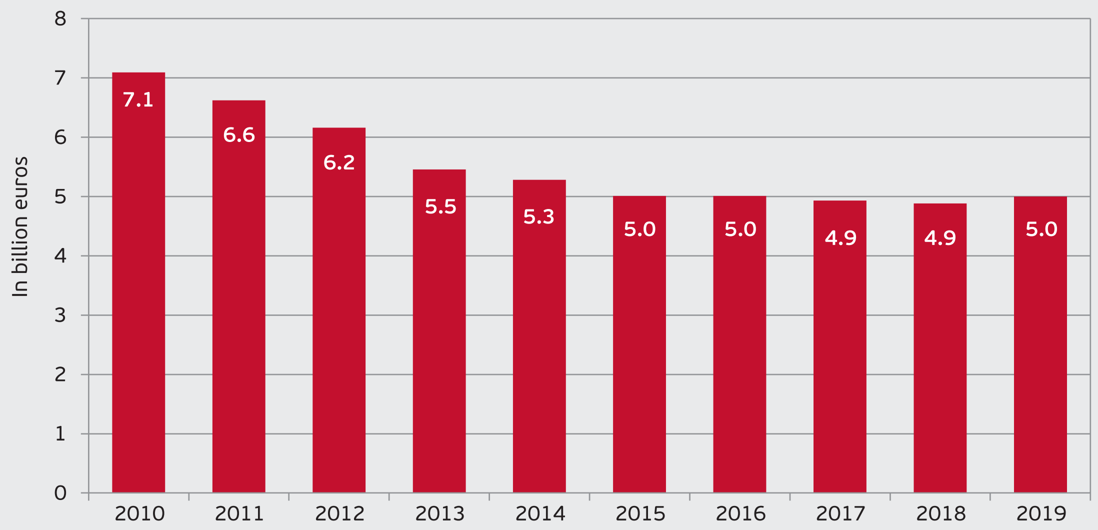
- The telecommunications' sector turnover in 2019, registered a 2.4% increase, amounting to five billion euros (Chart 1.6)[4]. The turnover for OTE and MNOs' increased by 1.9% and 2.6% respectively, whereas that of the alternative operators of fixed telephony and fixed broadband services decreased marginally by 0.3% (Chart 1.7).
- The telecommunications services revenues were the predominant part of the turnover (87.2%) (Chart 1.8).
- The fixed communications services revenues constituted 52.4% of the telecommunications services revenues (Chart 1.9). This includes both retail revenues from telecommunications services (telephony and Internet including access to the phone network, leased lines etc.) and wholesale revenues [e.g. interconnection, wholesale access-Local Loop Unbundling (LLU)]. Respectively, the revenues from mobile communications services include retail revenues from voice and mobile phone data services, as well as wholesale interconnection revenues, roaming etc.
- The retail revenues from telephony and Internet services accounted for approximately 59.7% of the total revenues from fixed networks, followed by the fixed interconnection services revenues with 16.1% (Chart 1.10). As far as the mobile networks and services are concerned, the retail

4. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.

revenues from voice and data services had an overwhelming share of 65.3% and 22.9% respectively (Chart 1.11).

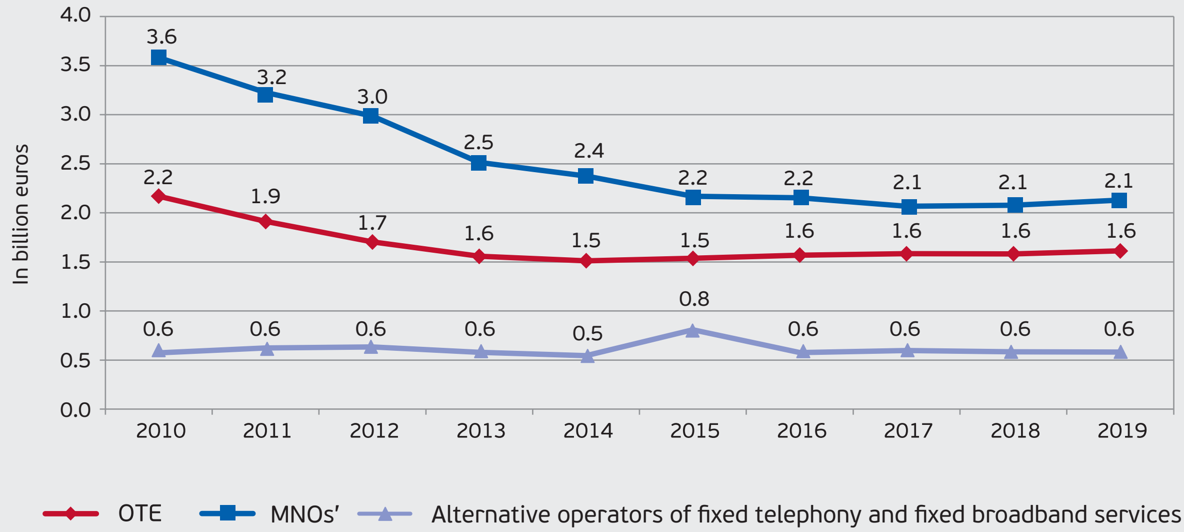
- Total investments made by the electronic communications operators ranged at 15.8% of their turnover, marginally improved compared to 2018, due to the larger increase of investments (3%) compared to the one of the turnover (2.4%) (Chart 1.12).
- In 2019, the electronic communications operators invested mostly in telecommunications infrastructure, as well as in research and development (e.g. software, new services, etc.) (Chart 1.13).
- The investments made by the largest operators ranged approximately between 6% and 27% of their total turnover from electronic communications services (Chart 1.14).

Chart 1.6: Electronic communications operators' turnover



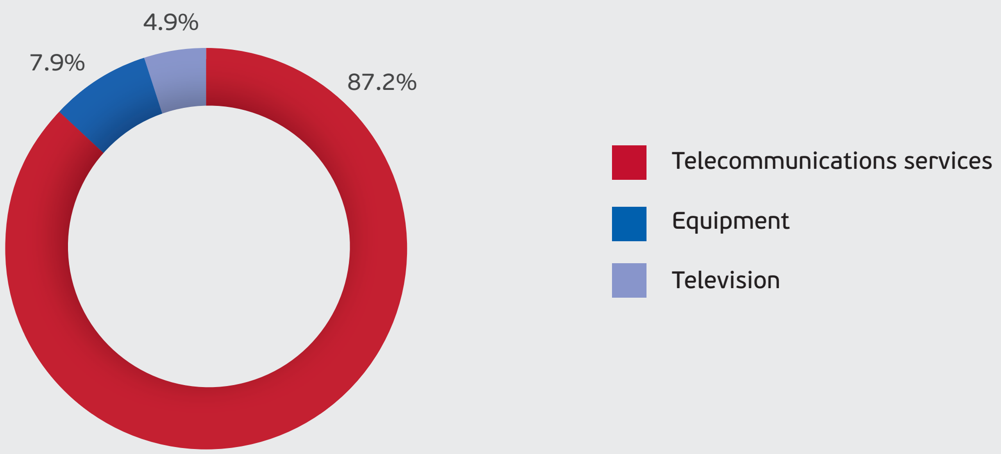
Source: EETT (based on data provided by the active licensed operators)

Chart 1.7: Fixed and mobile telephony operators' turnover



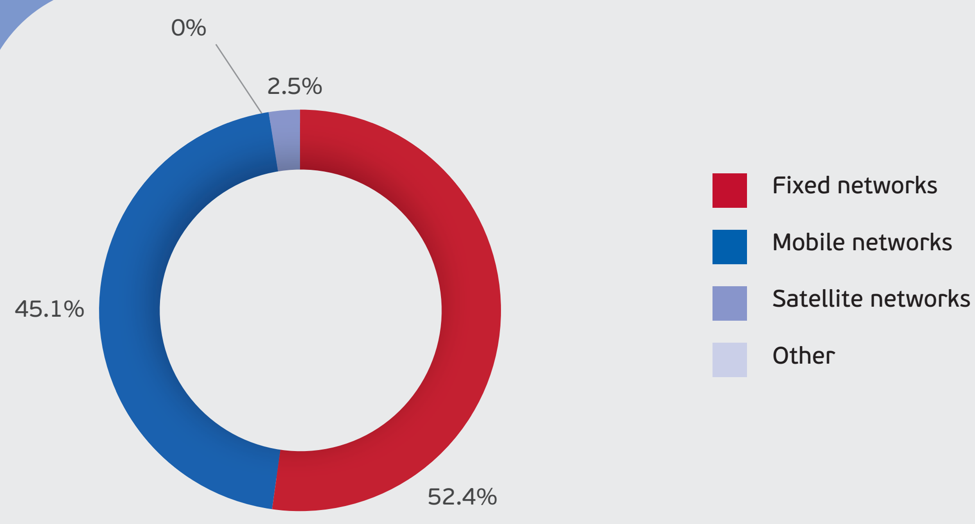
Source: EETT (based on data provided by the active licensed operators)

Chart 1.8: Breakdown of turnover, 2019



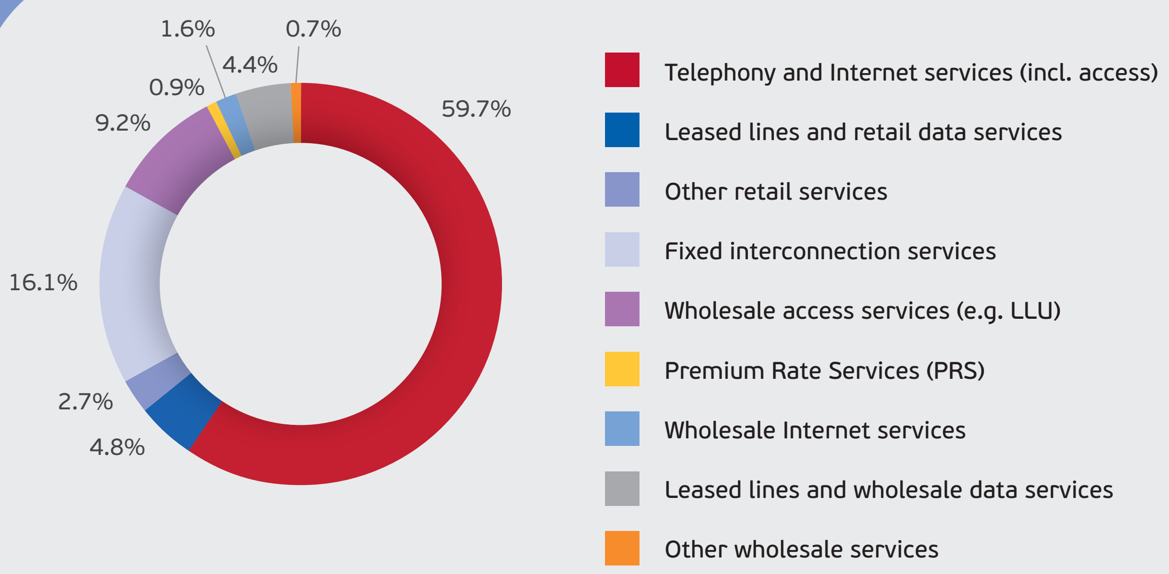
Source: EETT (based on data provided by the active licensed operators)

Chart 1.9: Breakdown of revenues from telecommunications services, 2019



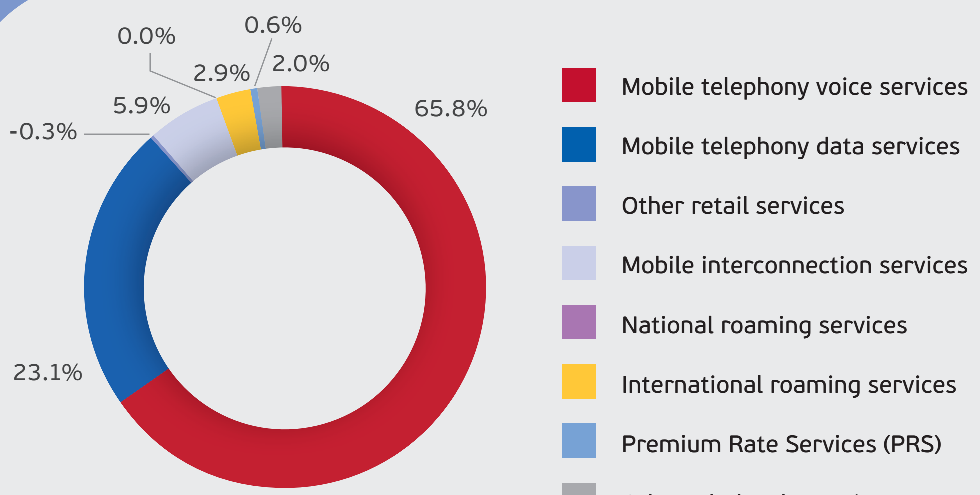
Source: EETT (based on data provided by the active licensed operators)

Chart 1.10: Breakdown of revenues from fixed networks, 2019



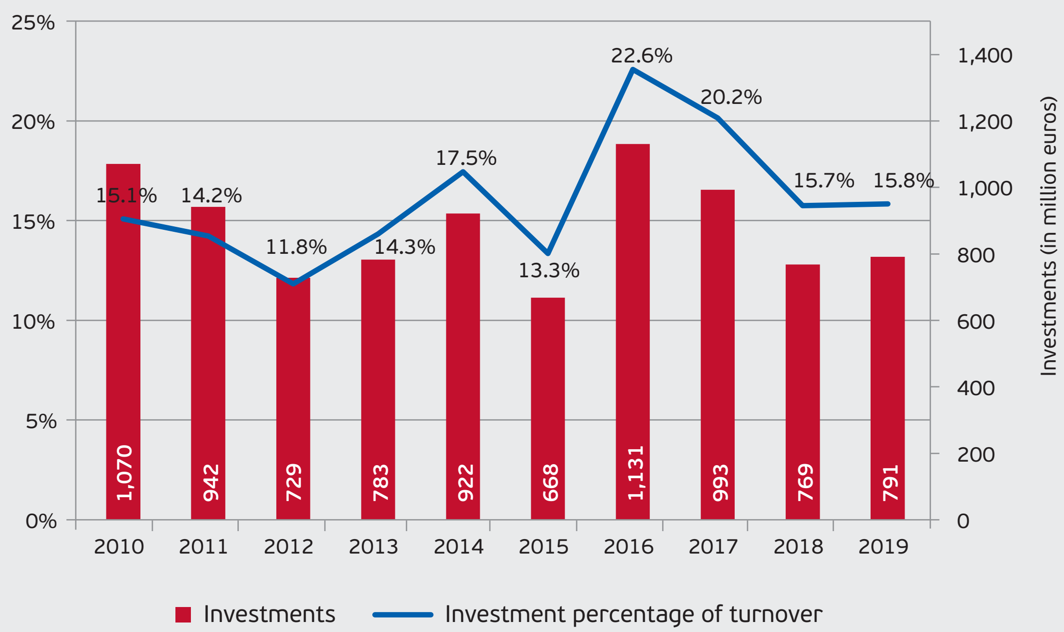
Source: EETT (based on data provided by the active licensed operators)

Chart 1.11: Breakdown of revenues from mobile networks, 2019



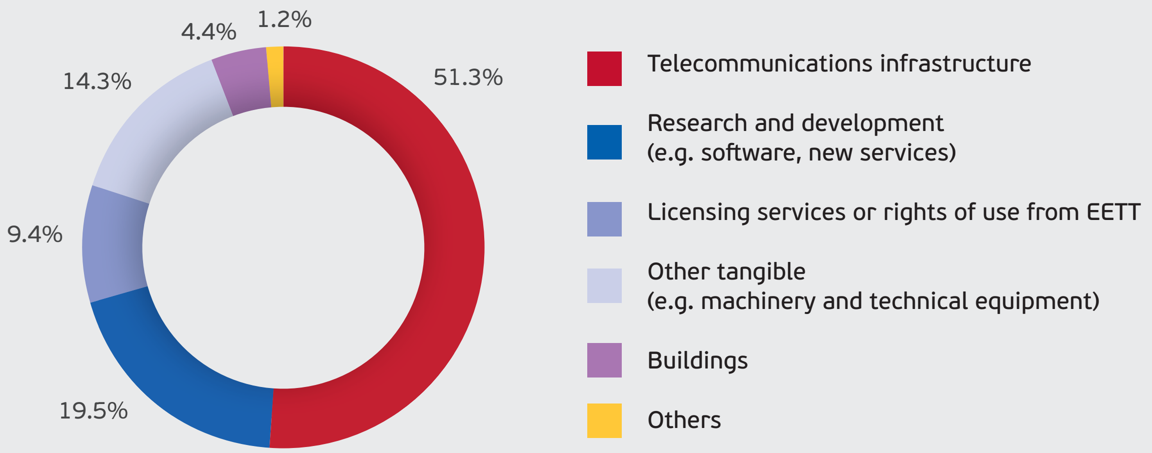
Source: EETT (based on data provided by the active licensed operators)

Chart 1.12: Electronic communications operators' investments



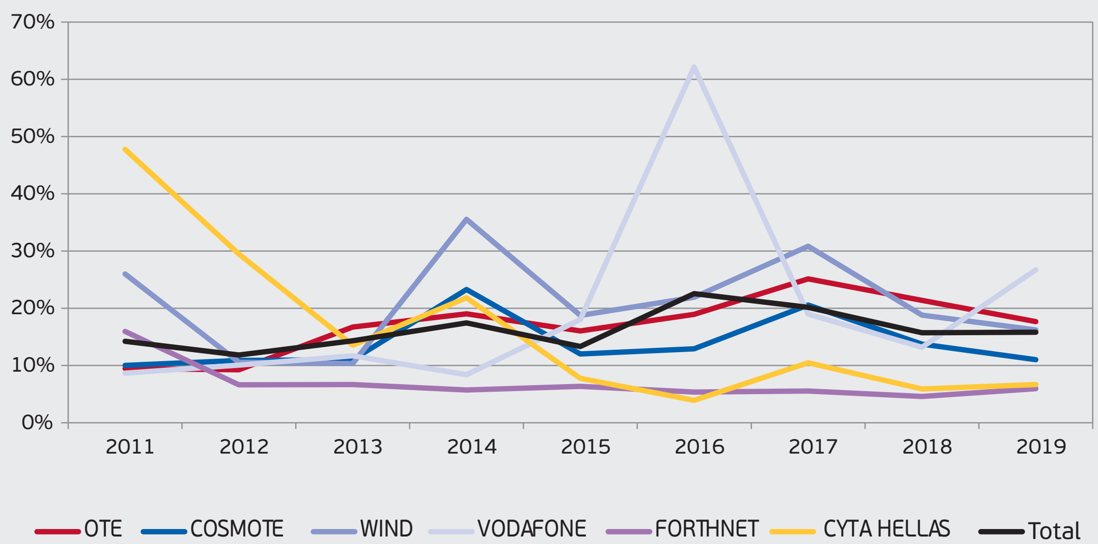
Source: EETT (based on data provided by the active licensed operators)

Chart 1.13: Breakdown of electronic communications operators' investments, 2019



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

Chart 1.14: Investments/turnover ratio



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

1.2.2. Communications services provided at a fixed location

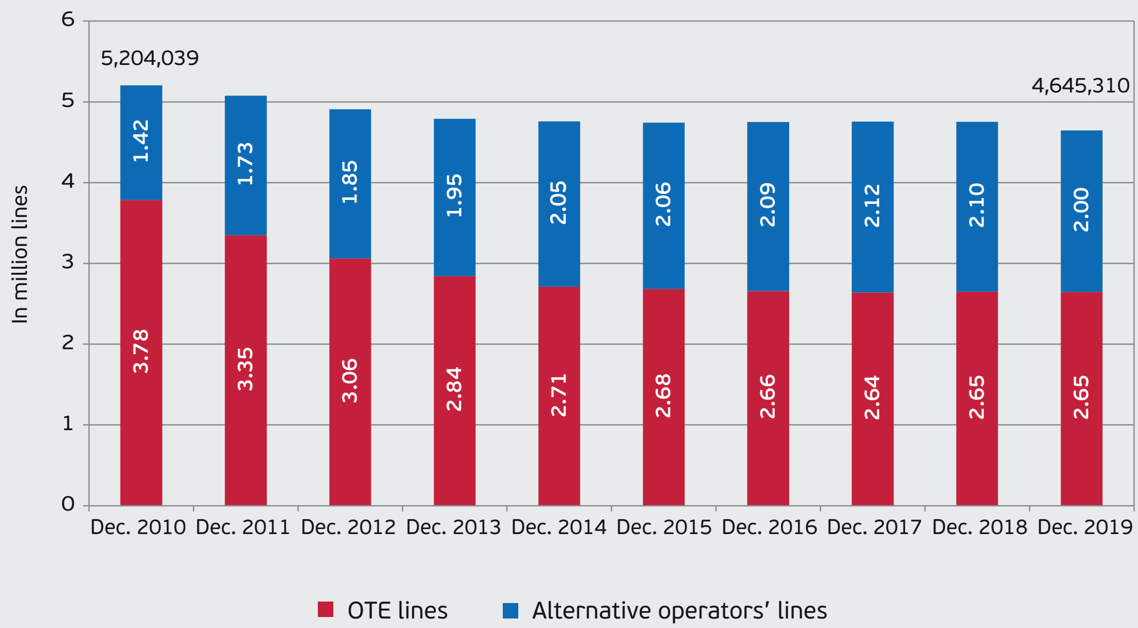
Fixed telephony access lines

In December 2019, the telephone access lines to a fixed public network of electronic communications amounted to 4,645,310[5], a 43.3% penetration in the population, versus 4,753,479 at the end of 2018, registering a 2.3% fall compared to the previous year (Chart 1.15 and Table 1.2).

OTE's telephone lines decreased marginally by 0.2% (4,856 lines) compared to 2018 (a 0.4% increase). Its share at the end of 2019 was 57% versus 55.8% at the end of 2018 (Chart 1.16). Almost 100% of OTE's lines concerned Managed VoIP lines, completing the shift to IP network technologies from the traditional PSTN network.

The telephone lines of the alternative operators fell by 4.9% (103,313 lines) in 2019, compared to the marginal decrease of 0.7% (15,078 lines) in 2018, accounting for the 43% of the lines versus 44.2% at the end of 2018.

Chart 1.15: Evolution of fixed telephony access lines



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

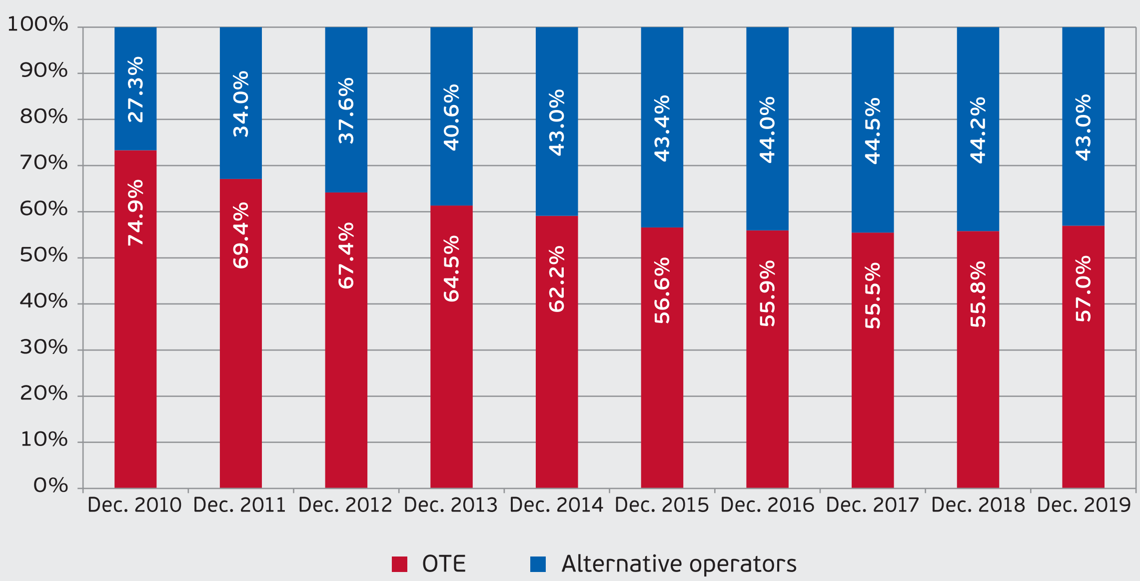
5. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.

Table 1.2. Evolution of fixed telephony access lines

	OTE lines					Alternative operators' lines						Total lines
	PSTN	ISDN BRA	Managed VoIP	ISDN PRA	Total	PSTN and ISDN BRA excluding Wholesale line rental	PSTN and ISDN BRA via Wholesale line rental	Managed VoIP	ISDN PRA	Other techno-logy	Total	
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
Dec. 2017	1,244,008	230,309	1,161,912	2,903	2,639,132	1,754,020	7,746	353,490	2,306	-	2,117,562	4,756,694
Dec. 2018	1,048,244	146,459	1,453,662	2,630	2,650,995	1,702,803	12,298	382,051	2,353	2,979	2,102,484	4,753,479
Dec. 2019	491	109	2,643,064	2,475	2,646,139	1,528,983	10,043	455,104	2,476	2,565	1,999,171	4,645,310

Source: EETT

Chart 1.16: Market shares based on fixed telephony access lines



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

Retail outgoing traffic

Total traffic, at the end of 2019, amounted to 13.3 billion minutes versus 14.5 billion minutes at the end of 2018, spiraling down the downward trend of the last years. The decrease for 2019 was 7.9% and is attributed to the reduction of the traffic of national fixed calls (1.1 billion minutes less than in 2018, i.e. a decrease of 9.3%), as well as of the international calls (20.6% decrease compared to 2018). The traffic of the basic call types steadily amounts up to 98% of all call types' traffic over the last years (Charts 1.17, 1.18 and 1.19).

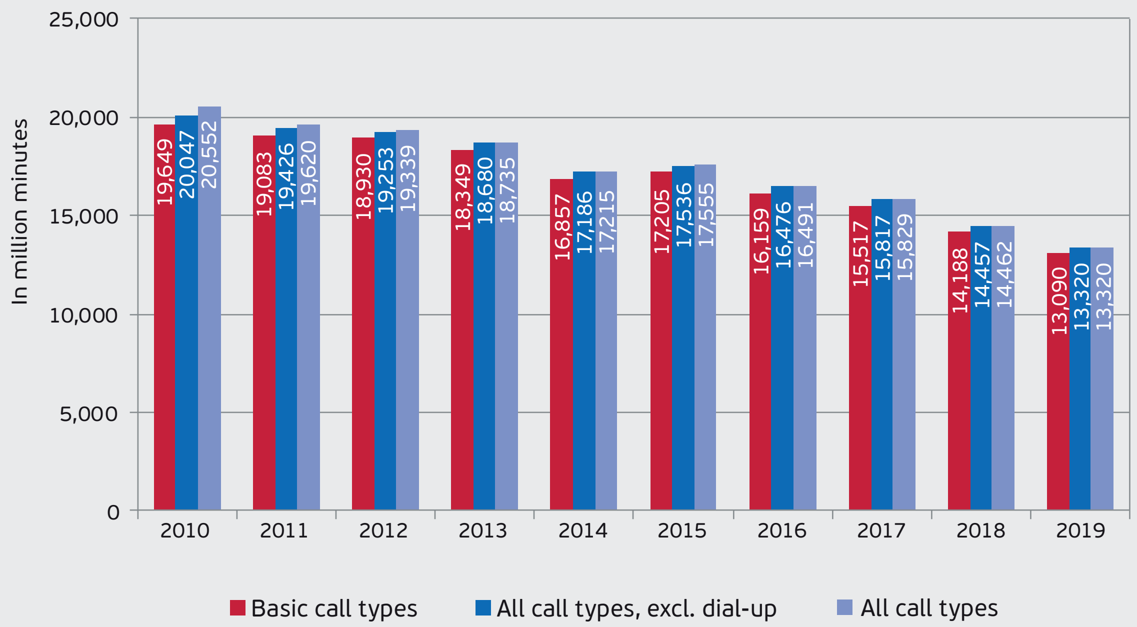
Regarding the percentage breakdown of the basic call types' traffic, 80.7% is related to national fixed calls, while 17.7% refers to calls to mobiles and the remaining 1.7% to international calls. Information on the evolution of traffic per call type is presented in Table 1.3.

OTE retains its share in terms of traffic, marginally increased compared to 2018, due to the increase of national fixed calls by 1.5% and the growth of international calls by 1.2% compared to the last year (Chart 1.20). More specifically, OTE's share is estimated at 46.6% of the total traffic (versus 46.3% in 2018) and at 46.3% of the basic call types' traffic (Chart 1.21). However in 2019, the alternative operators achieved a larger increase of their traffic from fixed to mobiles (by 1.3% larger than 2018).

Taking into account the distribution of the operators' annual shares of the total basic call types over time, it is noted that the fixed telephony market was still characterized by a high concentration in 2019. Specifically, an accumulative 99.5% market share is attributed to OTE and the rest of four alternative operators (presented in alphabetical order): CYTA, FORTHNET, VODAFONE and WIND (Chart 1.22).

Chart 1.23 presents the distribution of total traffic over time (excluding dial-up calls that were, anyway, zeroed in 2019) between OTE and the alternative operators. It is noted that the decrease by 7.9% in fixed telephony traffic in 2019

Chart 1.17: Evolution of fixed outgoing traffic



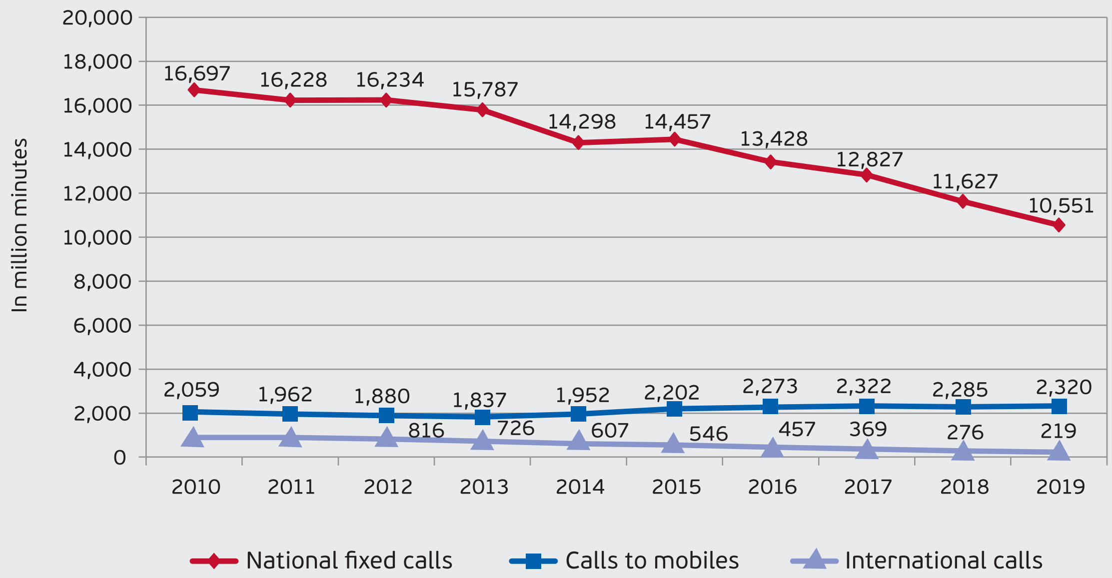
Source: EETT (based on data provided by the active licensed operators)

Note: The basic call types include national fixed calls (i.e. local and long-distance), calls to mobiles and international calls.

compared to 2018, is attributed to the decline by 8.5% of alternative operators' traffic and the drop by 7.1% in OTE's traffic.

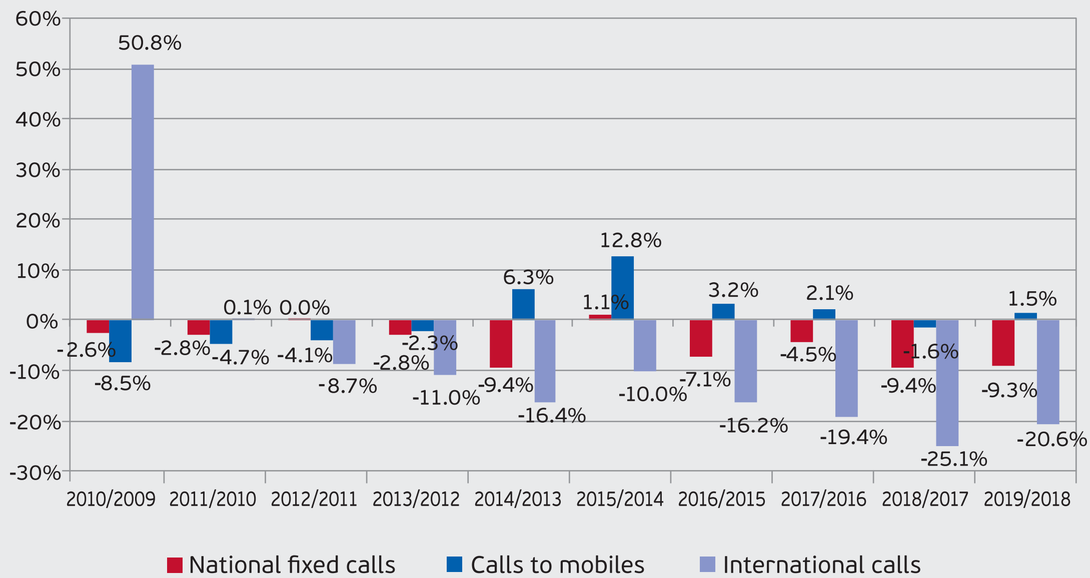
The average outgoing traffic (of the basic call types) per connection, in 2019, is estimated at 235 minutes per month, compared to 249 minutes per month in 2018.

Chart 1.18: Fixed outgoing traffic per basic call type



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

Chart 1.19: Annual change of fixed outgoing traffic



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

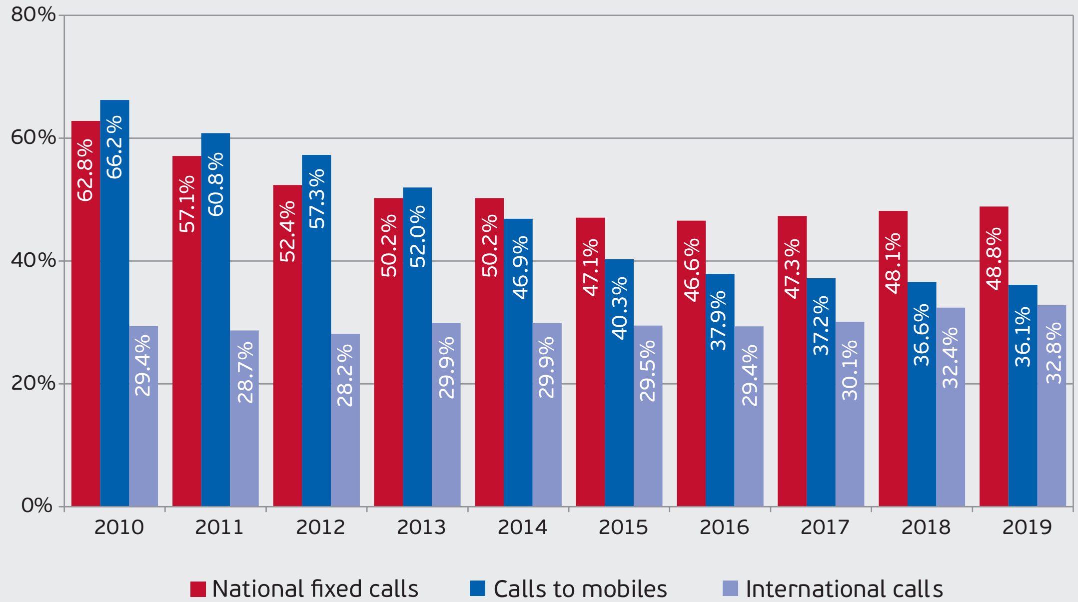
Table 1.3: Fixed outgoing traffic per call type (in million minutes)

<table>
<tr><th></th><th>Call type</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th></tr>
<tr><td rowspan="3">Basic call types</td><td>National fixed calls</td><td>16,697</td><td>16,228</td><td>16,234</td><td>15,787</td><td>14,298</td><td>14,457</td><td>13,428</td><td>12,827</td><td>11,627</td><td>10,551</td></tr>
<tr><td>Calls to mobiles</td><td>2,059</td><td>1,962</td><td>1,880</td><td>1,837</td><td>1,952</td><td>2,202</td><td>2,273</td><td>2,322</td><td>2,285</td><td>2,320</td></tr>
<tr><td>International calls</td><td>893</td><td>894</td><td>816</td><td>726</td><td>607</td><td>546</td><td>457</td><td>369</td><td>276</td><td>220</td></tr>
<tr><td rowspan="6">Other call types</td><td>Dial-up calls</td><td>505</td><td>194</td><td>86</td><td>55</td><td>29</td><td>19</td><td>15</td><td>12</td><td>5</td><td>-</td></tr>
<tr><td>Calls to personal numbers (series 70)</td><td>0.05</td><td>0.13</td><td>0.13</td><td>0.14</td><td>0.14</td><td>n/a</td><td>n/a</td><td>n/a</td><td>n/a</td><td>n/a</td></tr>
<tr><td>Calls to FreePhone numbers (series 800)</td><td>24</td><td>23</td><td>23</td><td>26</td><td>31</td><td rowspan="2">58</td><td rowspan="2">54</td><td rowspan="2">51</td><td rowspan="2">40</td><td rowspan="2">31</td></tr>
<tr><td>Calls to shared cost services
(Shared cost- 801)</td><td>77</td><td>52</td><td>35</td><td>33</td><td>31</td></tr>
<tr><td>Calls to short code services
(3-digits, 4-digits, 5-digits)
See Note 1</td><td>236</td><td>225</td><td>220</td><td>219</td><td>229</td><td>238</td><td>230</td><td>221</td><td>206</td><td>178</td></tr>
<tr><td>Calls to value added services
See Note 2</td><td>61</td><td>43</td><td>45</td><td>53</td><td>37</td><td>35</td><td>34</td><td>28</td><td>23</td><td>21</td></tr>
<tr><td colspan="2">Basic call types</td><td>19,649</td><td>19,083</td><td>18,930</td><td>18,349</td><td>16,857</td><td>17,205</td><td>16,159</td><td>15,517</td><td>14,188</td><td>13,090</td></tr>
<tr><td colspan="2">All call types, excl. dial-up</td><td>20,047</td><td>19,426</td><td>19,253</td><td>18,680</td><td>17,186</td><td>17,536</td><td>16,476</td><td>15,817</td><td>14,457</td><td>13,320</td></tr>
<tr><td colspan="2">All call types</td><td>20,552</td><td>19,620</td><td>19,339</td><td>18,735</td><td>17,215</td><td>17,555</td><td>16,491</td><td>15,829</td><td>14,462</td><td>13,320</td></tr>
</table>

Notes:
(1) Calls to short codes for value added services are excluded.
(2) It concerns calls to all the value added services, including short codes for value added services.

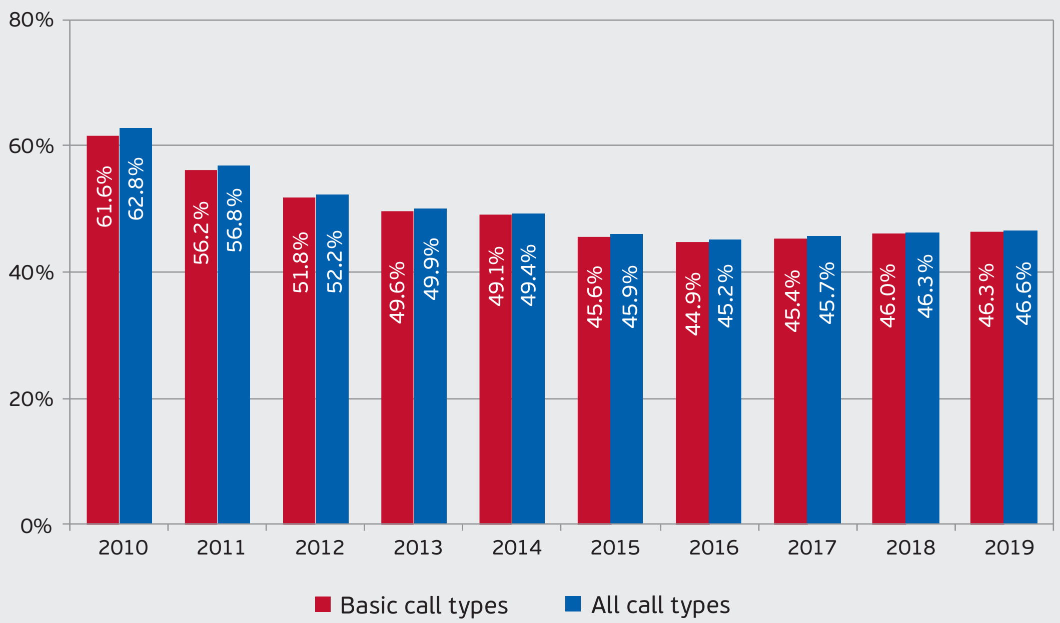
Source: EETT

Chart 1.20: OTE's market shares per basic call type (based on outgoing traffic)



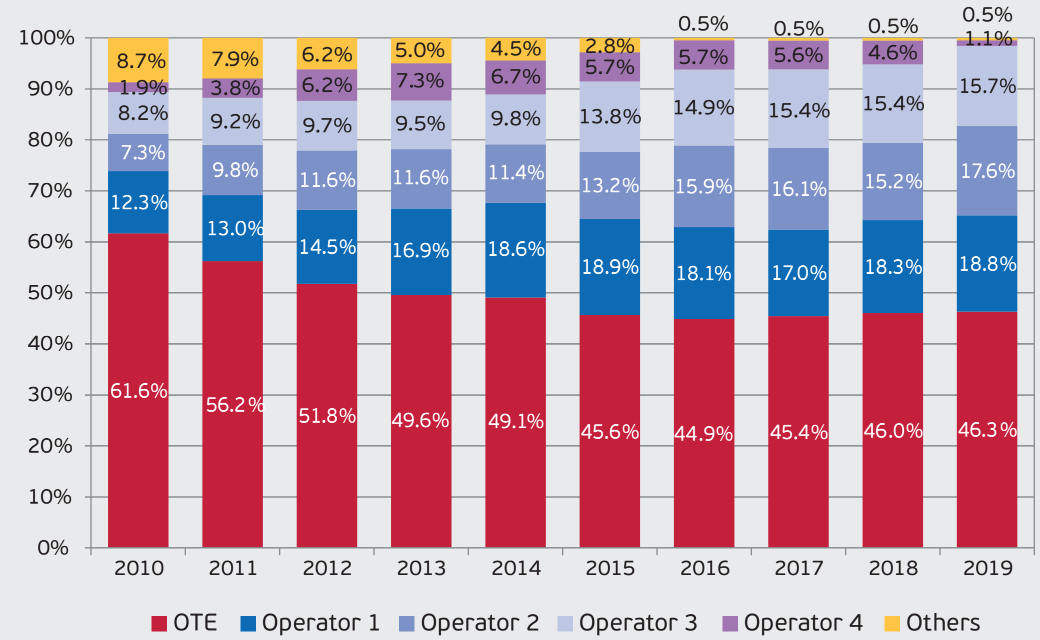
Source: EETT (based on data provided by the active licensed operators)

Chart 1.21: OTE's market shares (based on outgoing traffic)



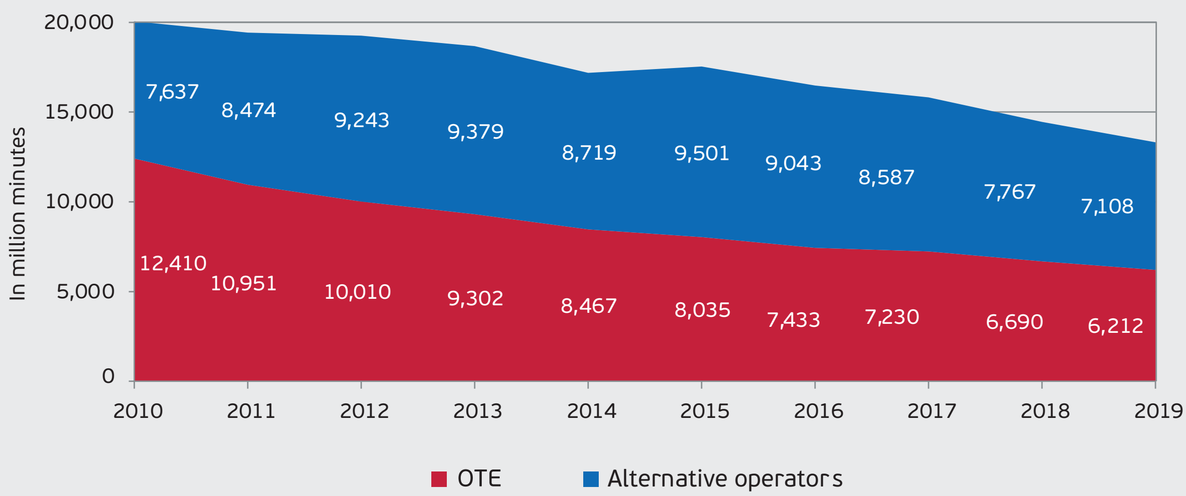
Source: EETT (based on data provided by the active licensed operators)

Chart 1.22: Market shares of the basic call types (based on outgoing traffic)



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

Chart 1.23: OTE's and alternative operators' outgoing traffic (excl. dial-up)



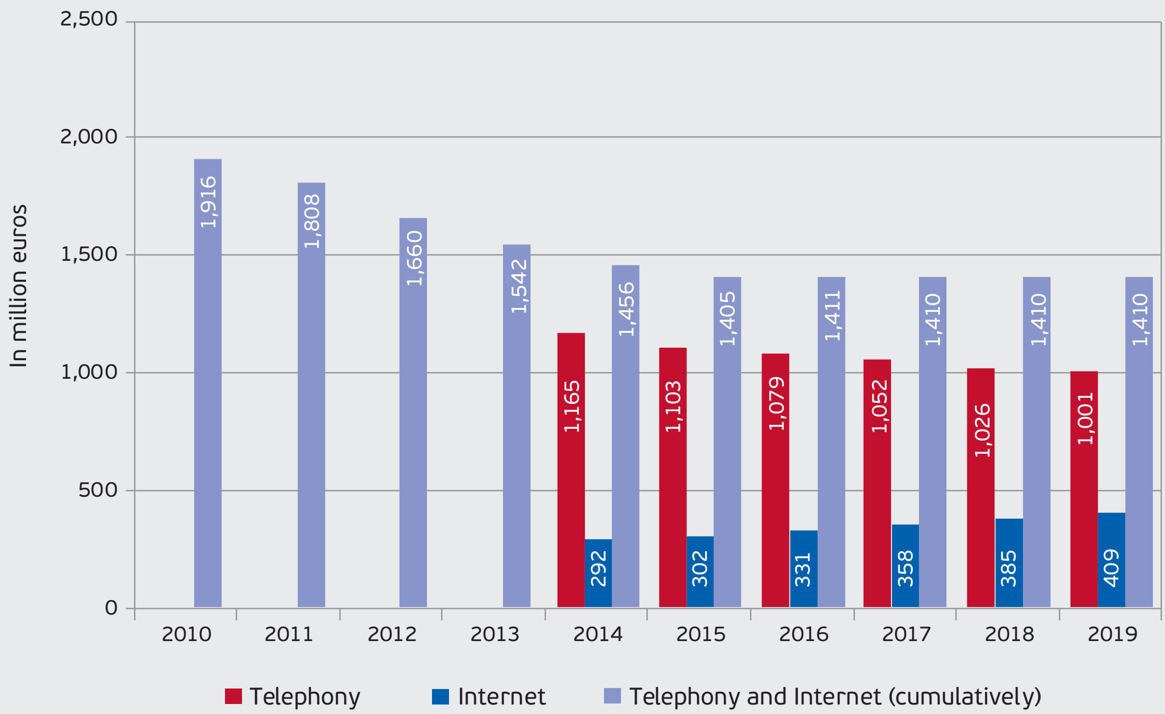
Source: EETT (based on data provided by the active licensed operators)

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

In 2019, total retail revenues from the provision of telephony and Internet services at a fixed location amounted to 1.41 billion euros remaining at the same level as in 2018 (Chart 1.24). Despite the fact that the retail telephony revenues declined by 24.1 million euros, i.e. a decrease by 2.4% compared to the previous year, the revenues from Internet services rose by 6.3% compared to 2018 and amounted to 408.7 million euros (an increase of 24 million euros). It is clarified that the presented revenues are prior to any returns to third parties and that the telephony revenues include revenues both from access[6] as well as from all call types[7]. The average monthly revenue per connection from the provision of telephony services was about 18 euros, roughly at the same level as in 2018. The average revenue per minute of outgoing traffic, taking into account all call types, increased by 6% at 0.075 euros in 2019 versus 0.07 euros in 2018.

OTE's market share based on the retail telephony and Internet revenues, increased by 1.5 percentage point, accounting for approximately 63% of the total market (Chart 1.25). Table 1.4 presents the market shares of the operators that provide telephony and Internet services at a fixed location, at the end of 2019.

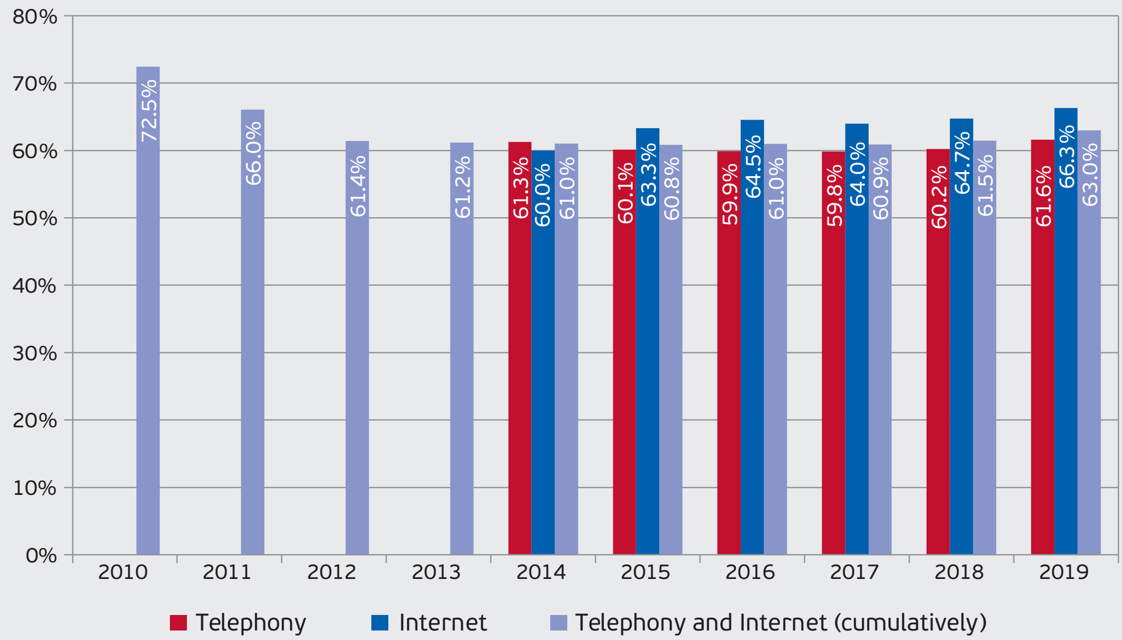
Chart 1.24: Retail revenues from the provision of telephony and Internet services at a fixed location



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

6. This includes revenues from initial connection/installation fee, etc., the monthly fees for the access line to telephony services and revenues from additional facilities.
7. It is noted that the presented data and more specifically, the breakdown of revenues between telephony and Internet revenues are based on estimations made by most of the operators.

Chart 1.25: OTE's market shares (based on retail revenues from telephony and Internet services at a fixed location)



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

Table 1.4: Market shares of operators that provide telephony and Internet services at a fixed location

	Dec. 2017	Dec. 2018	Dec. 2019
OTE	~61%	~62%	~63%
VODAFONE	10%-15%	10%-15%	10%-15%
WIND	10%-15%	10%-15%	10%-15%
FORTHNET	5%-10%	5%-10%	5%-10%
CYTA	5%-10%	0%-5%	0%-5%
Others	0%-5%	0%-5%	0%-5%

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

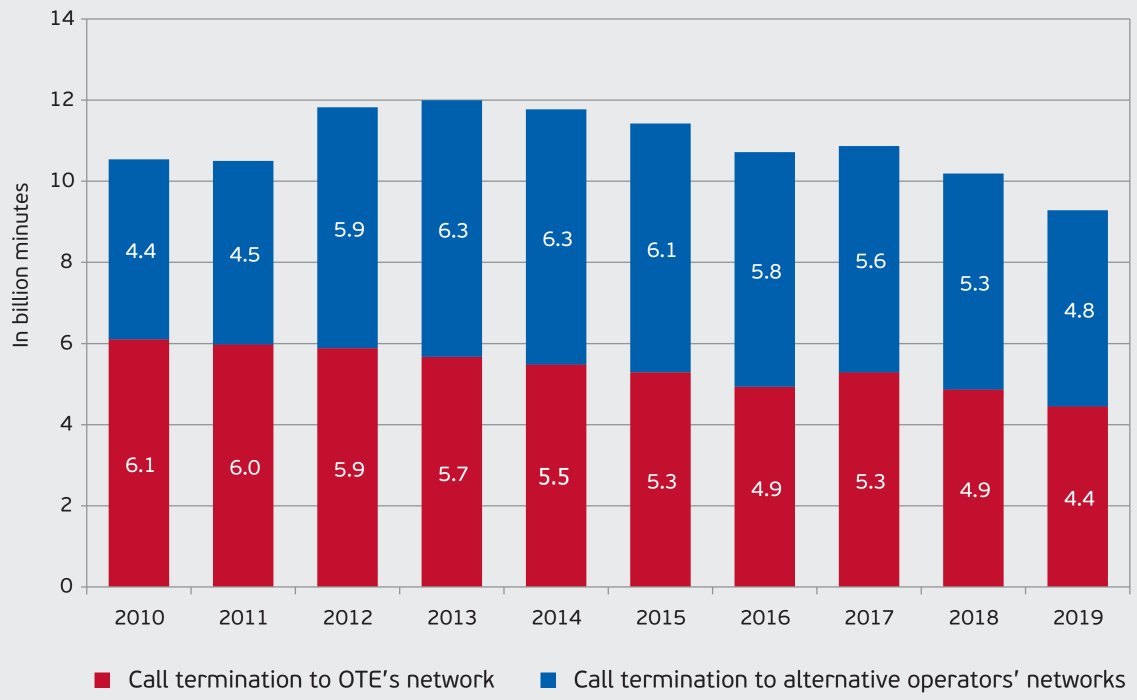
Fixed telephony interconnection

In 2019, the call termination traffic to fixed networks (Chart 1.26) amounted to 9.3 billion minutes, registering an 8.9% decline compared to 2018 (10.2 billion minutes). The call termination traffic to OTE's network fell again by 8.6% in 2019, while the respective traffic of the alternative operators decreased by 9.1%. Over the last five years, the call termination rates for all fixed network operators are symmetrical (Chart 1.27).

Number portability in fixed telephony

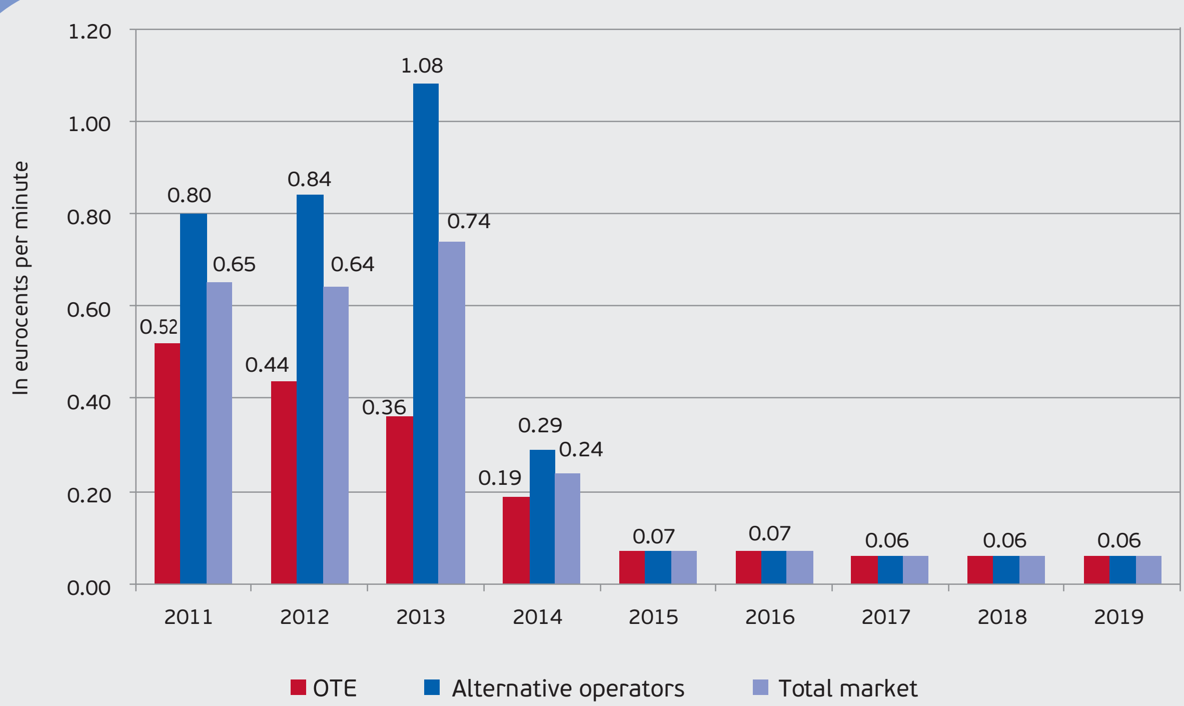
During 2019, 453,165 applications were submitted compared to 472,052 in 2018, registering a decrease by 4%. Respectively in 2019, 400,587 numbers were ported, namely an increase by 5.4% compared to 2018 (Chart 1.28). That indicates that approximately 88% of the initial portability applications was seen through.

Chart 1.26: Call termination traffic to fixed networks (OTE-alternative operators)



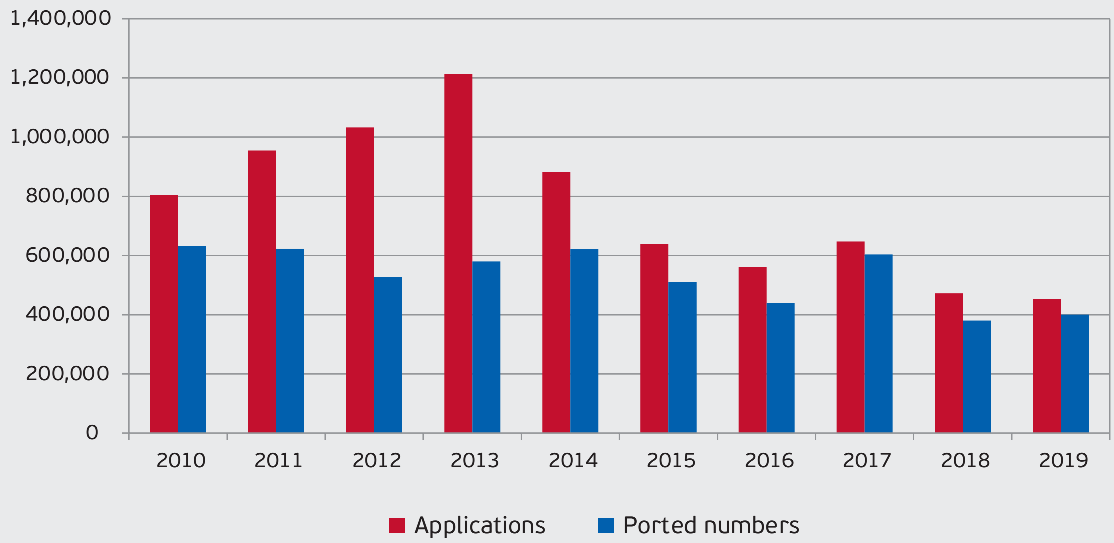
Source: EETT (based on data provided by the active licensed operators)

Chart 1.27: Evolution of call termination rates to fixed networks



Source: EETT

Chart 1.28: Number portability in fixed telephony



Source: EETT

1.2.3. Mobile communications

Connections

Mobile telephony connections[8] at the end of 2019 decreased both in terms of total connections (i.e. the registered ones) and active connections[9] (drop by 2.4%) compared to 2018. At the end of 2019, the total number of connections stood at 14.5[10] versus 15.4 million at the end of 2018, decreased by 5.8% (Table 1.5 and Chart 1.29).

More specifically, the post-paid connections amounted to 4.4 million, registering an increase by 1.1% compared to 2018, while the registered pre-paid connections were 10.1 million, registering a decrease by 8.6% compared to 2018 (Table 1.6 and Chart 1.30).

Both the residential and business users' connections decreased by 5.9% and 5.2% respectively compared to 2018, amounting to 13.2 million and 1.2 million (Table 1.7 and Chart 1.31).

MNO's market shares in terms of total connections varied enough at the end of 2019. COSMOTE's and VODAFONE's shares decreased to 46.6% and 28.9% respectively versus 47.9% and 30.3% at the end of 2018. In contrast, WIND's share increased to 24.5% from 21.4% in 2018 (Chart 1.32 and Table 1.8). In terms of active connections[11], COSMOTE's share is in the range of [45%-55%], followed by VODAFONE in the range of [25%-35%] (Table 1.9).

The penetration rate of active mobile telephony connections on Greece's population, at the end of 2019, stood at 111%, reduced by 2.4 percentage points compared to 2018 (penetration 113%). Respectively, in terms of total connections, the penetration rate was 135% versus 143% in 2018 (Table 1.10).

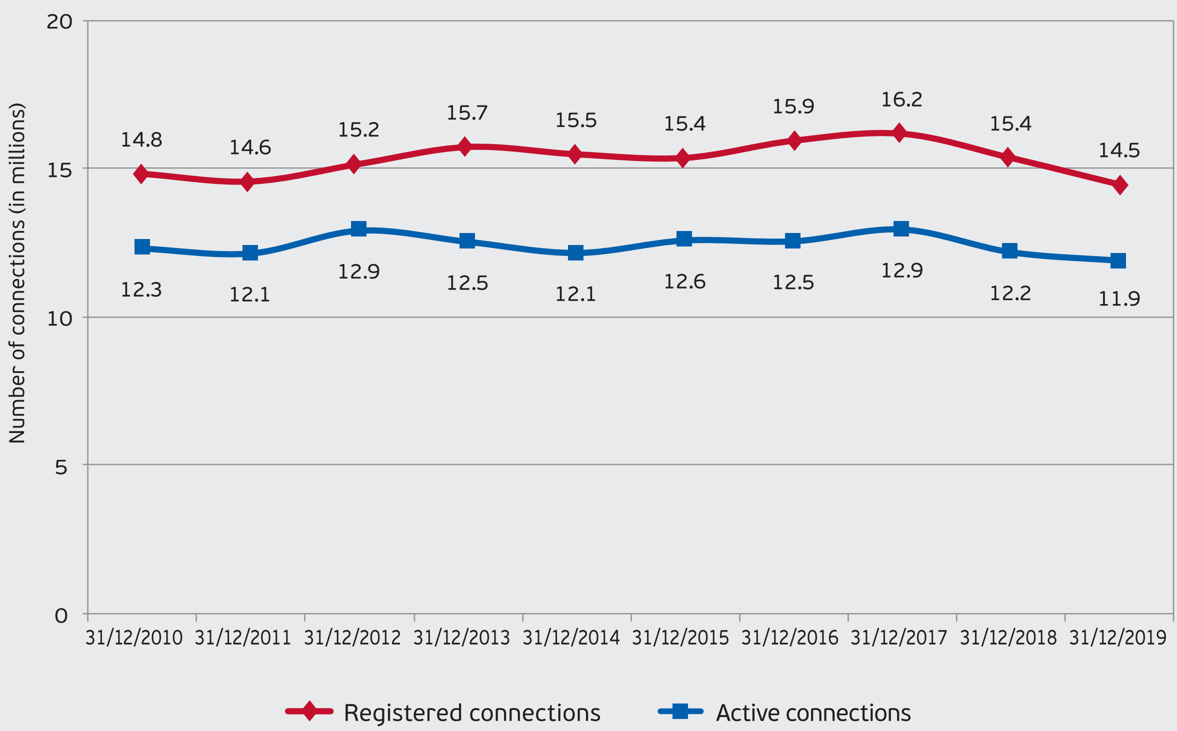
8. The term used is "connection" or "subscription" instead of "subscriber". It is not the number of subscribers as individuals or legal entities that is recorded, but the total connections/subscriptions, since one subscriber may have more than one connections/subscriptions.
9. Active connections" or "active subscriptions" are defined as connections/subscriptions that have generated retail or wholesale revenues within the last quarter.
10. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.
11. The number of active connections and the resulting market shares are confidential data and for this reason the market shares are presented as ranges.

Table 1.5: Total and active mobile telephony connections (excl. datacards)

	Registered connections	Active connections
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
Dec. 2017	16,167,273	12,937,106
Dec. 2018	15,354,388	12,170,757
Dec. 2019	14,458,145	11,882,081

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

Chart 1.29: Connections/subscriptions of mobile telephony



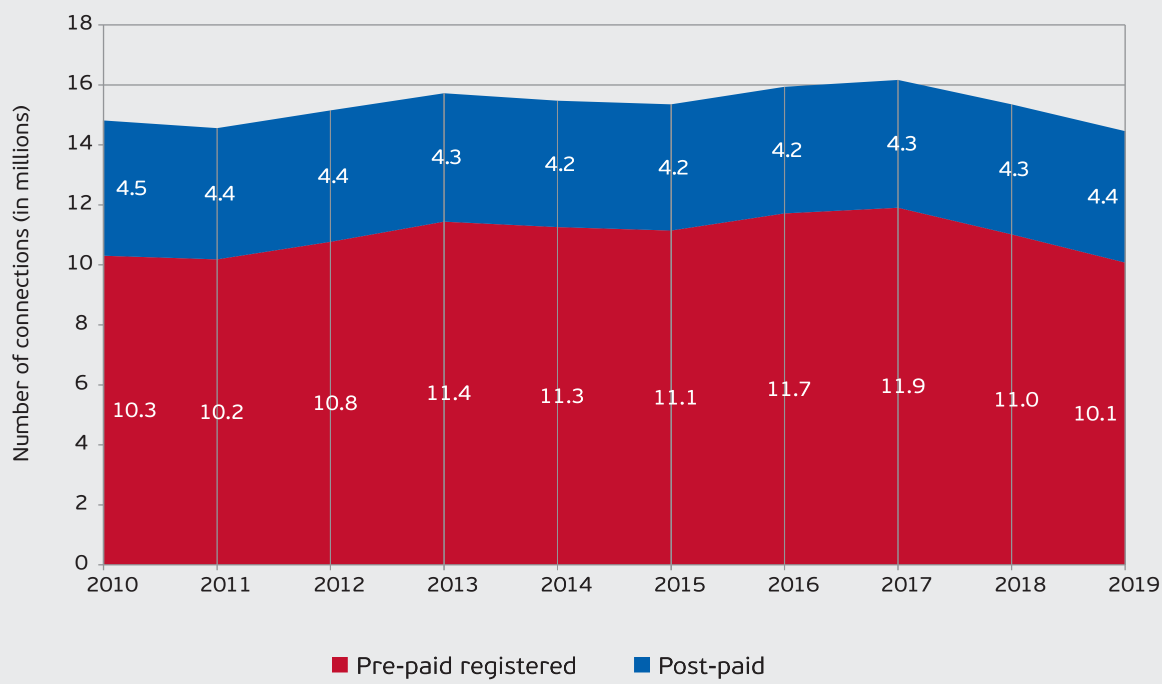
Source: EETT (based on data provided by the licensed operators)

Table 1.6: Total post-paid and pre-paid connections

	Post-paid connections	Pre-paid (registered) connections
Dec. 2010	4,509,815	10,305,890
Dec. 2011	4,375,606	10,182,066
Dec. 2012	4,381,879	10,769,863
Dec. 2013	4,278,843	11,443,633
Dec. 2014	4,216,579	11,257,104
Dec. 2015	4,211,675	11,141,878
Dec. 2016	4,219,022	11,715,272
Dec. 2017	4,261,140	11,906,133
Dec. 2018	4,336,465	11,017,923
Dec. 2019	4,383,959	10,074,186

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

Chart 1.30: Evolution of total mobile telephony connections (pre-paid and post-paid)



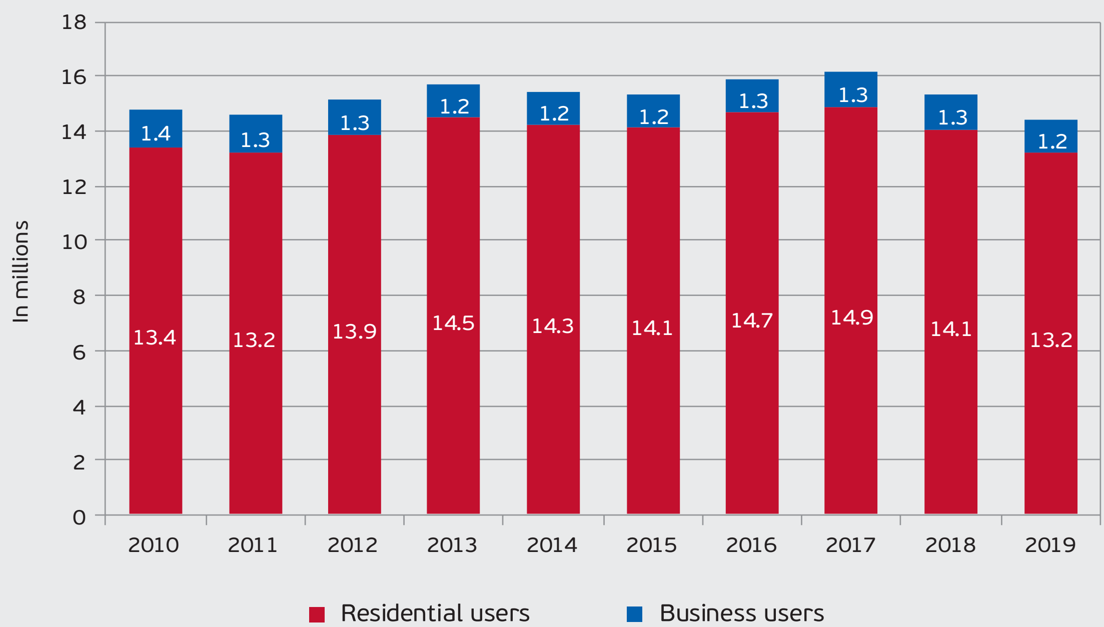
Source: EETT (based on data provided by the licensed operators)

Table 1.7: Total connections of residential and business post-paid and pre-paid users

	Residential	Business
Dec. 2010	13,436,394	1,379,311
Dec. 2011	13,233,823	1,323,849
Dec. 2012	13,876,910	1,274,537
Dec. 2013	14,497,186	1,225,290
Dec. 2014	14,254,880	1,218,803
Dec. 2015	14,118,156	1,235,397
Dec. 2016	14,682,583	1,251,711
Dec. 2017	14,902,753	1,264,520
Dec. 2018	14,063,618	1,290,770
Dec. 2019	13,234,616	1,223,529

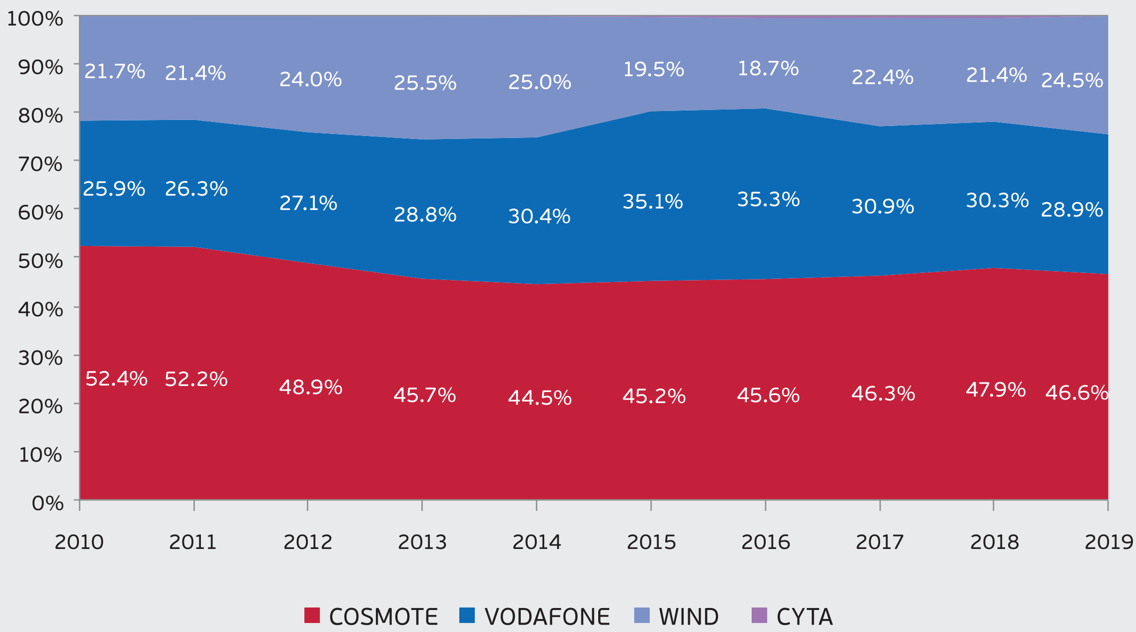
Source: EETT (based on data provided by the licensed operators)

Chart 1.31: Evolution of total mobile telephony connections (residential-business)



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

Chart 1.32: MNOs' market shares based on registered connections



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

Table 1.8: MNOs' market shares based on registered connections

	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016	Dec. 2017	Dec. 2018	Dec. 2019
COSMOTE	52.4%	52.2%	48.9%	45.7%	44.5%	45.2%	45.6%	46.3%	47.9%	46.6%
CYTA	0%	0%	0%	0%	0.1%	0.2%	0.4%	0.4%	0.4%	0%
VODAFONE	25.9%	26.3%	27.1%	28.8%	30.4%	35.1%	35.3%	30.9%	30.3%	28.9%
WIND	21.7%	21.4%	24.0%	25.5%	25.0%	19.5%	18.7%	22.4%	21.4%	24.5%

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

Table 1.9: MNOs' market shares based on active connections

	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016	Dec. 2017	Dec. 2018	Dec. 2019
COSMOTE	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%
CYTA	-	-	-	-	0%-5%	0%-5%	0%-5%	0%-5%	0%-5%	0%-5%
VODAFONE	25%-35%	25%-35%	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%	15%-25%	15%-25%

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

Table 1.10: Penetration rate of connections on the population

	Dec. 2010	Dec. 2011	Dec. 2012	Dec. 2013	Dec. 2014	Dec. 2015	Dec. 2016	Dec. 2017	Dec. 2018	Dec. 2019
Registered connections	133%	131%	137%	143%	142%	141%	148%	150%	143%	135%
Active connections	111%	109%	116%	114%	111%	116%	116%	120%	113%	111%

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

Use of mobile communications networks

In 2019, the use of mobile communications networks was characterized by the increase both of the domestic voice traffic and the Short Text Messages (SMS), as well as by the once again remarkable growth in the use of data services.

Voice calls

- The volume of voice calls in 2019 amounted to 28.7 billion minutes, registering an increase by 2.2% compared to 2018 (28.1 billion minutes) (Chart 1.33).
- The largest part of this volume was the on-net calls, that were marginally improved (0.4%) compared to 2018, amounting to 15.6 billion minutes (Chart 1.34). On-net calls accounted also for 56% of the basic call types' volume (i.e. on-net, off-net, mobile to fixed and international calls) versus 57% in 2018 (Chart 1.35).
- The volume of the off-net calls increased again by 5.9% compared to 2018 (from 8.6 to 9.1 billion minutes), while the volume of the mobile to fixed calls grew by 3.1% (from 2.5 to 2.6 billion minutes).
- International calls from mobile phones dropped by 13.6%.

The largest volume continued to be made by pre-paid users (48.2% of all voice calls' volume), followed by post-paid residential users (37.2%) and post-paid business users (14.5%) (Chart 1.36). Based on the actual traffic, the average monthly call duration for a post-paid residential user was approximately 243 minutes to mobiles (versus 240 in 2018) and 27 minutes to fixed numbers. For a business user the duration was 233 minutes to mobiles (versus 229 in 2018) and 39 minutes to fixed numbers, while lastly, for a pre-paid user the average monthly call duration was 134 minutes to mobiles (versus 126 in 2018) and 11 minutes to fixed numbers.

Short Text Messages (SMS)

- For the first time since 2010, the total number of SMS increased by 7.9% (2.4 versus 2.2 billion messages in 2018) (Chart 1.37).
- Most of the SMS in 2019 were on-net (52.3% compared to 53.2% in 2018), while the percentage of the off-net SMS kept on growing (34.9% versus 34.3% in 2018).
- SMS from pre-paid users increased considerably by 23%, amounting to 1.1 billion messages in 2019 compared to 0.9 billion in 2018, whereas the SMS from post-paid residential users fell again by 1.6% amounting to 1 billion messages (Chart 1.38).
- A post-paid residential user sent on average 26 SMS per month (versus 27 SMS in 2018), followed by a business user with 21 SMS (versus 20 SMS in 2018) and finally, a pre-paid user with 12 SMS (versus 9 SMS in 2018).

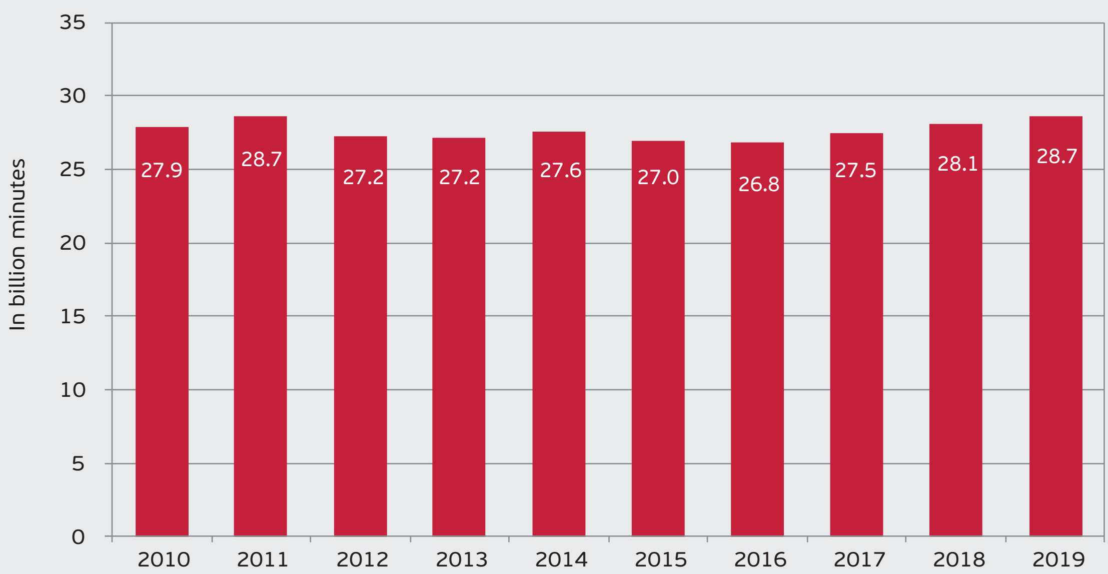
Multimedia Message Services (MMS)

- The number of MMS dropped by 5.7%, amounting to 10.7 million in 2019 from 11.3 million in 2018 (Chart 1.39)

Data services[12]

- In 2019, the volume of data services over mobile communications networks increased impressively by 56%, reaching 225 million GB compared to 144 million GB in 2018 (Chart 1.40).
- During 2019, the majority of data traffic was transferred via mobile phone devices (94%), while the remaining 6% via other portable devices using datacards and M2M.
- All user categories increased significantly their use of data services during 2019. A post-paid residential user used on average 1.9 GB per month (versus 1.2 GB in 2018), followed by a pre-paid user with 1.5 GB (versus 946 MB in 2018) and finally, a business user with 1.1 GB (versus 852 MB in 2018).

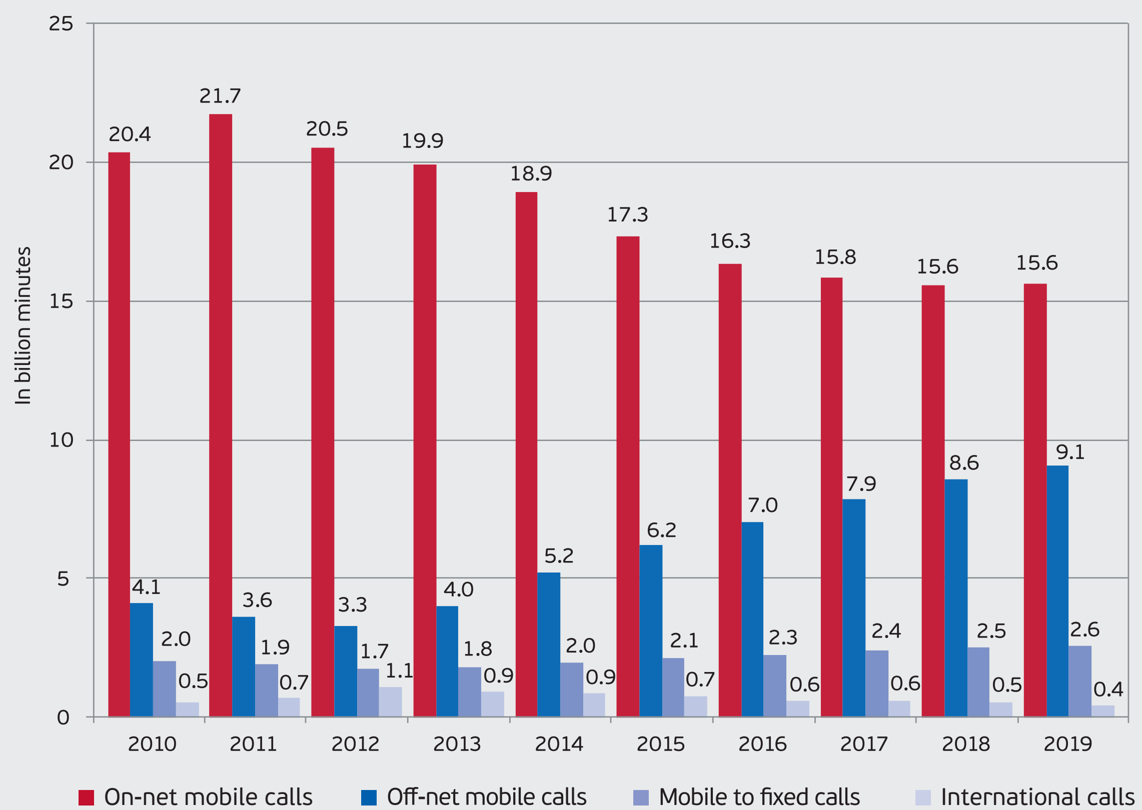
Chart 1.33: Volume of voice calls originating from mobile



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

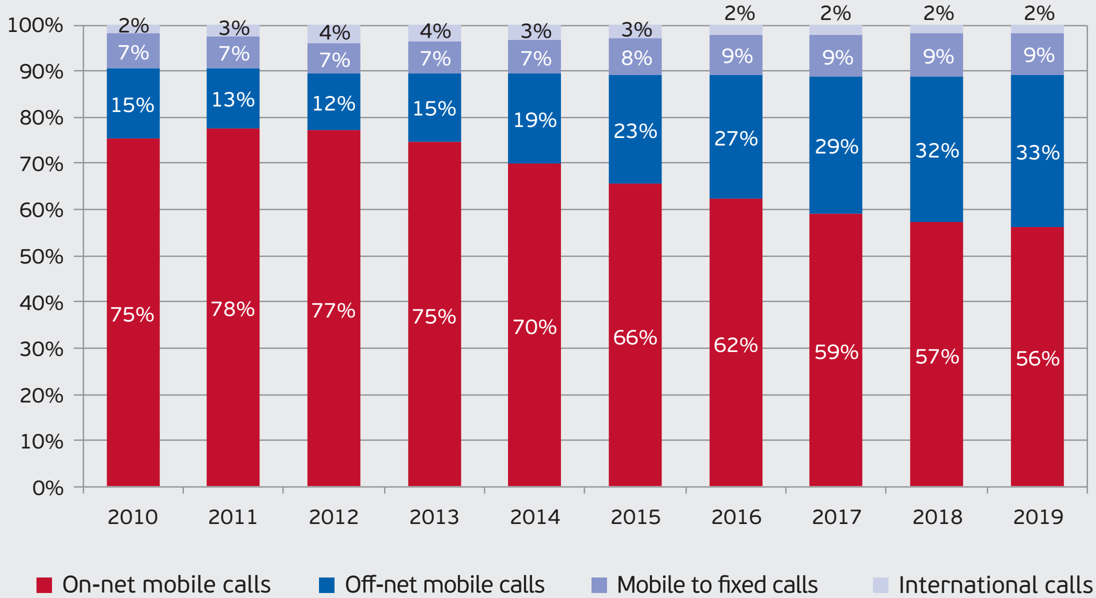
12. It is noted that up till 2012, reporting data use via mobile phones or datacards separately was not feasible.

Chart 1.34: Volume of voice calls per basic call type



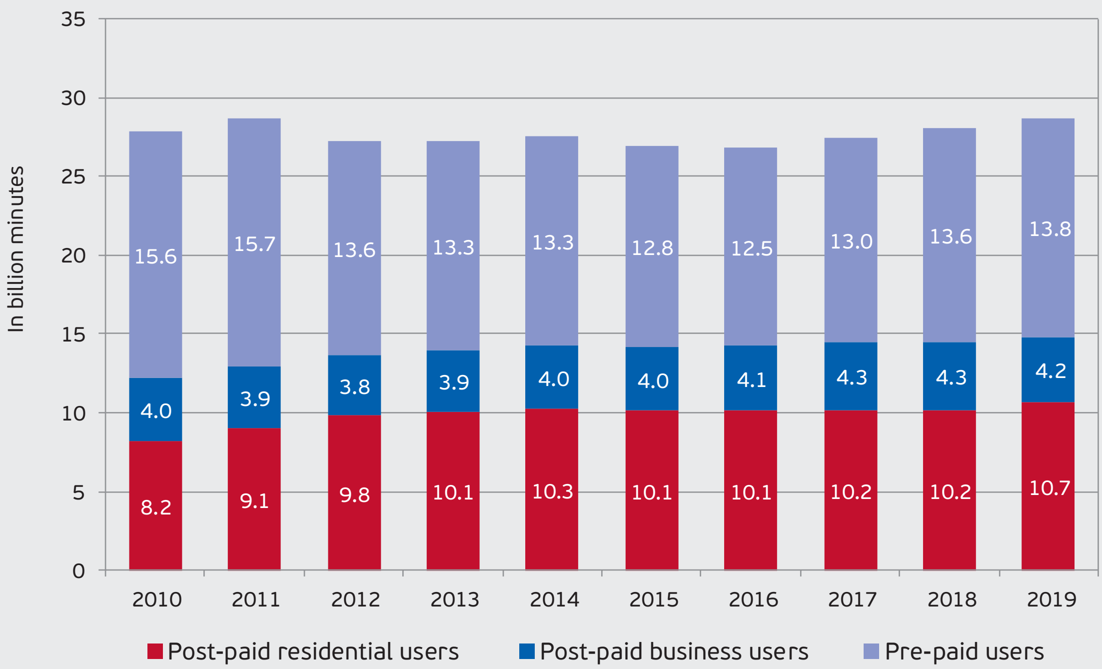
Source: EETT (based on data provided by the licensed operators)

Chart 1.35: Breakdown (%) of the basic call types' volume



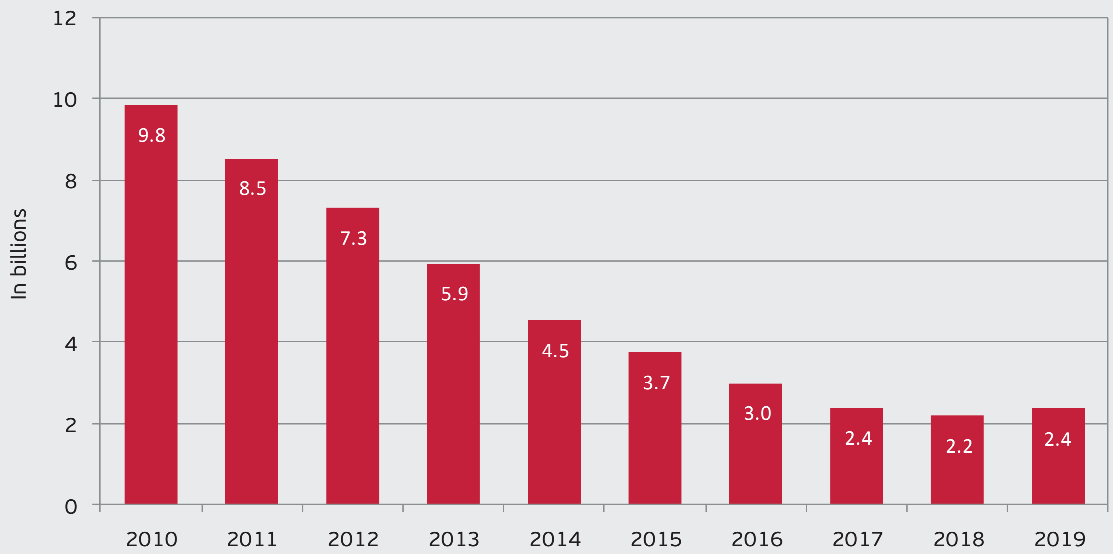
Source: EETT (based on data provided by the licensed operators)

Chart 1.36: Volume of voice calls per user category



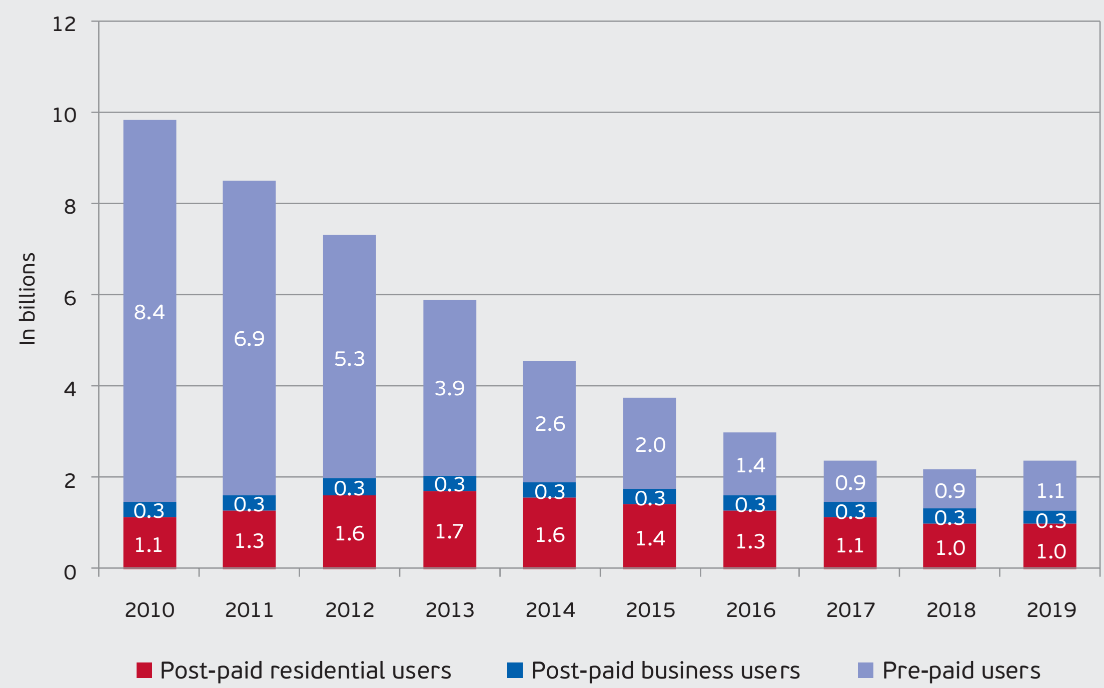
Source: EETT (based on data provided by the licensed operators)

Chart 1.37: Total number of SMS



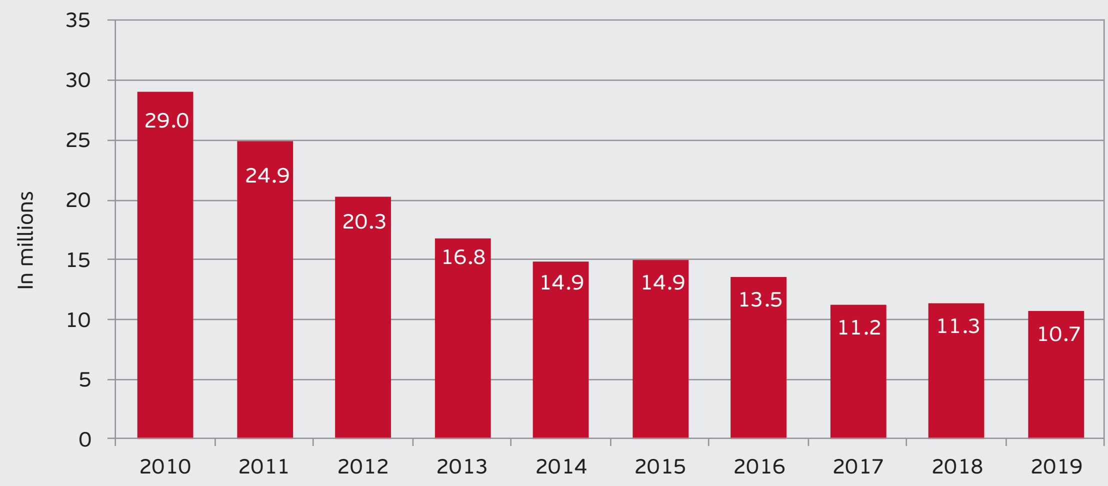
Source: EETT (based on data provided by the licensed operators)

Chart 1.38: Number of SMS per user category



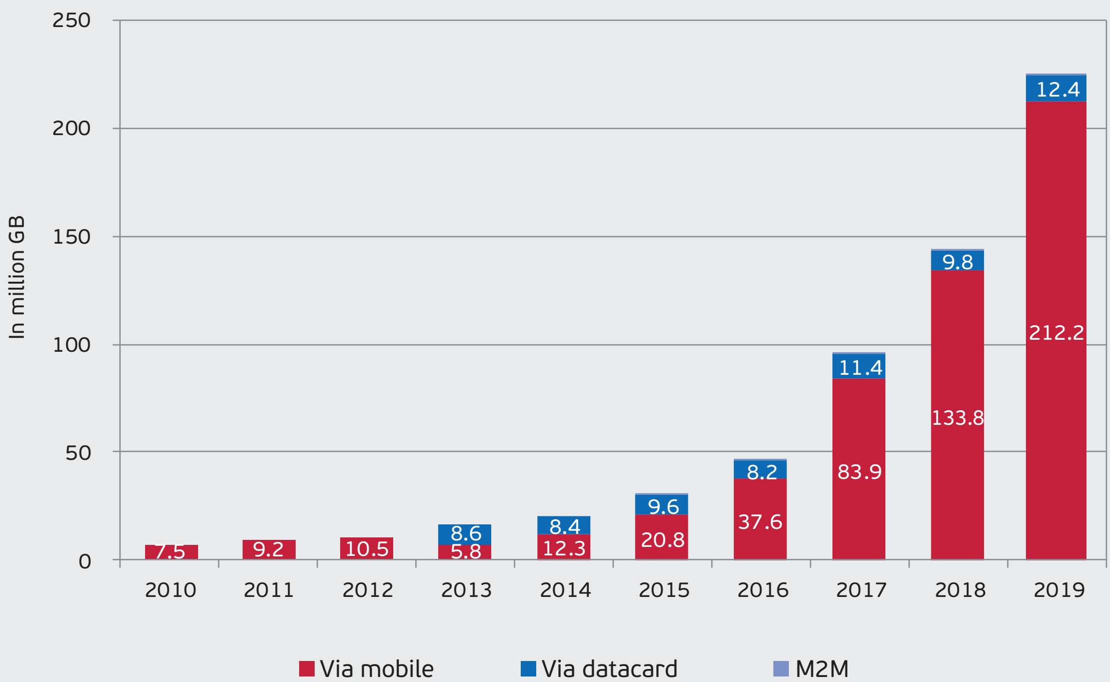
Source: EETT (based on data provided by the licensed operators)

Chart 1.39: Total number of MMS



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

Chart 1.40: Total volume of data services via mobile, datacard and M2M

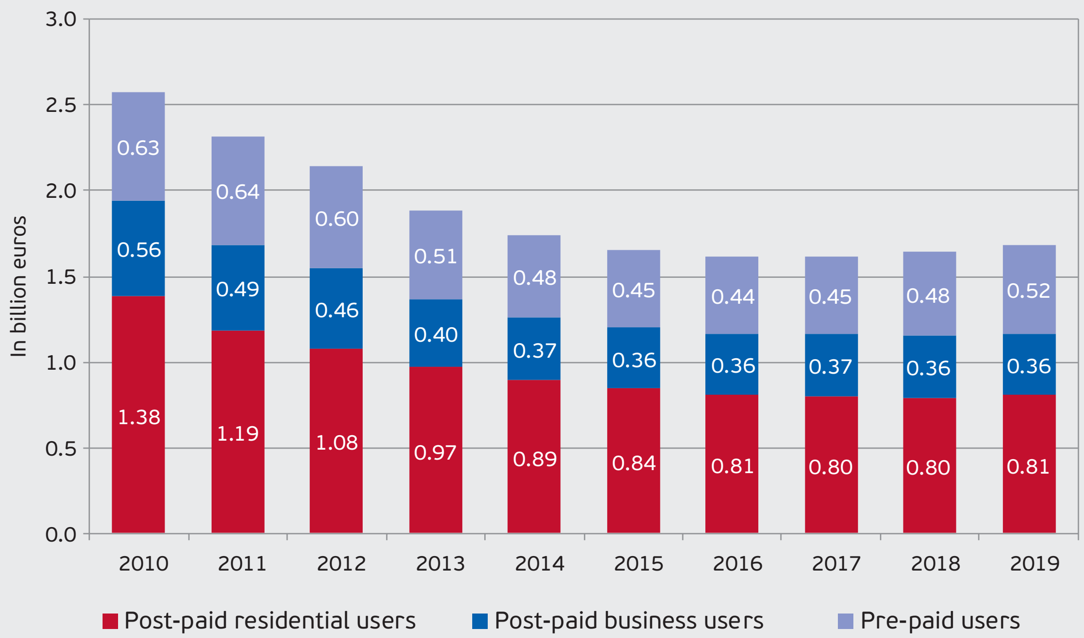


Source: EETT (based on data provided by the licensed operators)

Retail revenues from mobile services

In 2019, the retail revenues from voice and data services[13] (post-paid and pre-paid) increased by 2.8% amounting to 1.7 billion euros (Chart 1.41). Tables 1.11-1.13 present the market shares based on the MNOs' retail revenues, both aggregately and per subscriber category (post-paid and pre-paid)[14]. The revenues from pre-paid users registered the biggest increase by 6.8% followed by the 1.4% growth of the post-paid residential users' revenues and the marginal increase (0.5%) of the revenues from business users. The majority of voice and data retail revenues (67.5%) stemmed from voice calls (Chart 1.42). The average annual revenue per post-paid and pre-paid user (connection) was 269 euros (a 0.8% drop) and 68 euros (a 14.9% increase) respectively (Chart 1.43). On a monthly basis, the respective revenue was approximately 22 euros per post-paid user and 5 euros per pre-paid user.

Chart 1.41: Retail revenues from users of voice and data services of mobile communications networks



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

13. Revenues from the sale of handsets, wholesale or other services are not included.
14. Retail revenues and the resulting market shares are confidential data and for this reason the market shares are presented as ranges.

Table 1.11: MNOs' shares based on retail revenues

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
COSMOTE	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%
CYTA	-	-	-	-	0%-5%	0%-5%	0%-5%	0%-5%	0%-5%	0%-5%
VODAFONE	25%-35%	25%-35%	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%	15%-25%	15%-25%

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

Table 1.12: MNOs' shares based on post-paid retail revenues

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
COSMOTE	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%
CYTA	-	-	-	-	0%-5%	0%-5%	0%-5%	0%-5%	0%-5%	0%-5%
VODAFONE	25%-35%	25%-35%	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%	15%-25%	15%-25%

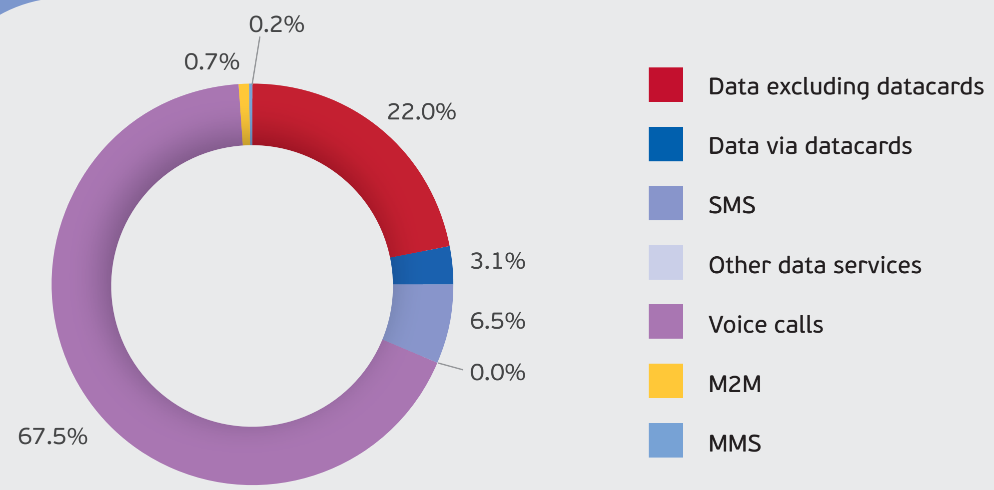
Source: EETT (based on data provided by the licensed operators)

Table 1.13: MNOs' shares based on pre-paid retail revenues

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
COSMOTE	55%-65%	55%-65%	55%-65%	55%-65%	55%-65%	55%-65%	55%-65%	45%-55%	45%-55%	55%-65%
CYTA	-	-	-	-	0%-5%	0%-5%	0%-5%	0%-5%	0%-5%	0%-5%
VODAFONE	15%-25%	15%-25%	15%-25%	15%-25%	15%-25%	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%	15%-25%	15%-25%

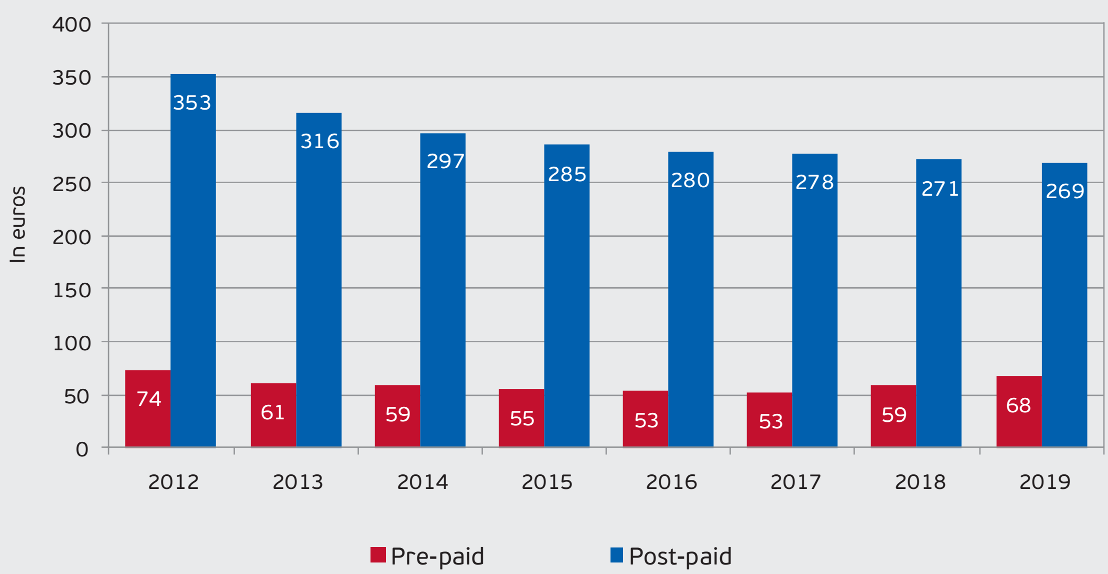
Source: EETT (based on data provided by the licensed operators)

Chart 1.42: Retail revenues from voice and data services of mobile communications networks, 2019



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

Chart 1.43: Average annual revenue per mobile telephony connection



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

Mobile telephony interconnection

The interconnection traffic of the MNOs in 2019 increased by 6.7% compared to 2018, which constitutes an annual growth of approximately 1.5 billion minutes (Chart 1.44). More specifically, both the national incoming and outgoing traffic increased by 6.9% and 7.6% respectively.

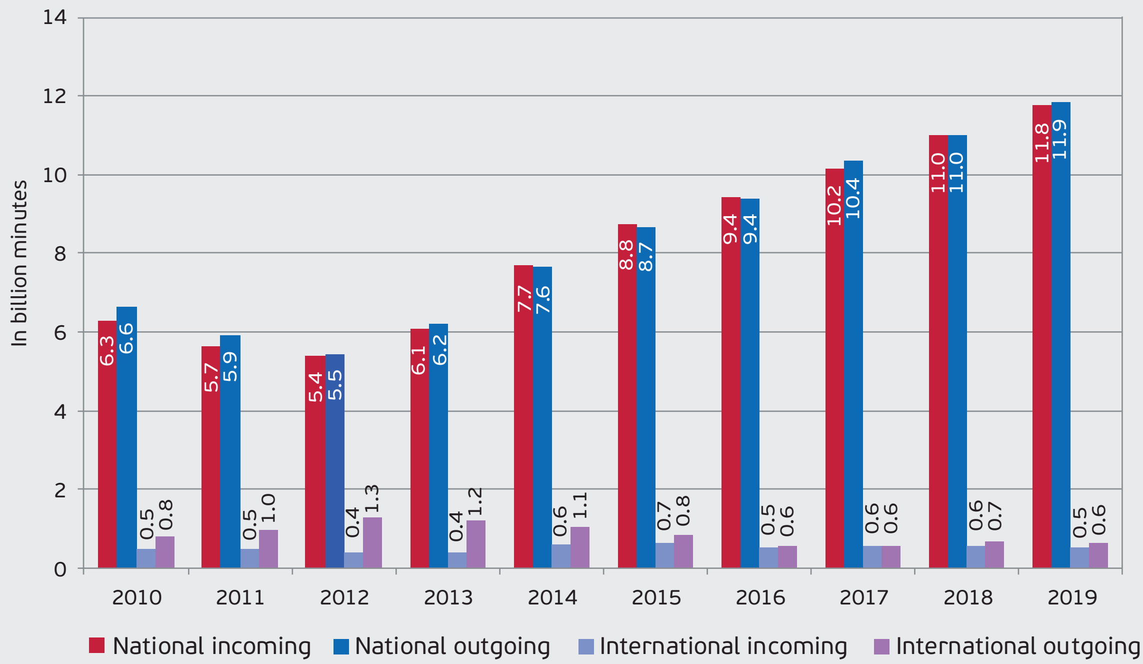
The MNOs' on-net traffic amounted to 13.5 billion minutes approximately for 2019, having dropped by 9.4% compared to 2018 (about 1.4 billion minutes), thus accounting for 35% of the total interconnection traffic which also includes the incoming and the outgoing traffic (Chart 1.45).

At the same time, the national traffic terminating to mobile networks remained relatively stable. In particular, the national calls to mobile phones decreased by 1.8%, amounting to 25.3 billion minutes versus 25.8 billion minutes in 2018 (Chart 1.46). To sum it up, it is observed a steady trend that is characterized by the ongoing but declining growth of the incoming traffic from other mobile operators along with the respective revenues, as well as the reduction of on-net traffic.

In 2019, the revenues from the national incoming traffic to mobile networks amounted to 112.8 million euros (a 6.5% increase) due to the increase of the incoming traffic from the other mobile and fixed operators (7% and 15% respectively) (Chart 1.47).

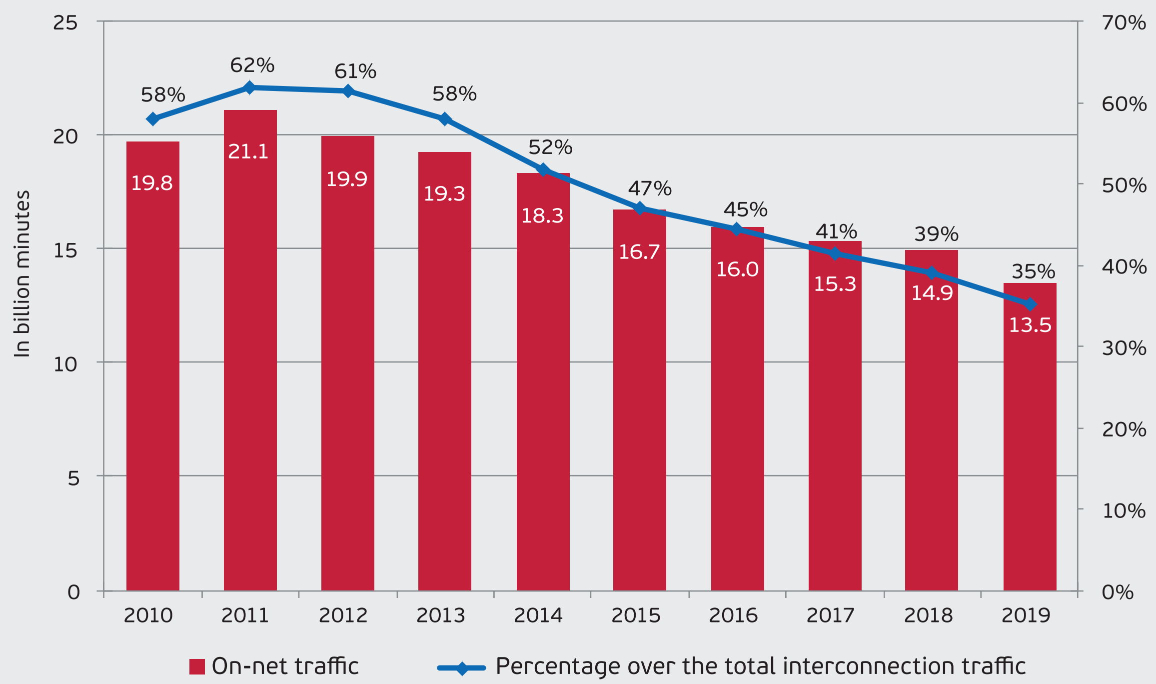
Finally, as of the 11th February 2020, the call termination rates to mobile networks stood at 0.622 eurocents per minute, due to the revision of the relative calculative bottom-up model which will lead to the reduction of the termination revenues from the other mobile operators (Chart 1.48).

Chart 1.44: MNOs' interconnection traffic



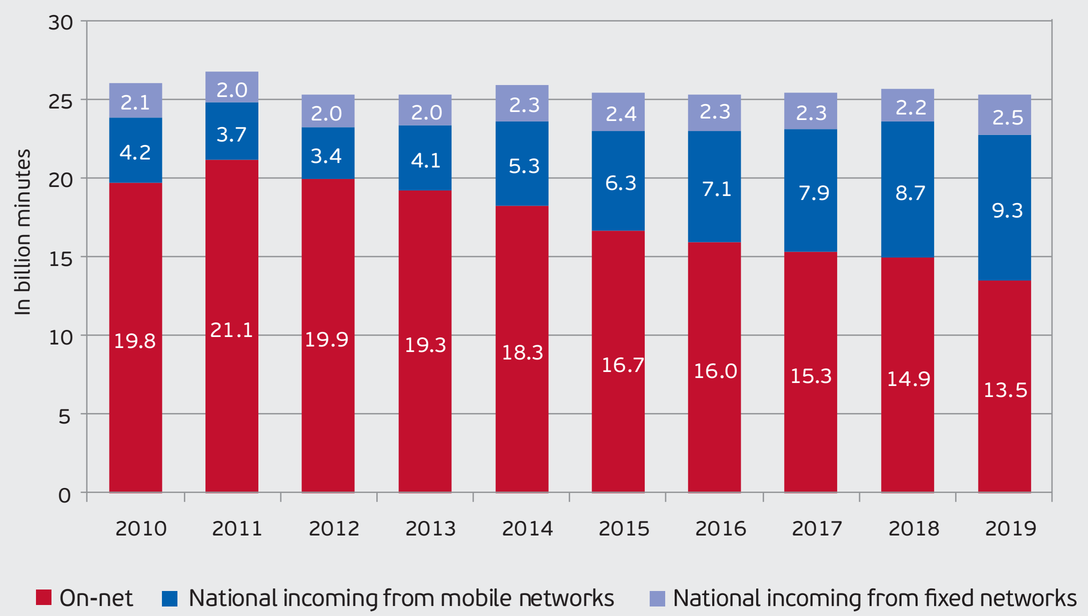
Source: EETT (based on data provided by the MNOs)

Chart 1.45: MNOs' on-net traffic



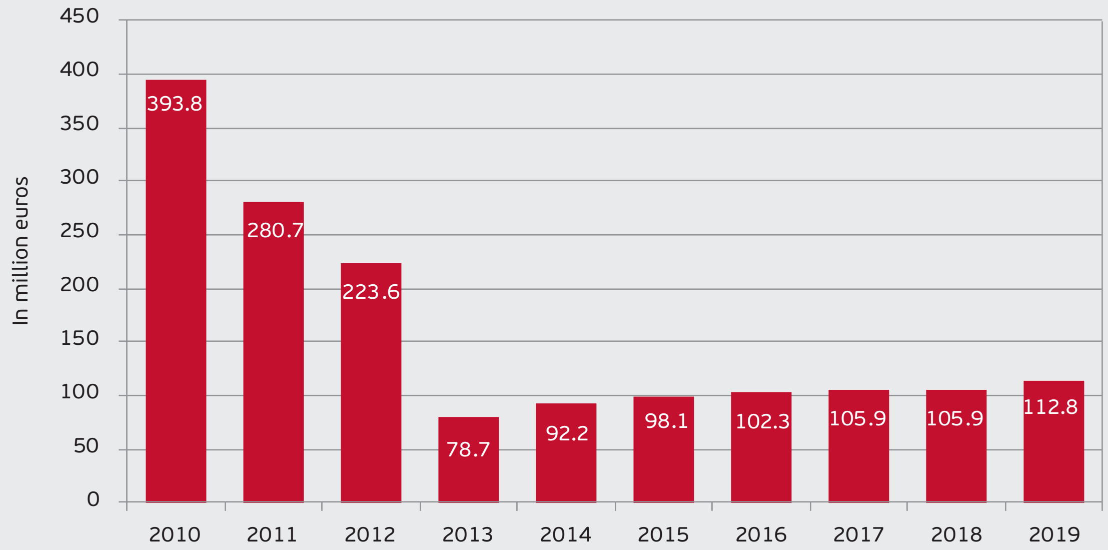
Source: EETT (based on data provided by the MNOs)

Chart 1.46: Voice calls terminating to mobiles in Greece



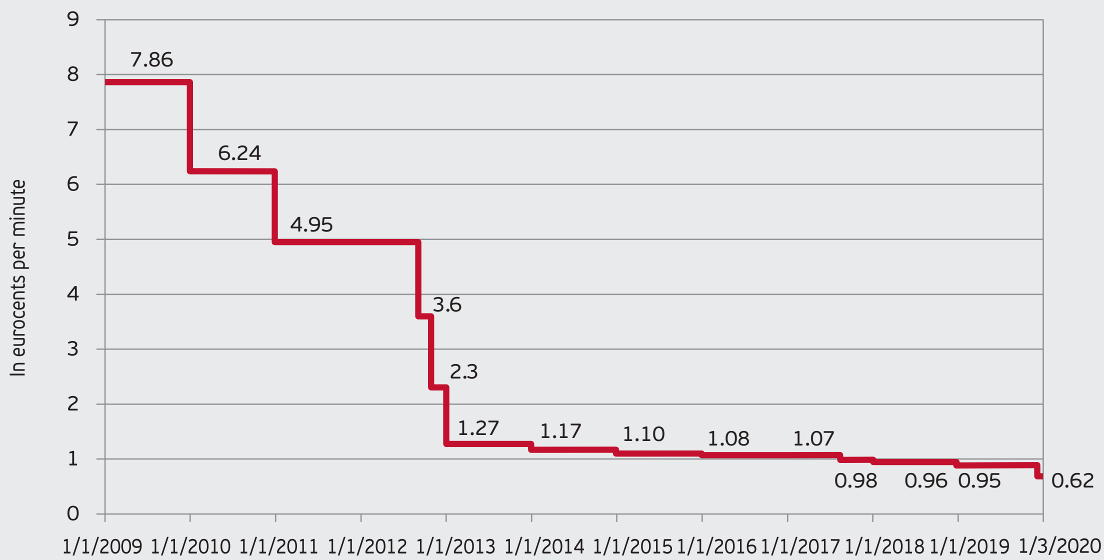
Source: EETT (based on data provided by the MNOs)

Chart 1.47: Revenues from fixed and mobile voice calls termination to mobiles in Greece



Source: EETT (based on data provided by the MNOs)

Chart 1.48: Evolution of call termination rates to mobile networks

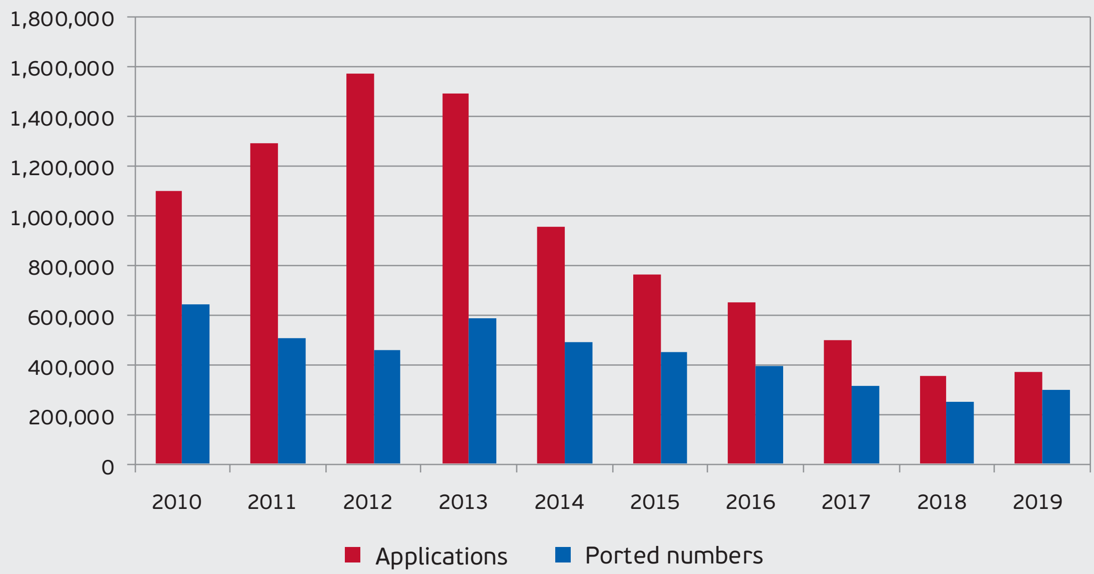


Source: EETT

Number portability in mobile telephony

The applications submitted during 2019 for porting mobile telephony numbers amounted to 372,522 versus 353,960 in 2018, registering a 5.2% increase compared to the previous year. During the same period, 302,838 numbers were ported, increased significantly by 18.4% compared to 2018 (Chart 1.49). In conclusion, approximately 81% of the initial portability applications was seen through.

Chart 1.49: Number portability in mobile telephony



Source: EETT

1.2.4. Comparison between fixed and mobile telephony

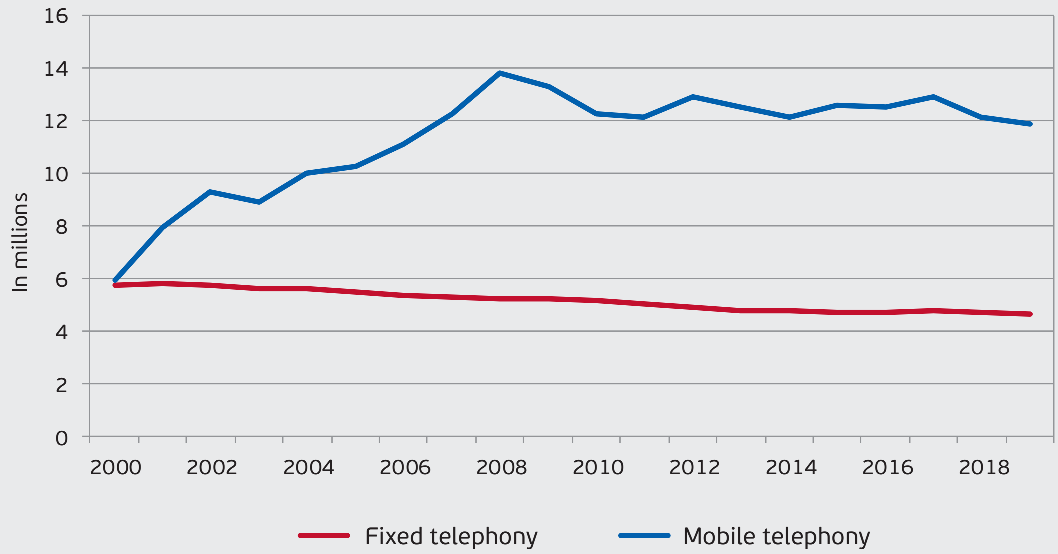
Fixed telephony connections (lines)[15] declined by 2.3% to 4.6 million in 2019, whereas active mobile telephony connections/subscriptions declined by 2.4% amounting to 11.9 million (Chart 1.50).

Chart 1.51 shows the evolution of the fixed telephony and Internet retail revenues compared to the retail voice and data (SMS, MMS, data) revenues of mobile communications networks[16], for the period 2012-2019. The mobile retail revenues rose once again by 2.8% compared to 2018, reaching 1.7 billion euros, while the fixed services' retail revenues remained at the same level as in 2018, amounting to 1.4 billion euros.

Chart 1.52 presents the evolution of the volume of calls from fixed and mobile phones, taking into account the basic call types, i.e. the national fixed calls, the calls to mobiles and the international calls[17]. The volume of these calls from fixed phones declined again in 2019 by 7.7%, amounting to 13.1 billion minutes versus 14.2 billion in 2018, mainly due to the sharp decline by 1.1 billion minutes of the national fixed calls. In contrast with fixed telephony, the volume of the basic call types made from mobiles increased by 2.1% compared to 2018 and accounts for 68% of the respective total outgoing traffic (i.e. from fixed and mobile), versus 66% in 2018 (Chart 1.53).

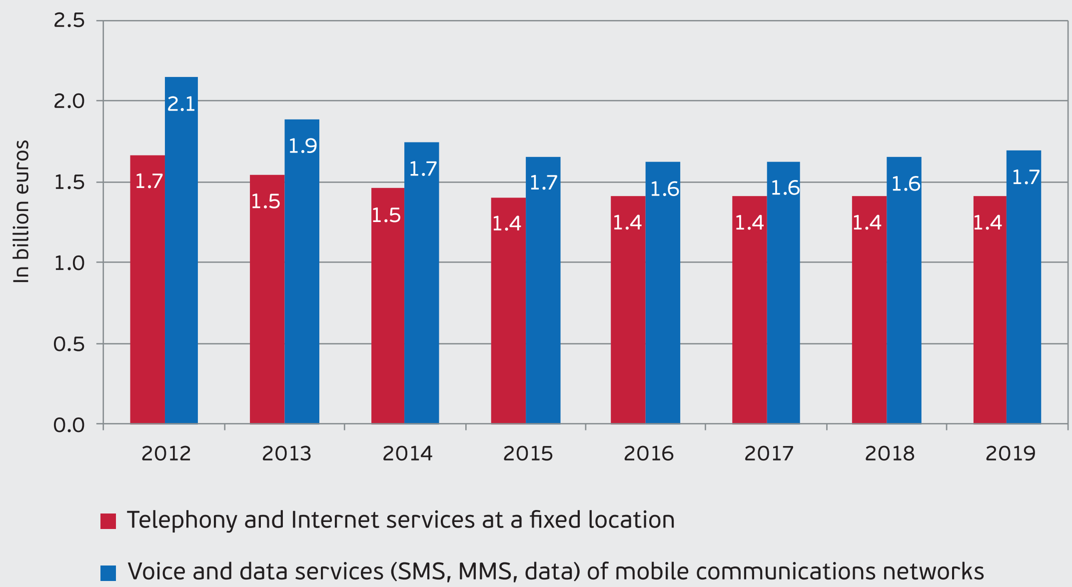
15. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.
16. Revenues from handsets and other services are excluded.
17. Mobile calls entail on-net, off-net, mobile to fixed and mobile to international destinations calls.

Chart 1.50: Evolution of fixed and mobile telephony connections



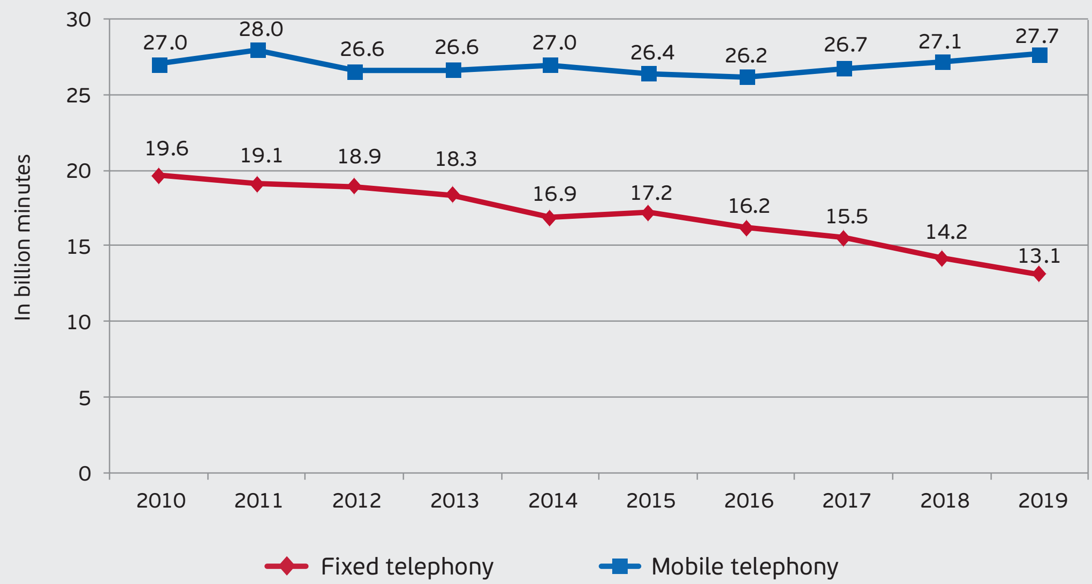
Source: EETT (based on data provided by the licensed operators)

Chart 1.51: Evolution of retail revenues



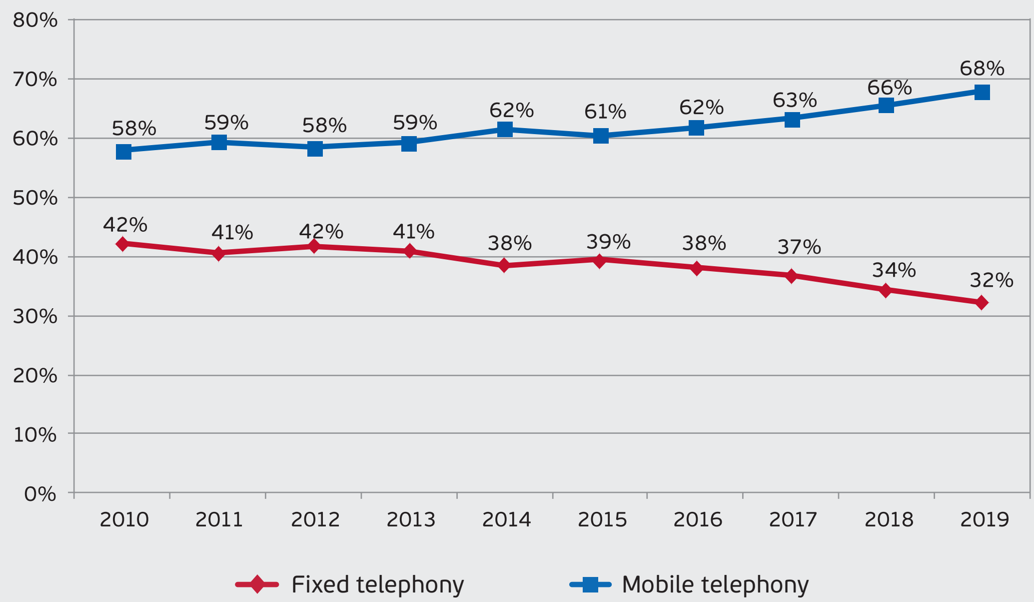
Source: EETT (based on data provided by the licensed operators)

Chart 1.52: Volume of the basic call types from fixed and mobile phones



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

Chart 1.53: Fixed and mobile telephony shares (based on the outgoing volume of the basic call types)



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

1.2.5. Broadband

Fixed broadband

At the end of 2019, fixed broadband connections amounted to 4,105,561[18] versus 3,959,725 at the end of 2018, registering an annual increase of 3.7% (versus 4.5% in 2018) and a 38.1% penetration rate in the population (Chart 1.54).

The Local Loop Unbundling (LLU) lines, including the Virtual Local Unbundling (VLU) lines, registered an increase by 2.7% reaching 2,202,007 at the end of the year versus 2,142,492 at the end of 2018 (a rise of 59,515 lines). More specifically, the lines offered by OTE and the other operators for the development of VLU products amounted to 195,427 compared to 41,653 at the end of 2018.

Chart 1.55 presents the evolution of the full and shared LLU lines, as well as of the full access sub-loops lines[19]. Particularly, the full LLU lines were further reduced at the end of 2019 to 1,984,087 (versus 2,084,854 at the end of 2018), while the shared LLU lines were zeroed (1,717 at the end of 2018). On the contrary, the full access sub-loop lines amounted to 103,044 (versus 26,901 at the end of 2018), 78% of which (80,551) is allocated to the operators for developing Next Generation Access Networks (NGA) and the remaining 22% (22,497) for the development of broadband products in rural areas.

Specifically, the three operators, OTE, VODAFONE and WIND, kept on upgrading the access network to NGA by implementing the VDSL vectoring technology. Analytically, the NGA that was deployed during 2019 covered the area for 4,926 of OTE's street cabins. The majority of those cabins was upgraded to Fiber to the Cabinet (FTCC) and VDSL vectoring, whereas in a few cases (123) to Fiber to the Home (FTTH) and Gigabit Passive Optical Networks (GPON). By the end of 2019, the accumulated number of the upgraded cabins amounted to 18,656 (Charts 1.56 and 1.57).

The VDSL lines at the end of 2019 amounted to 995,816, compared to 677,867 in December 2018 (an annual increase of 47%), accounting for 24.3% of the total broadband lines (Chart 1.58). Their penetration in the population is still low (9.3% versus 6.3% at the end of 2018).

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

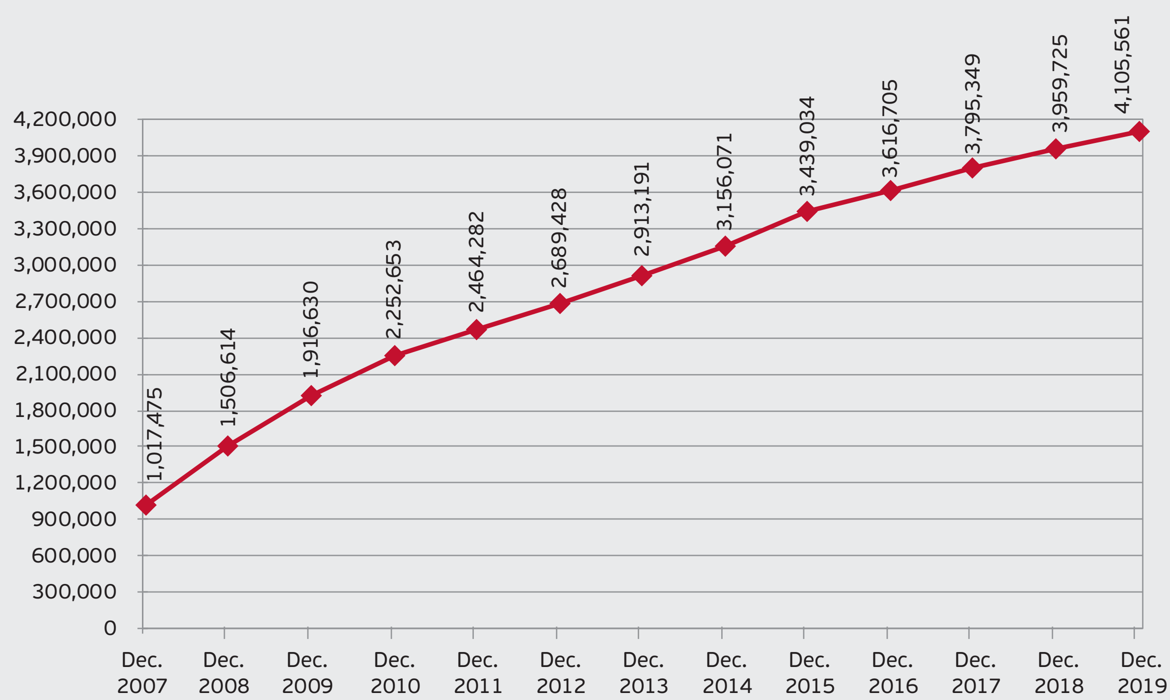
- The xDSL lines via LLU were further reduced to 1,770,702, compared to 1,895,805 at the end of 2018, with their share over the total broadband lines declining to 43.13% versus 47.88% at the end of 2018. The above number excludes 160,151 Virtual Partially Unbundling (VPU) lines that are included only in the total V-A.RY.S lines, because of the co-existence of two technologies in their provision (voice services via local loop and VDSL services via V-A.RY.S) (Charts 1.59 and 1.60).
- The access lines to NGA reached 195,427 compared to 41,653 at the end of 2018, with their share over the total broadband lines rising to 4.7% in 2019, versus 1% at the end of 2018. The majority of the wholesale VLU services deployed by the access operators was over FTTC lines.
- OTE's xDSL retail lines amounted to 1,994,068 versus 1,885,298 at the end of 2018, with their respective share over the total broadband lines roughly at the same level as last year (47.7% versus 47.5% at the end of 2018). From the total number of OTE's xDSL lines, 799,181 were VLU lines, which overwhelmingly (764,306) are based on OTE's own infrastructure and the rest 34,875 are being rendered by other operators[20]. Additionally, 22,109 retail lines (versus 14,262 at the end of 2018) pertain to sub-loops that are being supplied to OTE in order to develop broadband products in rural areas.
- The wholesale A.RY.S and V-A.RY.S lines increased by 28.5%, amounting to 166,853 versus 129,870 in December 2018 (4% of the total broadband lines versus 3.3% at the end of 2018), due to the increase of the number of the VPU products (160,151 versus 122,496 at the end of 2018).
- The lines of other technologies remained at very low levels with a percentage estimated at 0.3%.
- Almost all broadband lines (over 99%) correspond to nominal download access speeds of 10 Mbps and above. At the same time, there was a significant increase in the percentage of high-speed broadband lines with nominal download

18. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.
19. Local Sub-loop: the section of local loop that connects the termination point of OTE's network at the subscriber's premises to the Local Distribution Frame (LDF or Optical Network Unit-ONU).
20. Those lines are included in the NGA access lines when calculating the individual shares.

access speeds of 30 Mbps and above, which now constitutes 27.5% of the total broadband lines (versus 19.2% at the end of 2018). An important percentage of 6.5% of these lines corresponds to access speeds of 100 Mbps and above (compared to 3.4% at the end of 2018) (Charts 1.61 and 1.62).

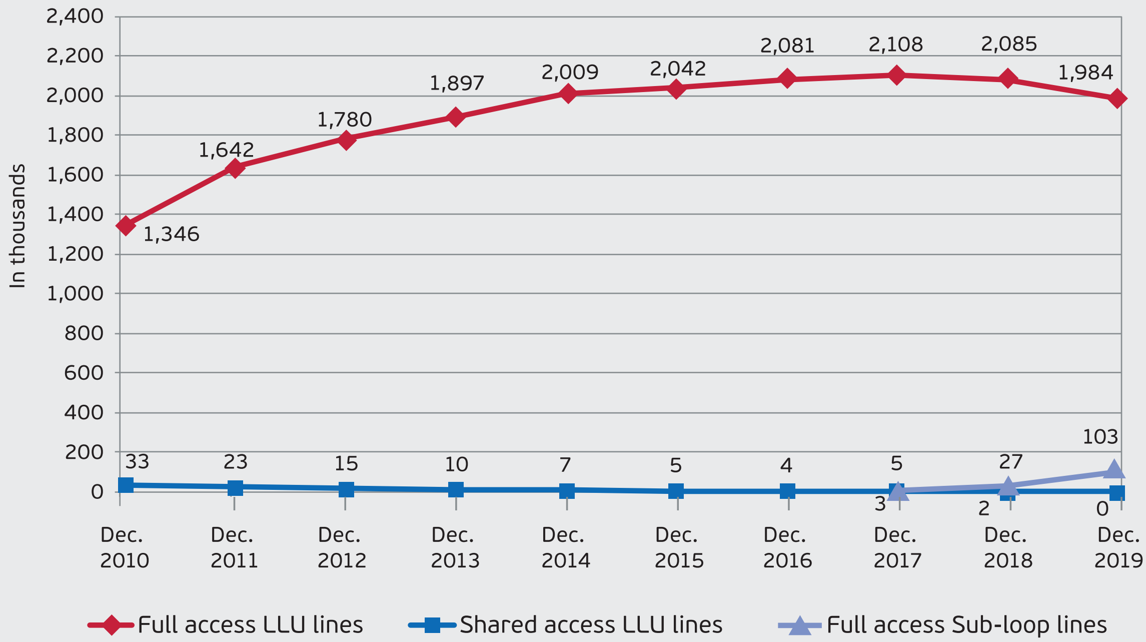
- The Internet traffic of the fixed broadband access users during 2019, reached on average 1.1TB per subscriber (versus 0.80 TB per subscriber in 2018).
- As far as the operators' shares are concerned, based on the number of their broadband lines, COSMOTE is ahead (45%-55%) followed by VODAFONE (15%-25%) (Table 1.14).

Chart 1.54: Evolution of broadband lines



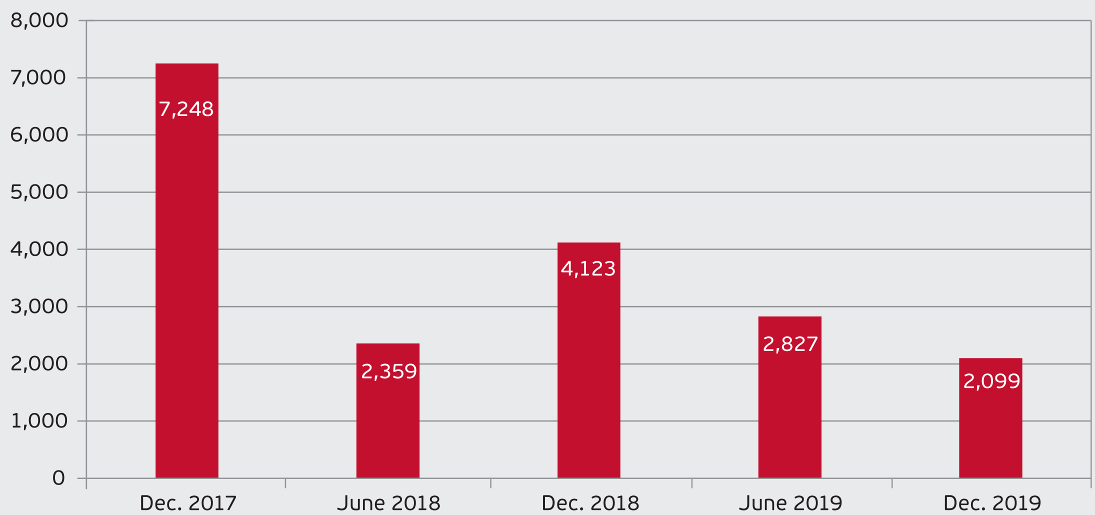
Source: EETT (based on data provided by the licensed operators)

Chart 1.55: Evolution of LLU lines



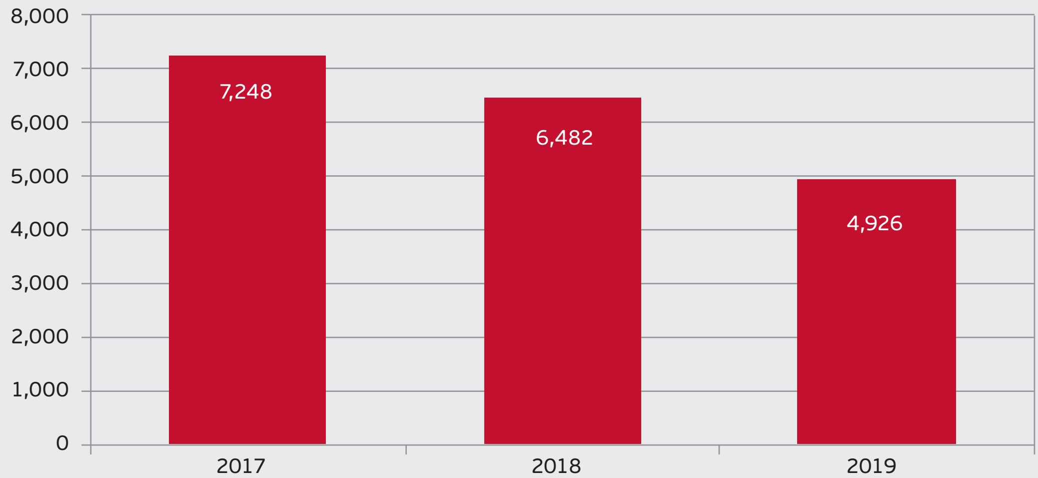
Source: EETT (based on data provided by the licensed operators)

Chart 1.56: Upgrades of street cabins per semester



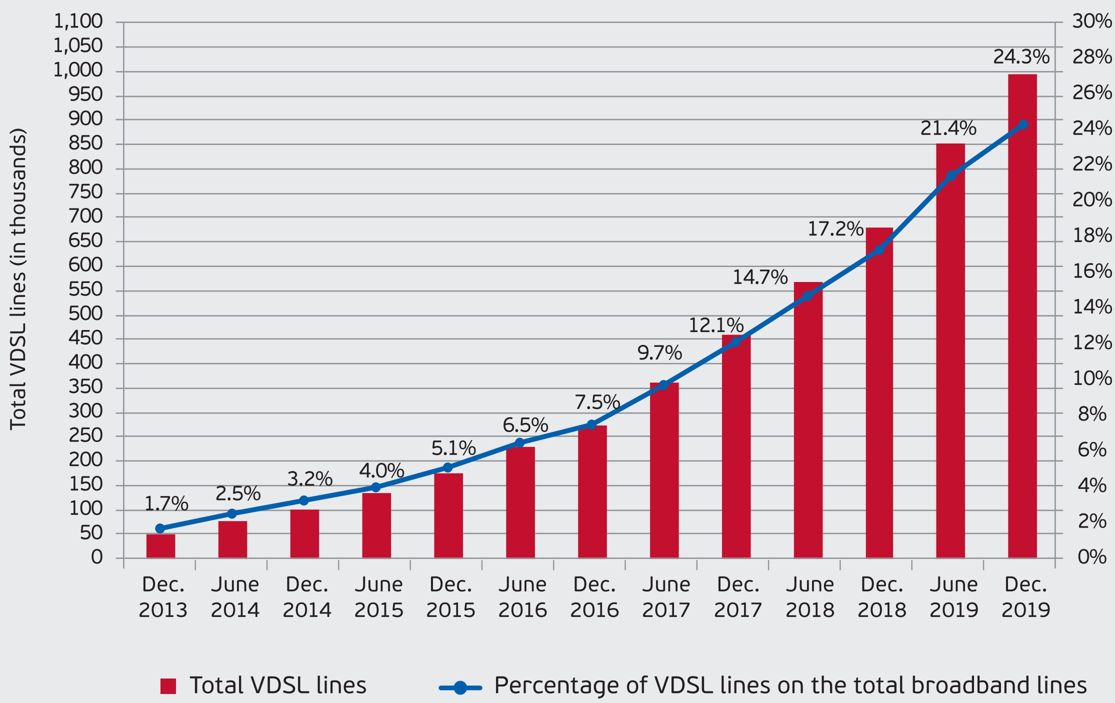
Source: EETT (based on data provided by the licensed operators)

Chart 1.57: Upgrades of street cabins per year



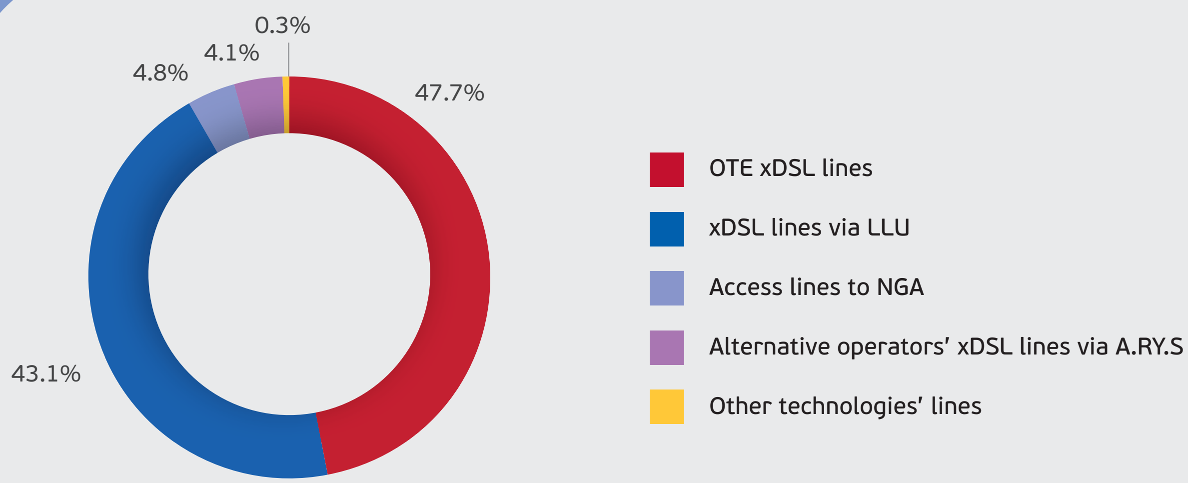
Source: EETT (based on data provided by the licensed operators)

Chart 1.58: Evolution of VDSL lines



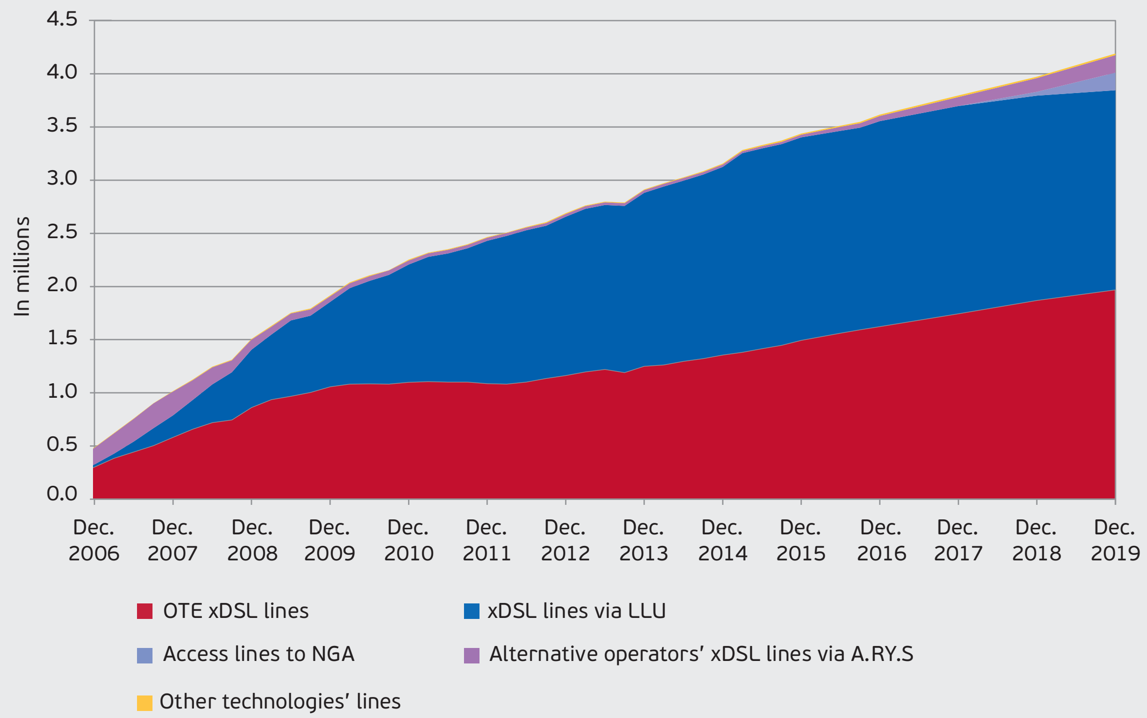
Source: EETT (based on data provided by the licensed operators)

Chart 1.59: Breakdown of broadband lines per technology, December 2019



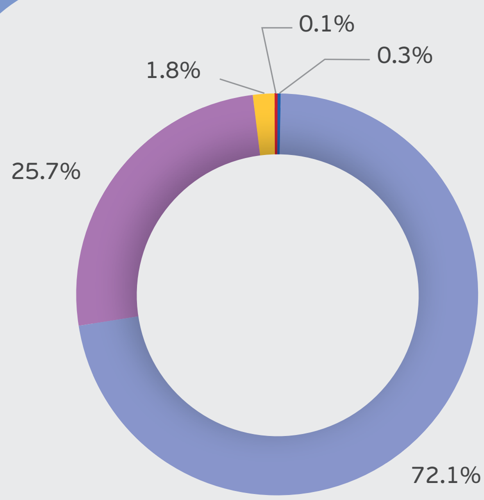
Source: EETT (based on data provided by the licensed operators)

Chart 1.60: Evolution of broadband lines per technology



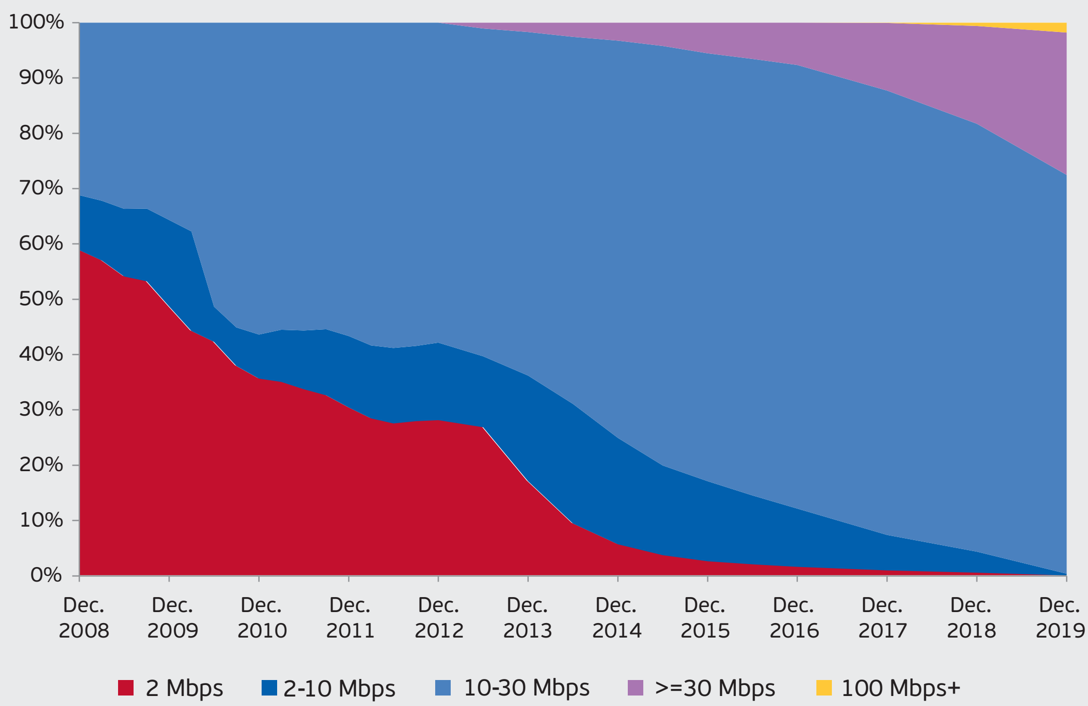
Source: EETT (based on data provided by the licensed operators)

Chart 1.61: Breakdown of broadband lines per nominal download access speed, December 2019



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

Chart 1.62: Evolution of broadband lines' nominal download access speeds



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

Table 1.14: Shares of fixed broadband access operators (based on the number of lines)

	Dec. 2019
COSMOTE	45%-55%
VODAFONE	15%-25%
WIND	15%-25%
FORTHNET	10%-15%

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

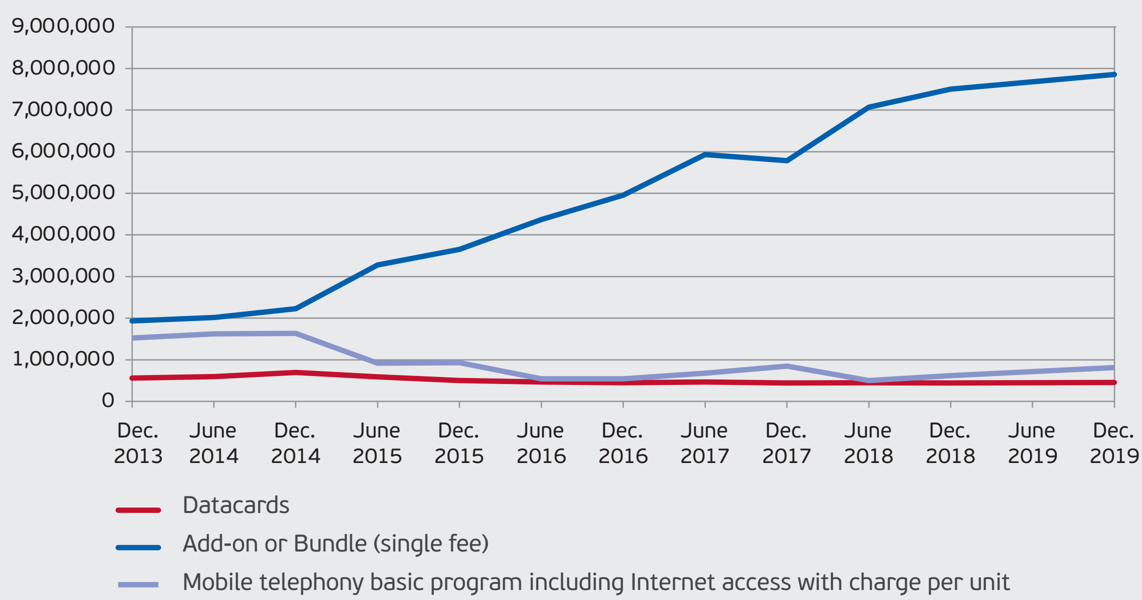
Mobile broadband

The total active mobile connections that were used for data services increased by 6.5%, reaching 9,122,462 at the end of 2019, versus 8,563,326 at the end of 2018 (Chart 1.63). For the majority of these connections (7,855,101 compared to 7,504,307 in 2018), either an add-on data package was selected (on top of mobile voice services) or data services were used via mobile bundled (i.e. voice and data access) programs offered for a single fee. For 812,812 connections (compared to 619,536 in 2018), their subscribers opted for data services via mobile telephony programs that include, among others, Internet access with a charge per unit. Lastly, 454,549 Internet connections concerned datacards.

The overwhelming majority of Internet traffic was carried through 4G networks (91.5% in December 2019 versus 69.9% in December 2018), whereas the relevant percentage for 3G networks kept on falling (8.5% in December 2019 compared to 30.1% in December 2018) (Chart 1.64).

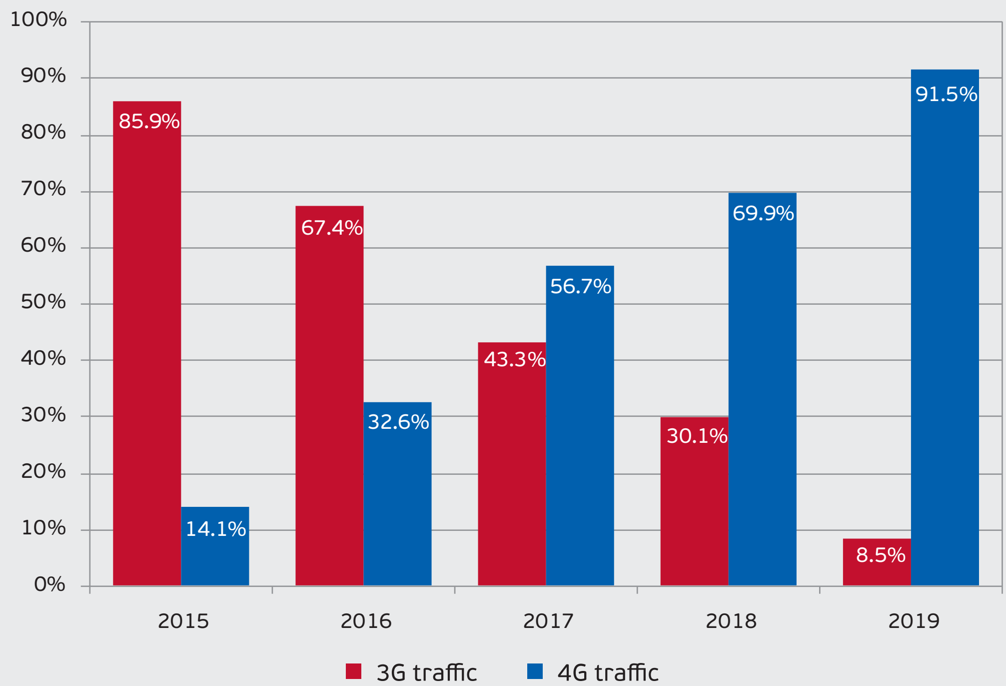
The average traffic per user in 2019 is estimated at 5.73 GB for the 3G subscribers (against 11.3 GB in 2018) and 39.2 GB for the 4G subscribers (compared to 29.6 GB in 2018). Chart 1.65 presents the change of 3G and 4G networks population coverage in the country over time. During 2019, the 4G and 3G networks population coverage percentages remained stable (98.8% and 99.7% respectively).

Chart 1.63: Evolution of mobile connections with Internet usage



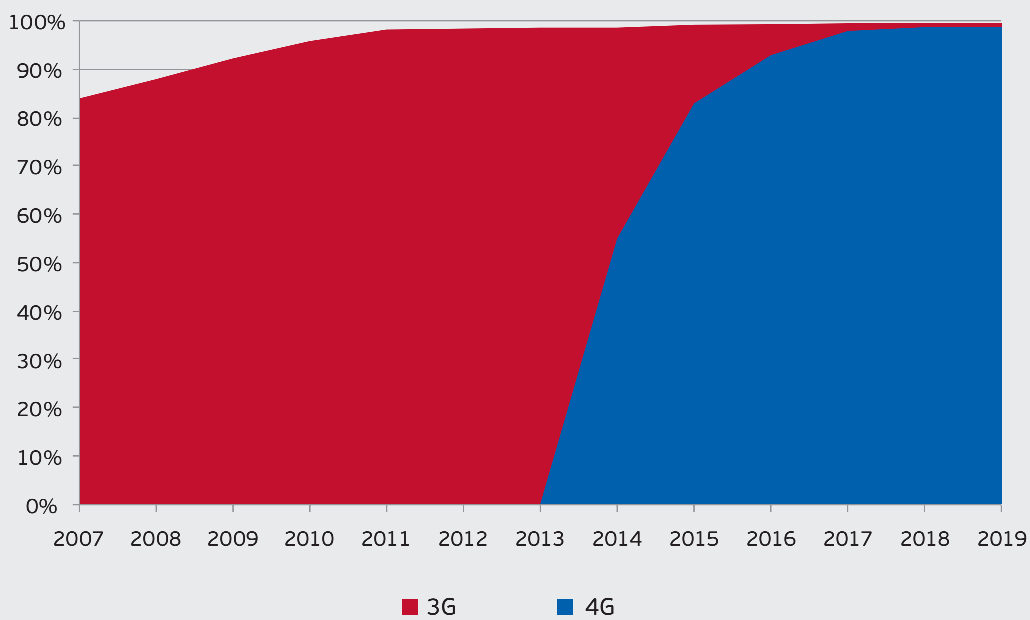
Source: EETT (based on data provided by the licensed operators)

Chart 1.64: Volume comparison of Internet traffic (%) between 3G and 4G networks



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

Chart 1.65: Change of 3G and 4G networks population coverage over time (%)



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

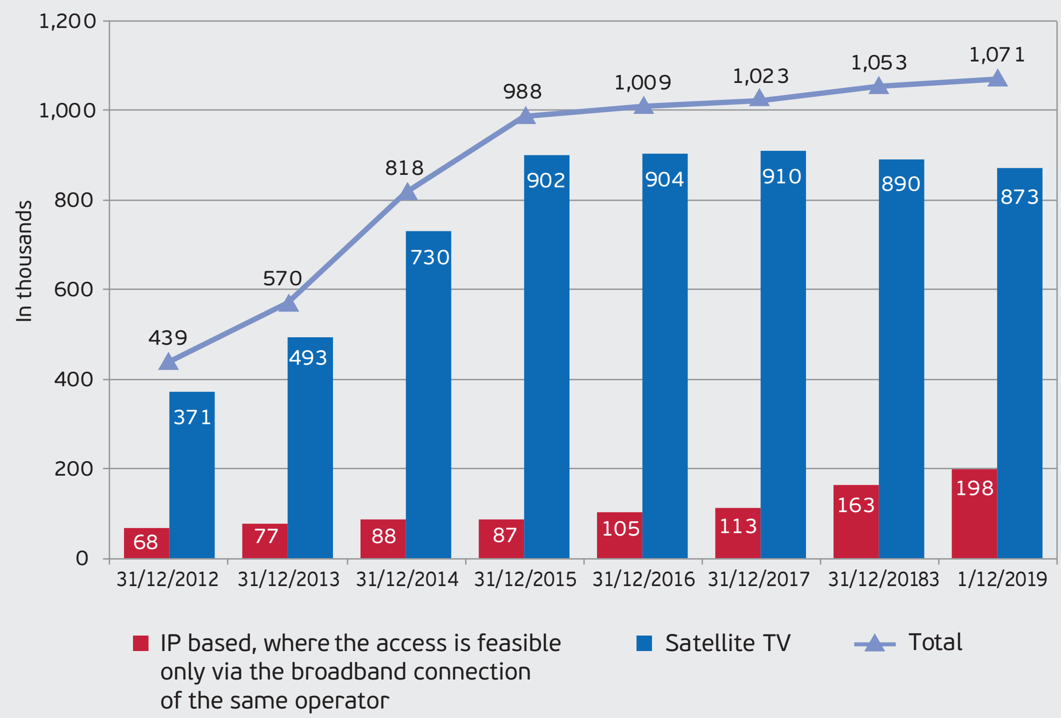
1.2.6. Pay-TV

The largest operators of electronic communications networks in Greece (or companies that belong to a group), are also the basic domestic operators of pay-TV. More specifically and excluding the Over the Top (OTT) providers that operate in different countries including Greece (e.g. Netflix, Amazon, etc.), pay-TV services in 2019 were provided by OTE, FORTHNET MEDIA (NOVA), VODAFONE (incl. CYTA)[21] and WIND[22].

The pay-TV subscriptions provided by the electronic communications operators amounted to 1.07 million at the end of 2019, having increased by roughly 18 thousand subscriptions. 82% of those was satellite subscriptions and the remaining 18% IP subscriptions, namely where the access is feasible via the broadband connection of the same operator (the one providing the content) (Chart 1.66). The corresponding market shares are presented in Table 1.15.

It is worth mentioning that as of the mid of 2018 and mainly in 2019, the operators of electronic communications networks launched IP based pay-TV services, that work over the broadband connection of any operator[23], thus not being dependent on the client's current telecommunication network. The respective subscriptions that are either standalone, unbundled TV services or bundled with telecommunication services (e.g. fixed telephony), were very few by the end of 2019 and are excluded from the IP based subscriptions.

Chart 1.66: Evolution of pay-TV subscriptions



Source: EETT (based on operators' data)

21. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.
22. WIND launched its pay-TV services in the second quarter of 2018.
23. Subscriptions/bills/activations etc. that were already provided as complementary services are excluded.

Table 1.15: Shares of pay-TV operators based on subscriptions

	31/12/2015	31/12/2016	31/12/2017	31/12/2018	31/12/2019
CYTA	0%-5%	0%-5%	0%-5%	0%-5%	-
FORTHNET MEDIA (NOVA)	45%-55%	35%-45%	35%-45%	35%-45%	25%-35%
HOL	0%-5%	-	-	-	-
OTE	45%-55%	45%-55%	45%-55%	45%-55%	45%-55%
VODAFONE	-	5%-10% (1)	5%-10% (1)	5%-10% (1)	10%-15% (1)(2)
WIND	-	-	-	0%-5%	5%-10%

Notes:
(1) Including HOL.
(2) Including CYTA.

Source: EETT (based on operators' data)

1.2.7. Bundled offers[24]

Bundled offers are one of the most popular ways for Greek consumers to buy electronic communications' services. At the end of the 2019, the total residential and non-residential bundled offers were over 4.13 million, while the percentage of the fixed telephony connections that were bundled is estimated at 87.1%, compared to 82.4% in 2018.

In 2019, OTE-COSMOTE, FORTHNET-FORTHNET MEDIA (NOVA), VODAFONE (including CYTA)[25] and WIND provided bundled offers. More specifically, the offer of bundling fixed telephony and fixed broadband access was available by OTE, FORTHNET, VODAFONE and WIND, pay-TV services were offered by OTE, FORTHNET MEDIA (NOVA), VODAFONE and WIND[26], while bundled offers including mobile services were provided by OTE-COSMOTE, VODAFONE and WIND.

It is noted that, the pay-TV data does not include a small number of IP based subscriptions that work over the broadband connection of any operator. Furthermore and as far as the bundled offers with mobile services are concerned, it is clarified that, mobile-wise, both post-paid and pre-paid connections are counted and presented. It is mentioned that the bundled offers with mobile services via a pre-paid connection were launched in October 2018.

Hence, the main conclusions for 2019, based on the data collected from the operators, are as follows:

24. Data collection for bundled offers is based on the following definition made by the European Commission and the Body of European Regulators for Electronic Communications (BEREC):
"Bundled offers" or "Bundles" are commercial offers, provided by one or more operators, and include two or more of the following services: (1) Fixed Broadband, (2) Fixed Telephony, (3) Mobile service(s) (including voice and/or broadband) and (4) Pay-TV. "Bundled offers" are either: (a) Pure bundles, comprised of services that are unavailable individually; (b) Combinations of tied and tying services, consisting of a service ("tying service") that can only be purchased in connection with another service ("tied service"). The purchase of the former is conditional on the purchase of the latter but not vice versa; (c) Mixed bundles, combining services that are available individually, while the operator(s) provide(s) an incentive for buying these services jointly by granting the customer permanent beneficial conditions (i.e. throughout the joint purchase duration) that cannot be obtained by purchasing these services separately. Permanent beneficial conditions may include discounts (e.g. a single discounted "pack" price or a discount that applies to a certain service conditional to the purchase of another service) and/or non-monetary benefits (e.g. enhanced data consumption allowances). Gifts and temporary discounts or promotions are not regarded as beneficial conditions.
It is clarified that: (a) the term "Mobile service(s)" refers to mobile telephony and/or mobile broadband (with no distinction between computer-based and handset-based access). Only the two aforementioned mobile communications services are taken into account but are treated as a single service (regardless of whether one or both are being provided); (b) the bundled offers that include mobile services are counted irrespective of the number of the SIM cards that are included in the bundled offer, e.g. a 4-play offer with 4 SIM cards for the whole family is counted as a single 4-play offer. Hence, every bundled offer with mobile services may entail more than one SIM card.
25. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.
26. WIND launched its pay-TV services in the second quarter of 2018.

- Fixed telephony is a basic component of all the bundled offers that are commercially available over time. Likewise, fixed broadband access is included in their overwhelming majority, whereas mobile services are included in approximately 36% of them (Table 1.16).
- Bundled offers amounted to 4,130,376 at the end of 2019, increased by about 203 thousand compared to 2018 (3,926,941), while at the same time unbundled fixed telephony subscriptions kept on falling (Chart 1.67). It is also noted that fixed telephony subscriptions as a total (bundled and unbundled) follow a slightly upward trend in the last few years (Table 1.16).
- OTE-COSMOTE's share based on the total bundled offers is estimated at the range of [45%-55%] at the end of 2019, followed by VODAFONE at the range of [15%-25%] and then by WIND and FORTHNET with their relative shares [10%-15%] (Table 1.17).
- By the end of the year, double play offers decreased by approximately 64 thousand compared to 2018, whereas triple and quadruple play offers increased by 246 and 21 thousand respectively. About 58% of bundled offers concerned double play, 40% triple play and only 2% quadruple play (Chart 1.68).
- The double play of fixed telephony and fixed broadband access was still the most popular bundled offer, with about 2.33 million subscriptions, making up 56% of the total bundled offers. The triple play of fixed telephony, fixed broadband access and mobile services is the second most popular offer with 1.32 million subscriptions (32% of the total bundled offers). Lastly and way below are the triple play of fixed telephony, fixed broadband access and pay-TV and the quadruple play, making up, at the end of 2019, 8% and 3% respectively of the total bundled offers (Charts 1.69 and 1.70).
- The new increase of the bundled offers in 2019 compared to 2018 is attributed yet again in the increase of the triple play of fixed telephony, fixed broadband access and mobile services by 274 thousand. On the contrary, the bundled offers of the other popular triple play of fixed telephony, fixed broadband access and pay-TV fell by 28 thousand approximately in 2019 (Chart 1.70).
- The pay-TV subscriptions increased by about 18 thousand in 2019, amounting to 1,070,897 (Table 1.16). About 60% of those (641 thousand) concerned unbundled pay-TV subscriptions, namely subscriptions that are not part of a bundled offer (Chart 1.71). It is clarified that as unbundled pay-TV subscriptions are also considered those that are bought jointly with other services (from the same operator or group of companies) but do not fall under the bundle offer's definition in order to be counted as such[27].
- Bundled offers with mobile services (post-paid and pre-paid) reached 1,476,391 at the end of 2019, making up about 36% of the total bundled offers compared to 30% at the end of 2018 (Chart 1.72). 89.5% of those (i.e. 1,321,926) concerned the triple play fixed telephony, fixed broadband access and mobile services, 6.9% (102,255) was the quadruple play and 3.5% (52,207) pertained to the bundling of fixed and mobile telephony (Chart 1.73 and Table 1.16).
- OTE-COSMOTE's market share based on the bundled offers that include mobile services was, at the end of 2019, in the range of [55%-65%] whereas VODAFONE's and WIND's shares ranged between [15%-25%] (Table 1.18).
- Bundled offers that include mobile services increased in 2019 by 299 thousand approximately, while, for the same period, the SIM cards that participate in these bundled offers increased by roughly 779 thousand reaching 2.1 million[28] (Chart 1.74). Finally, the estimated average number of SIM cards per bundled offer with mobile services was 1.4 at the end of 2019.

27. For example and according to the definition used, buying jointly from the same operator of (a) a double play of fixed telephony and fixed broadband access and of (b) a pay-TV subscription is not considered as triple play if the price that the user pays equals the sum of the prices of the individual (a) and (b) services.
28. As mentioned before and mobile-wise, the bundled offer that includes mobile services may correspond to more than one SIM card, post-paid or/and pre-paid.

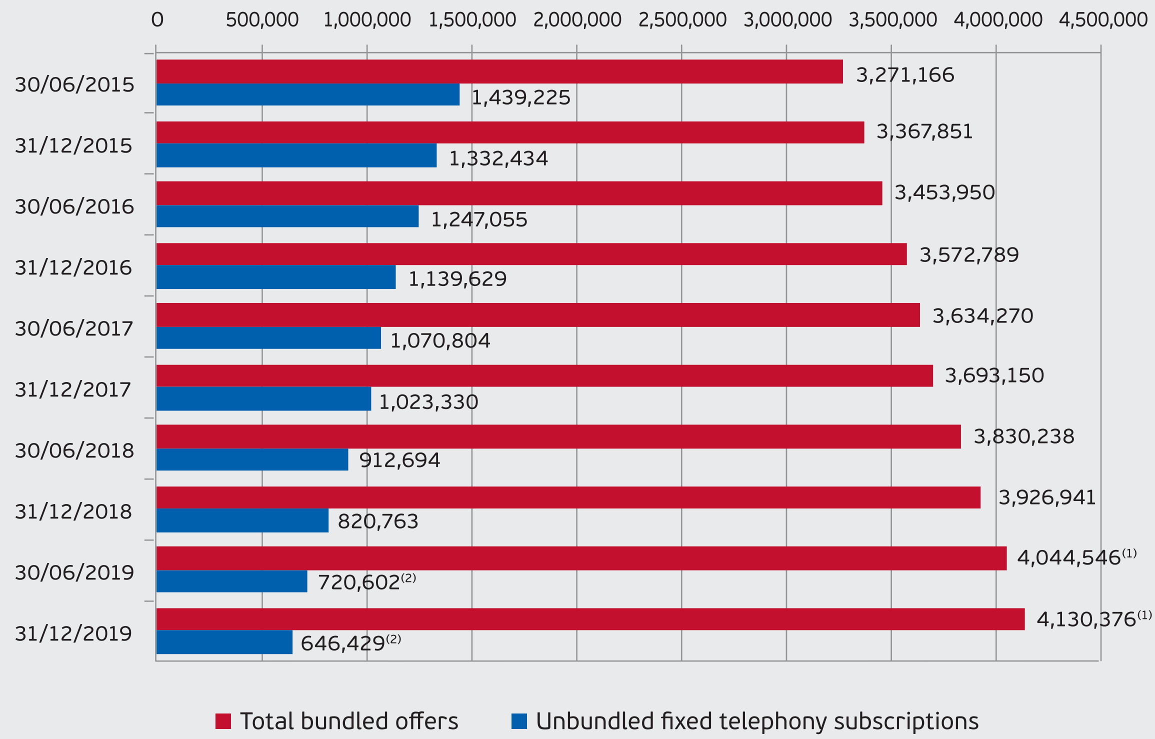
Table 1.16: Number of bundled offers and unbundled subscriptions

A. Perspective of fixed services' operator {i.e. based on (residential and non-residential) fixed subscriptions}			31/12/2015	31/12/2016	31/12/2017	31/12/2018	31/12/2019
Bundled offers	2-Play	"Fixed telephony" and "Fixed broadband access"	1,896,454	2,092,681	2,405,296	2,393,190	2,326,067
		"Fixed telephony" and "Pay-TV"	33,514	28,968	4,631	218	5
		"Fixed telephony" and "Mobile services"	50,097	53,141	37,012	49,178	52,207
		2-Play total	**1,980,065**	**2,174,790**	**2,446,939**	**2,442,586**	**2,378,279**
	3-Play	"Fixed telephony" and "Fixed broadband access" and "Pay-TV"	715,289	630,690	411,542	355,642	327,913
		"Fixed telephony" and "Fixed broadband access" and "Mobile services"	651,515	629,050	745,603	1,047,881	1,321,926
		"Fixed telephony" and "Pay-TV" and "Mobile services"		505	8	20	3
		3-Play total	**1,366,804**	**1,260,245**	**1,157,153**	**1,403,543**	**1,649,842**
	4-Play	"Fixed telephony" and "Fixed broadband access" and "Pay-TV" and "Mobile services"	20,982	137,754	89,059	80,812	102,255
		4-Play total	**20,982**	**137,754**	**89,059**	**80,812**	**102,255**
	Total bundled offers (i.e. 2-Play, 3-Play, 4-Play)		**3,367,851**	**3,572,789**	**3,693,150**	**3,926,941**	**4,130,376**
Bundled offers including each service (a)	"Fixed telephony"		3,367,851	3,572,789	3,693,150	3,926,941	4,130,376(1)
	"Fixed broadband access"		3,284,240	3,490,175	3,651,499	3,877,525	4,078,161
	"Pay-TV"		769,785	797,917	505,240	436,692	430,176
	"Mobile services		722,594	820,450	871,682	1,177,891	1,476,391
Unbundled subscriptions per service (b)	"Fixed telephony"		1,332,434	1,139,629	1,023,330	820,763	646,429(2)
	"Fixed broadband access"		116,891	112,619	114,642	45,377	10,737
	"Pay-TV"		218,433	211,137	517,404	616,266	640,721
Subscriptions including each service (totals, i.e. (a)+(b))	"Fixed telephony"		4,700,285	4,712,418	4,716,480	4,747,704	4,776,805
	"Fixed broadband access"		3,401,131	3,602,794	3,766,141	3,922,902	4,088,898
	"Pay-TV"		988,218	1,009,054	1,022,644	1,052,958	1,070,897
B. Perspective of mobile services' operator {i.e. based on (residential and non-residential) mobile SIM cards}			**31/12/2015**	**31/12/2016**	**31/12/2017**	**31/12/2018**	**31/12/2019**
Number of SIM cards (including mobile telephony and/or mobile broadband) participating in bundled offers with at least one fixed service			798,034	969,173	1,163,489	1,350,553	2,129,366

Notes:
(1) A few bundled offers that have more than one fixed telephony subscriptions are included and have been counted as unbundled fixed telephony subscriptions (their number is also small).
(2) See above.

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

Chart 1.67: Bundled offers and unbundled subscriptions of fixed telephony



Notes:
(1) A few bundled offers that have more than one fixed telephony subscriptions are included and have been counted as unbundled fixed telephony subscriptions.
(2) See above.

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

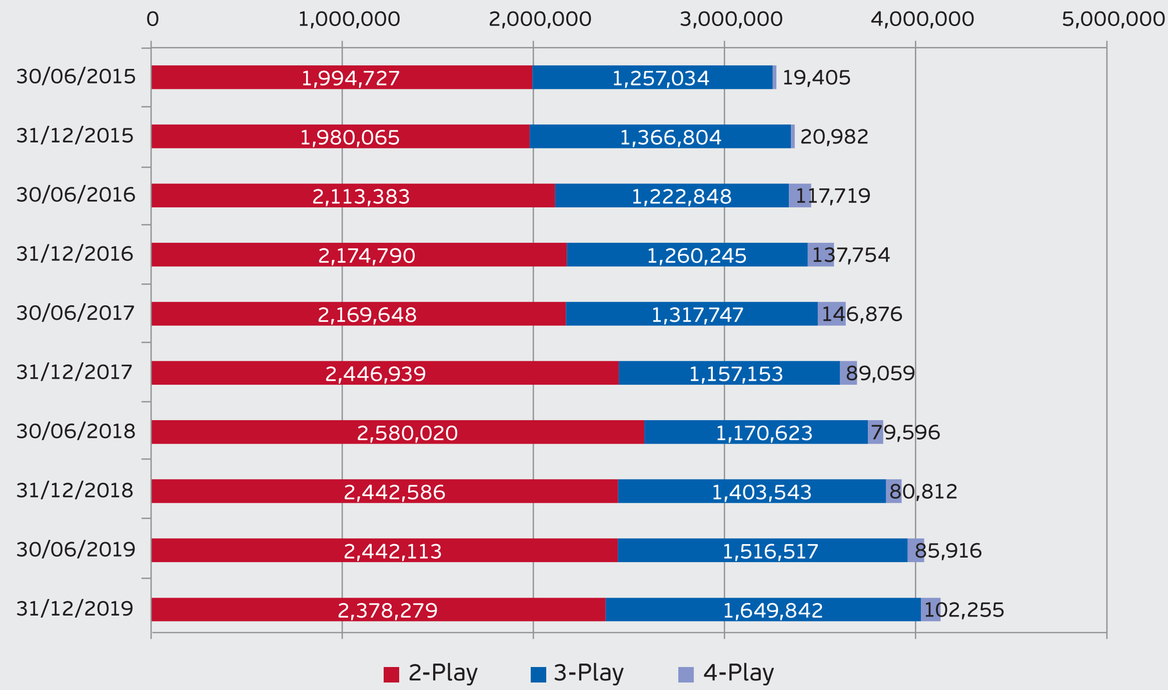
Table 1.17: Shares based on the total number of bundled offers

	31/12/2015	31/12/2016	31/12/2017	31/12/2018	31/12/2019
CYTA	5%-10%	5%-10%	5%-10%	5%-10%	-
FORTHNET	15%-25%	15%-25%	10%-15%	10%-15%	10%-15%
HOL-VODAFONE	15%-25%	-	-	-	-
OTE-COSMOTE	35%-45%	35%-45%	35%-45%	45%-55%	45%-55%
VODAFONE	0%-5%	15%-25%[1]	15%-25%[1]	15%-25%[1]	15%-25%[1][2]
WIND	10%-15%	15%-25%	15%-25%	15%-25%	10%-15%

Notes:
(1) Including HOL.
(2) Including CYTA.

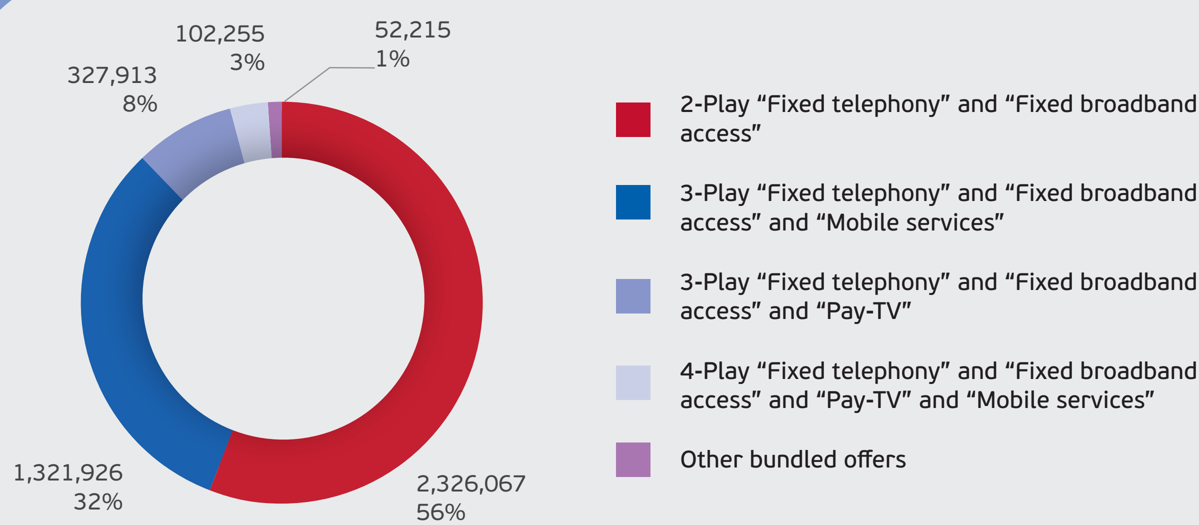
Source: EETT (based on data provided by the licensed operators)

Chart 1.68: Bundled offers per general type



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

Chart 1.69: Breakdown (%) of bundled offers per specific type, December 2019

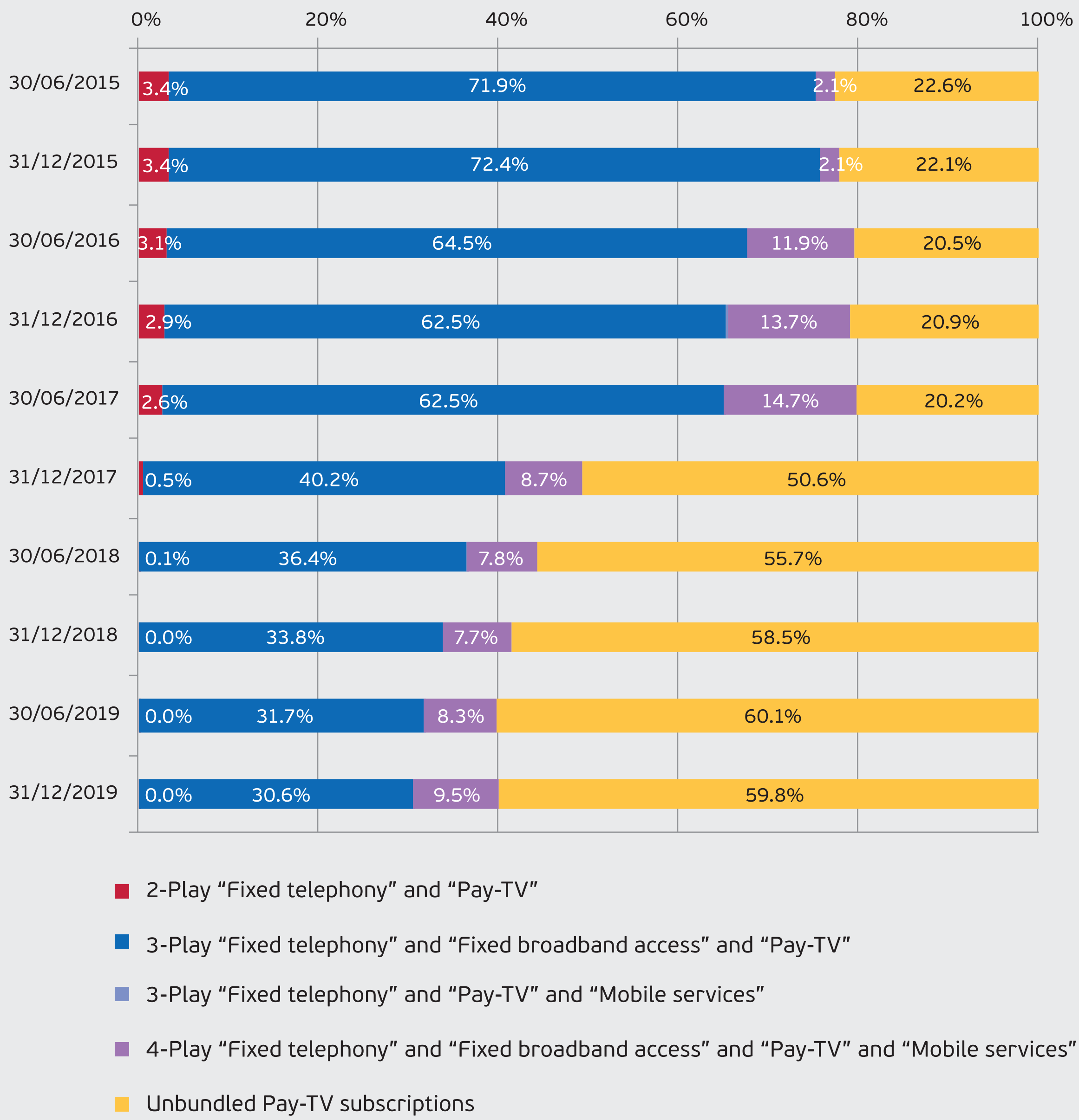


Source: EETT (based on data provided by the licensed operators)

Chart 1.70: Most popular bundled offers per specific type

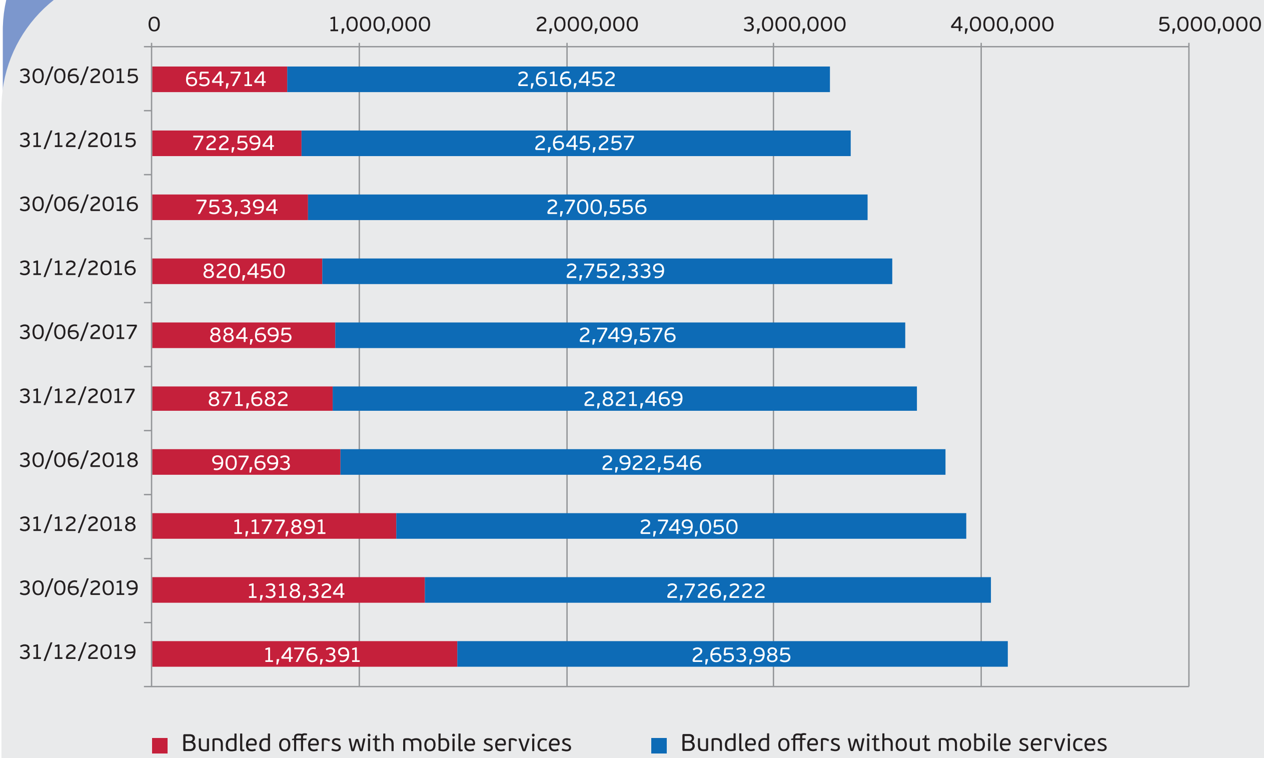
Source: EETT (based on data provided by the licensed operators)

Chart 1.71: Breakdown (%) of Pay-TV subscriptions



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

Chart 1.72: Bundled offers with or without mobile services



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

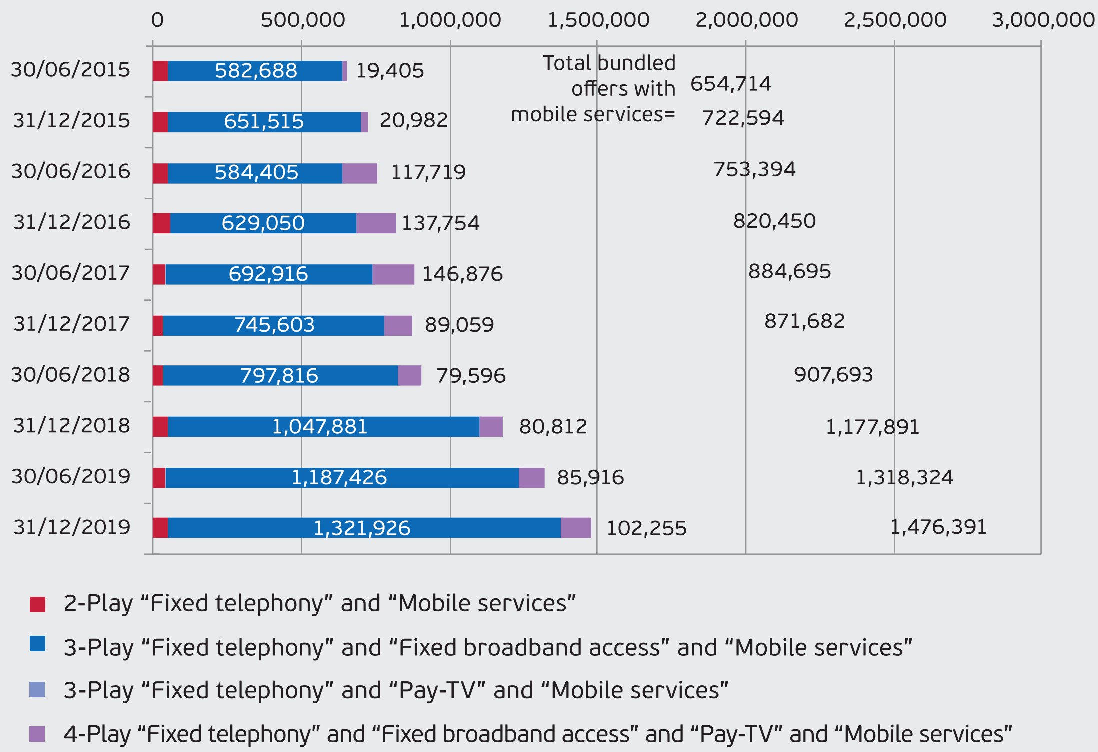
Table 1.18: Shares based on the total number of bundled offers with mobile services

	31/12/2015	31/12/2016	31/12/2017	31/12/2018	31/12/2019
CYTA	0%-5%	0%-5%	0%-5%	0%-5%	-
HOL-VODAFONE	25%-35%	-	-	-	-
OTE-COSMOTE	35%-45%	35%-45%	35%-45%	45%-55%	55%-65%
VODAFONE	0%-5%	25%-35%(1)	25%-35%(1)	25%-35%(1)	15%-25%(1) (2)
WIND	25%-35%	25%-35%	25%-35%	15%-25%	15%-25%

Notes:
(1) Including HOL.
(2) Including CYTA.

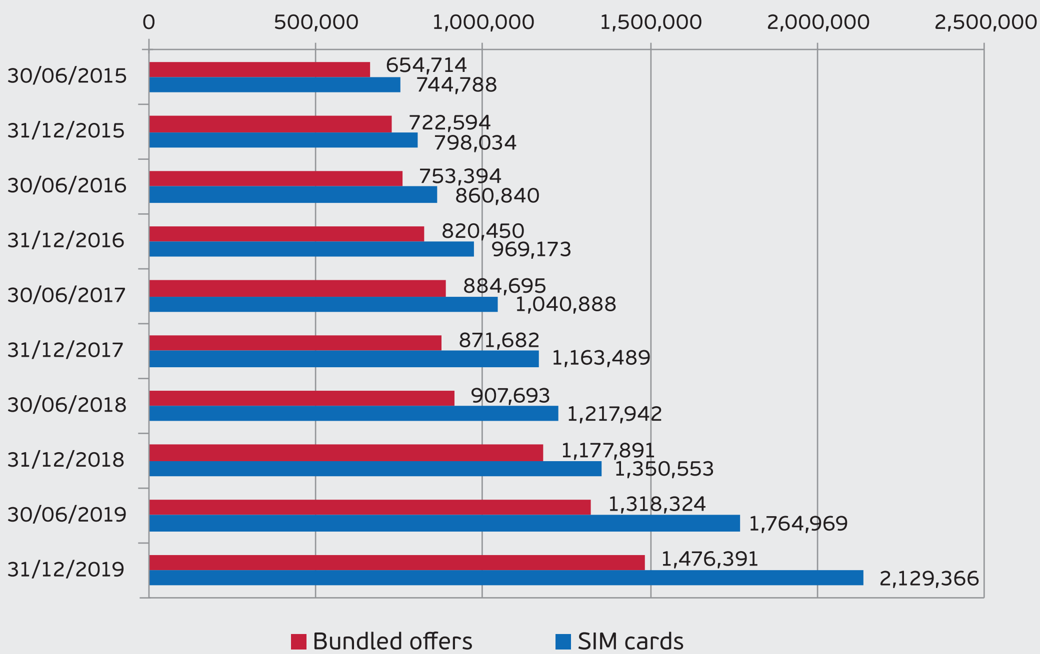
Source: EETT (based on data provided by the active licensed operators)

Chart 1.73: Bundled offers with mobile services



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

Chart 1.74: Bundled offers with mobile services and respective number of SIM cards



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

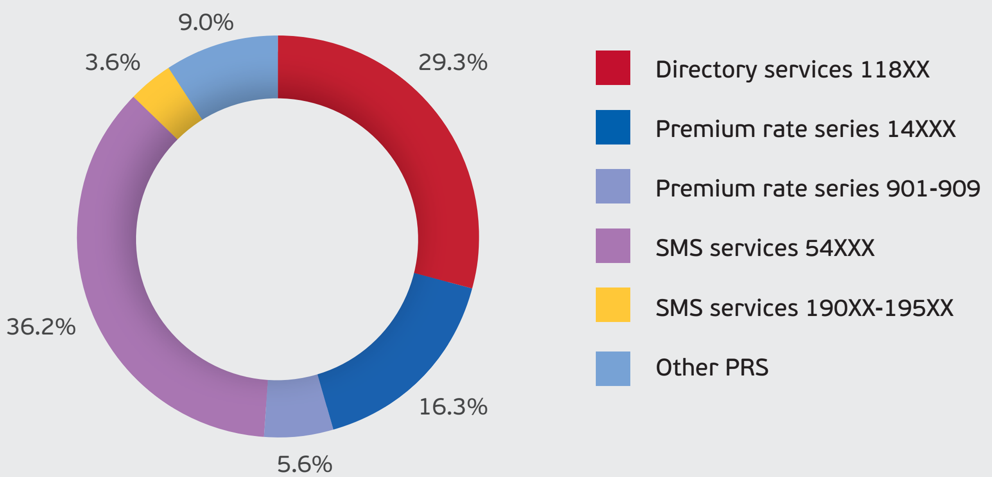
1.2.8. Premium Rate Services (PRS) and directory services

This section presents information on the traffic and revenues of telecommunications operators in 2019 from Premium Rate Services (PRS) and directory services. In particular, the figures have been based on data collected from 21 operators out of a total of 55 licensed companies.

In 2019, the total invoiced traffic was 35 million minutes[29] compared to 42.6 million minutes in 2018 and 46.1 million calls/messages (compared to 46.7 million calls/messages in 2018), generating revenues of 84.9 million euros, reduced by 2.7% compared to 2018.

The revenues from SMS services (54XXX and 190XX-195XX) amounted to 33.7 million euros in 2019 making up 39.8% of the total market and having increased by 14.8% compared to 2018. The revenues from directory services 118XX came second with an 18% drop compared to 2018, accounting for 29.3% of the market and amounting to 24.9 million euros. The revenues from premium rate series (14XXX and 901-909) are estimated at 18.6 million euros with a 21.9% share. The rest PRS, i.e. those that do not fall in the above categories, accounted for 9% of the total turnover (7.6 million euros) (Charts 1.75 and 1.76).

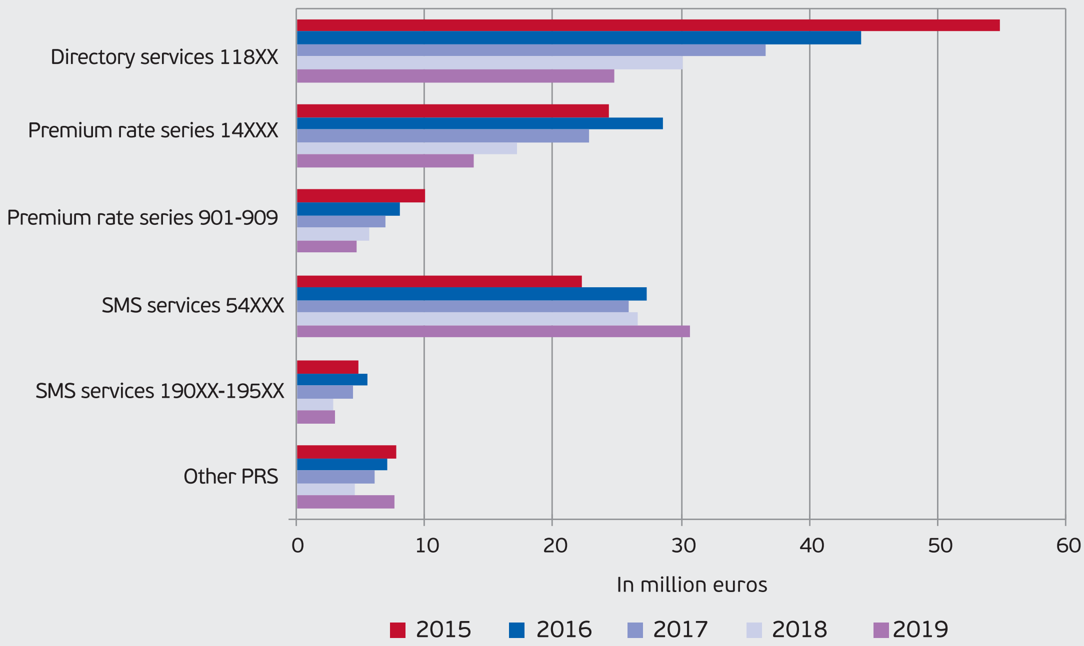
Chart 1.75: PRS and directory services' shares based on revenues



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

29. It is noted that CYTA's data relate to the period of 01/01-31/03/2019, when its absorption by VODAFONE was completed.

Chart 1.76: Evolution of PRS and directory services' total revenues

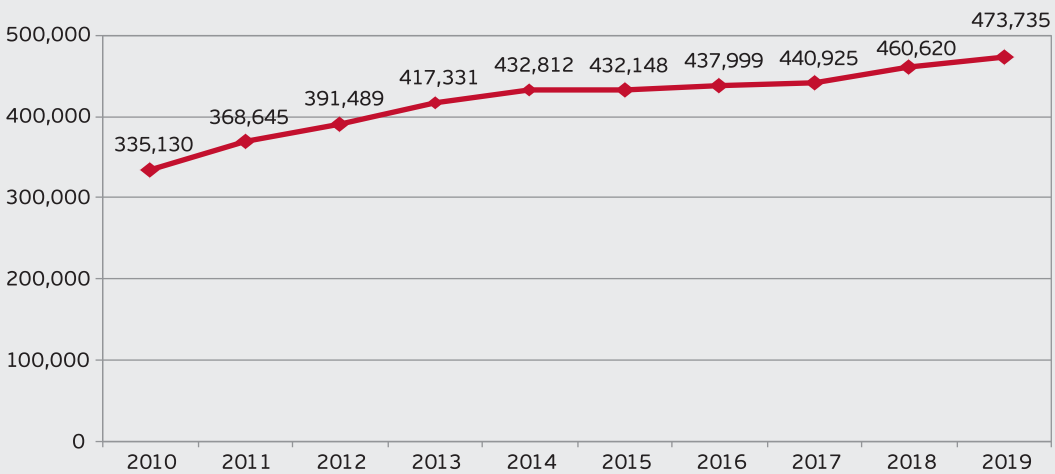


Source: EETT (based on data provided by the licensed operators)

1.2.9. Domain names [.gr] and [.ελ]

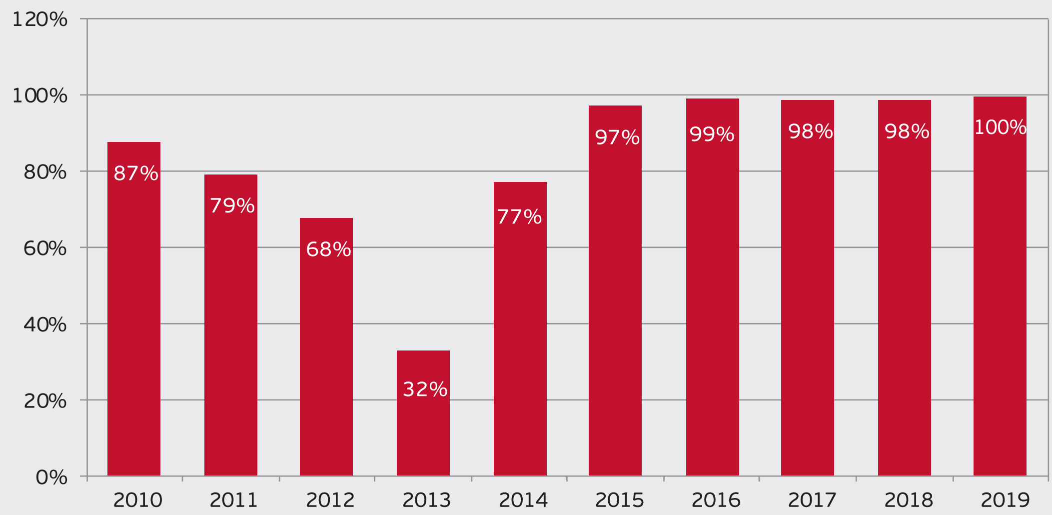
In 2019, the total number of [.gr] domain names, including the sub-domains (.com.gr, .net.gr, .org.gr, .edu.gr, .gov.gr, .ελ), amounted to 473,735, registering a 2.8% increase compared to 2018. Chart 1.77 presents the evolution of the total domain names over time. With the exemption of the small drop in 2015, the assignment rate remains positive up till today. Chart 1.78 depicts the annual evolution of the average assignment rate over the number of submitted applications for the period 2010-2019. The average assignment rate in 2019 was almost 100%.

Chart 1.77: Evolution of domain names



Source: EETT

Chart 1.78: Average assignment rate for domain names



Source: EETT

1.2.10. Price Observatory's comparison of retail prices (Pricescope)[30]

Based on the data registered by the telecommunications operators in the Price Observatory (Pricescope), at the end of 2019, the companies FORTHNET, OTE-COSMOTE, VODAFONE and WIND were offering approximately 1,500 products/packages in the domestic market[31] (Chart 1.79), having increased by 24% compared to 2018[32]. These products entailed about 90,000 possible and dynamically produced combinations (product solutions) of basic products, add-ons and offers. The basic conclusions drawn from Pricescope are summarized as follows:

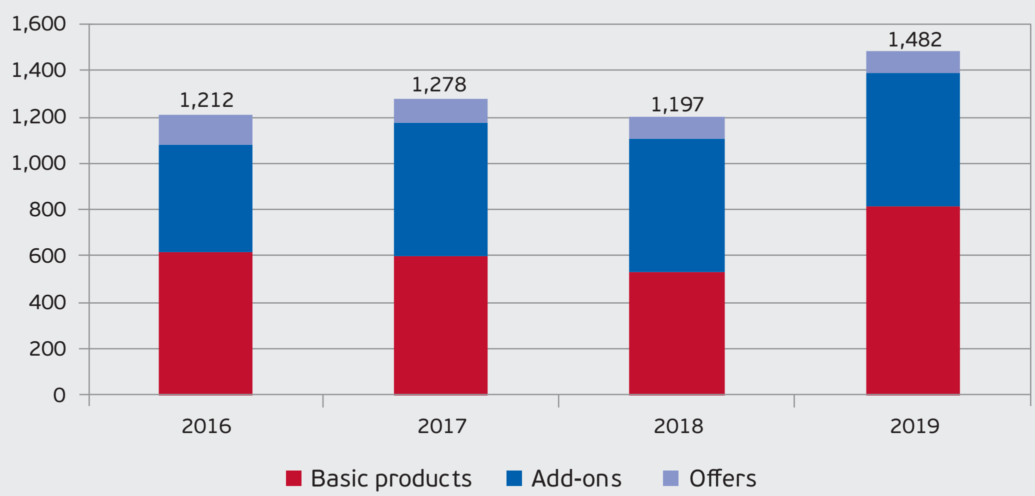
- VODAFONE had more commercially available products than the other operators, followed by COSMOTE and WIND (Chart 1.80).
- COSMOTE and WIND relied mainly on add-on programs (58% and 57% respectively), whereas FORTHNET, OTE and VODAFONE laid emphasis on basic programs with 94%, 75% and 61% respectively (Chart 1.81).
- About one out of ten products was marketed as an offer, while around 40% of the products was add-ons, demonstrating the need for multiple product, differentiated and customized solutions (Chart 1.82).
- About 47% concerned mobile communications' products, with approximately 40% corresponding to mobile voice products and 7% to mobile broadband products. Thus, around 53% of the products concerned fixed communications, following an upward trend since 2016, having also at the same time integrated the increase of the TV programs (Charts 1.83 and 1.84).
- Just 3% of the mobile pre-paid voice products was registered by the operators as basic (Chart 1.85), while the ratio of the add-ons to the basic products appeared to be higher for mobile post-paid telephony compared to fixed telephony (Charts 1.86 and 1.87), showing though a de-

30. The information of this section derives from data registered by the operators OTE-COSMOTE, VODAFONE, WIND, FORTHNET in the data repository of EETT's Pricescope.
31. 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.
32. It is noted that there are no commercially available products for CYTA, since its absorption by VODAFONE was completed on 31/03/2019.

crease both for mobile post-paid and fixed telephony, compared to 2018 (Chart 1.88).

- Approximately six out of ten products were addressed exclusively to residential customers. In contrast, about one out of five products targeted only business customers, while 17% of products targeted both customers groups (Chart 1.89).
- The mobile pre-paid products were mainly addressed to residential customers, while most of the mobile post-paid products were addressed to business customers. It is noted that proportionally most of business products were included among the mobile post-paid broadband access products (Chart 1.90).
- The programs of COSMOTE, FORTHNET and WIND were primarily addressed to residential customers, while a big section of VODAFONE's programs aimed at business customers. Most of OTE's programs were directed at both customers groups (Chart 1.91).
- 63% of the mobile post-paid telephony programs consisted of a monthly fee up to 60 euros, with an average price[33] of 39 euros (35 euros in 2018), median price[34] of 34 euros (same as in 2018) and a call allowance of around 6,000 minutes versus 460 minutes in 2018, due to subscribers moving up to programs with unlimited call time (Chart 1.92).

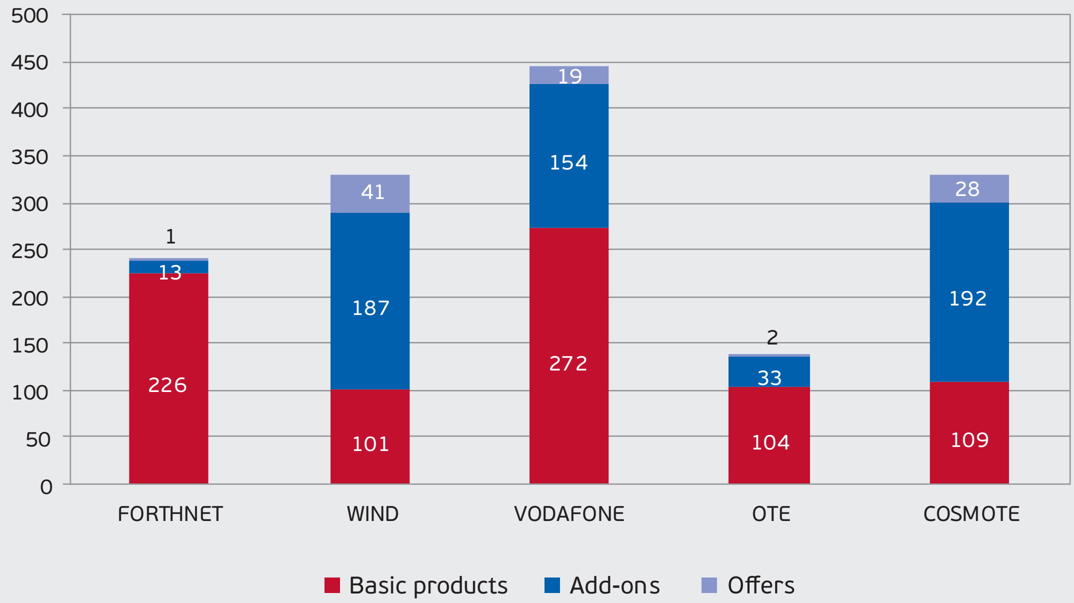
Chart 1.79: Number of products in the domestic market



Source: EETT

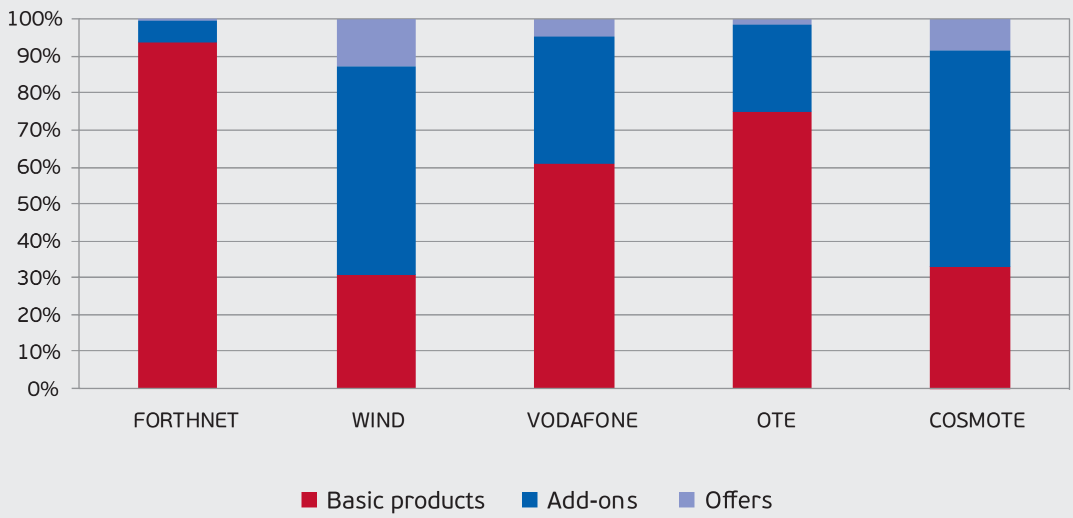
33. The average price (or arithmetic average) is the sum of the values of a group of numbers divided by their volume.
34. Median is the average of a group of numbers sorted by size. It is the number right in the middle, so that 50% of the sorted numbers is above the median and the other 50% below the median.

Chart 1.80: Commercially available products per operator, 2019



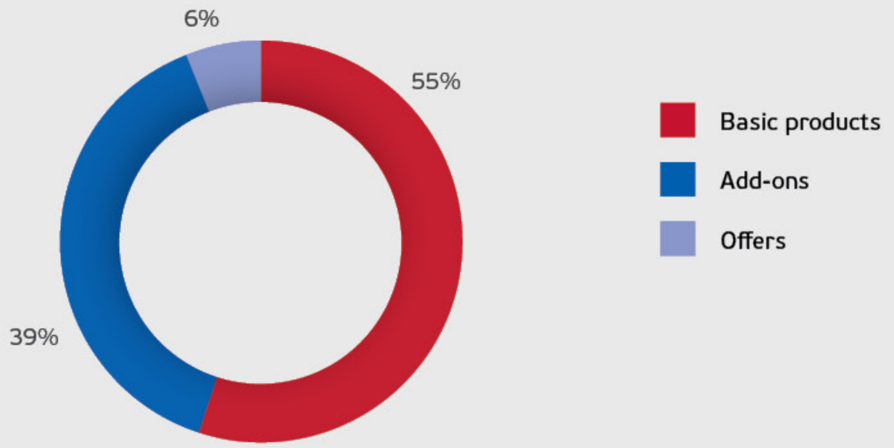
Source: EETT

Chart 1.81: Breakdown of commercially available products per operator, 2019



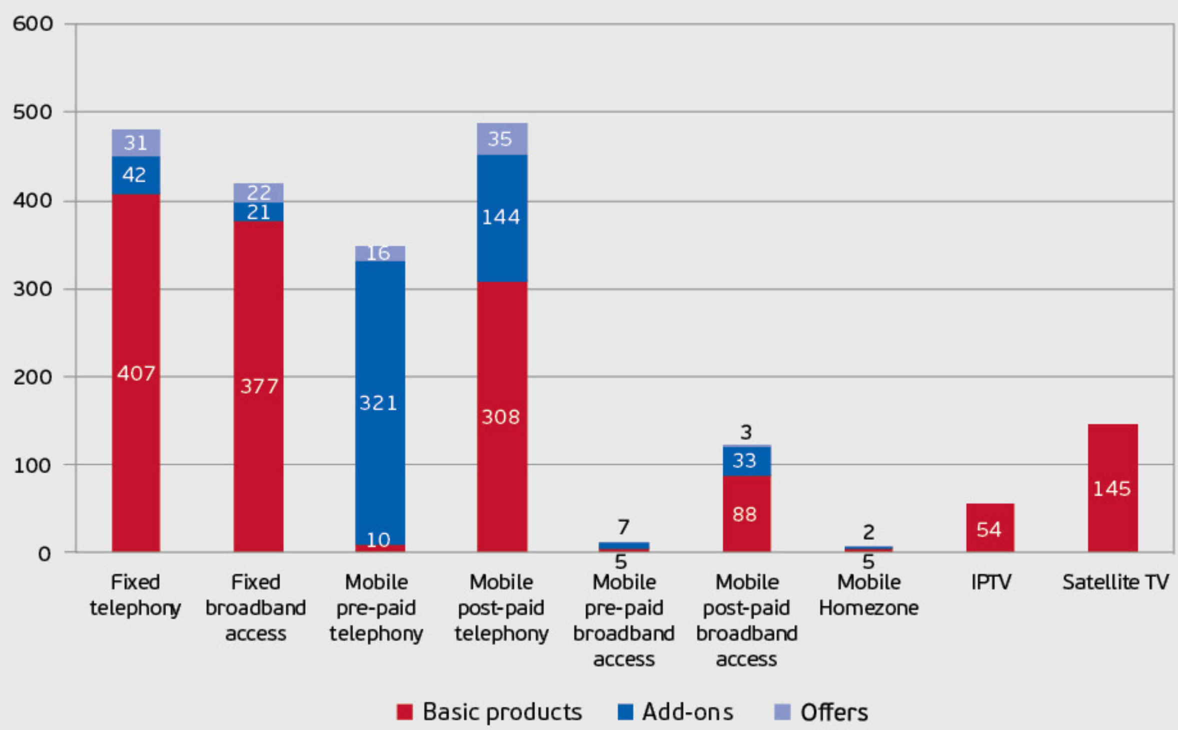
Source: EETT

Chart 1.82: Breakdown of products per product type, 2019



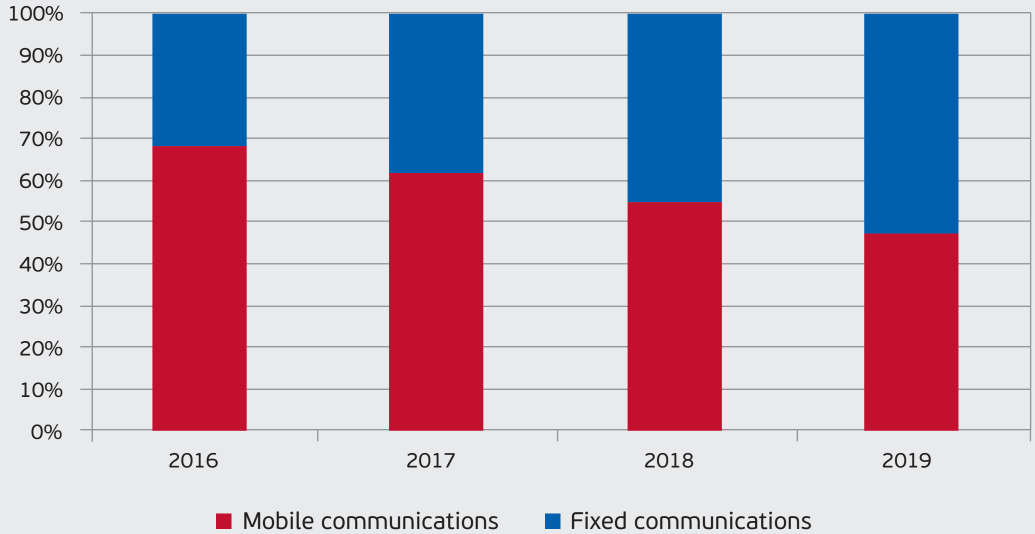
Source: EETT

Chart 1.83: Number of products per service, 2019



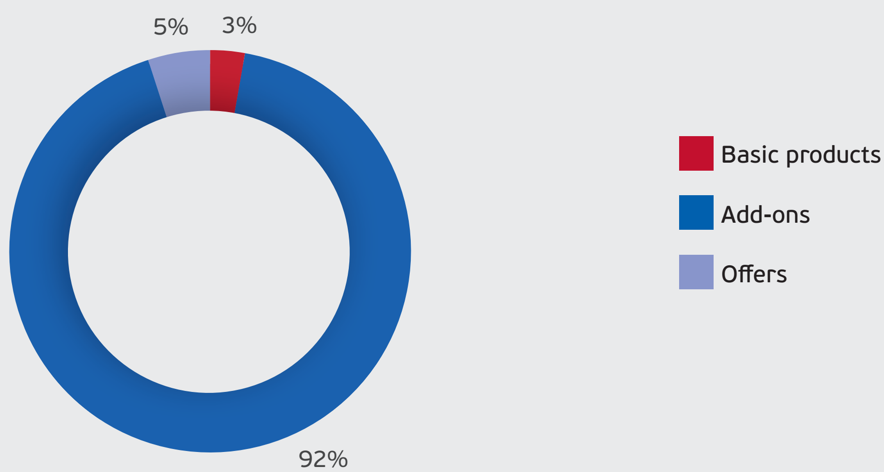
Source: EETT

Chart 1.84: Fixed versus mobile communications products



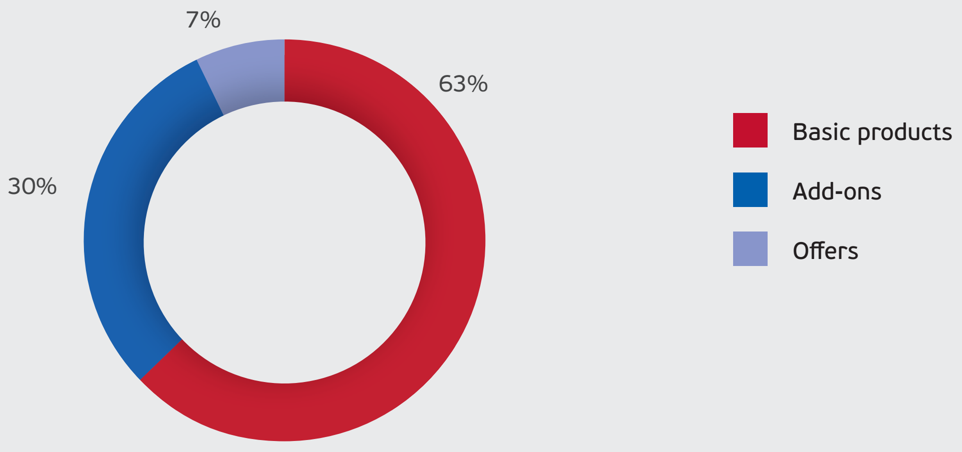
Source: EETT

Chart 1.85: Breakdown of mobile pre-paid telephony products per product type, 2019



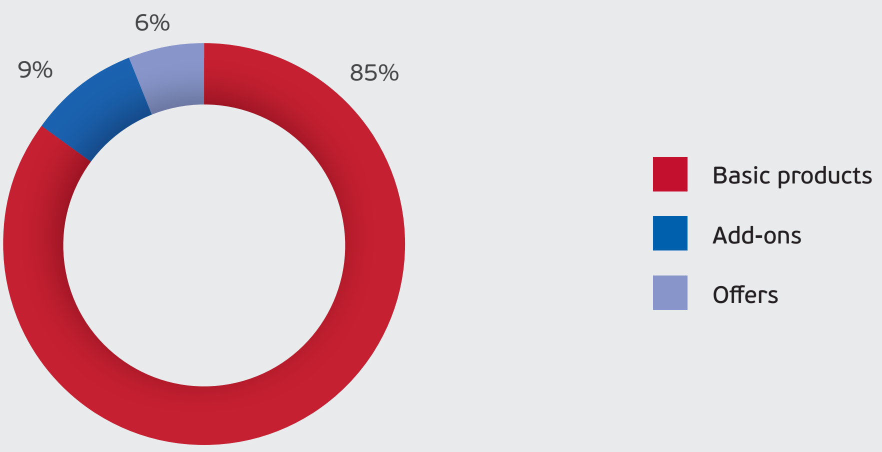
Source: EETT

Chart 1.86: Breakdown of mobile post-paid telephony products per product type, 2019



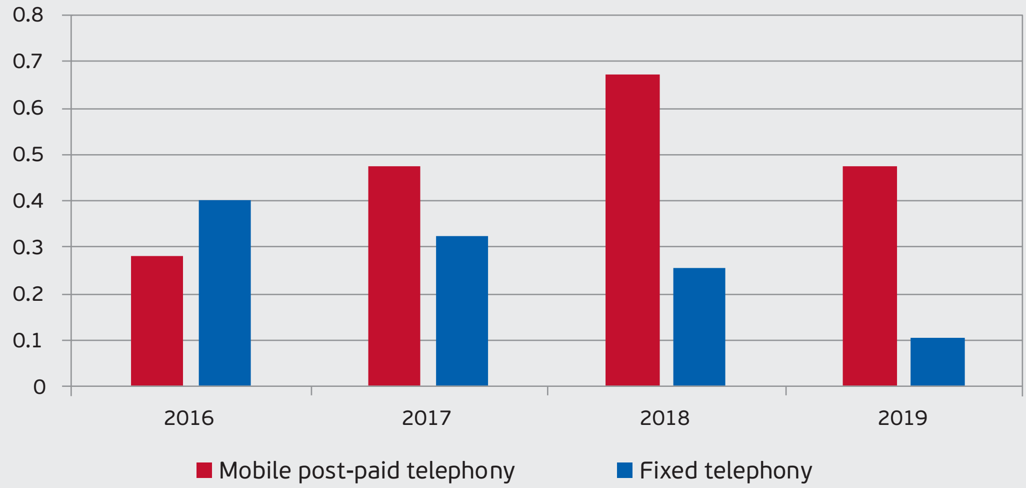
Source: EETT

Chart 1.87: Breakdown of fixed telephony products per product type, 2019



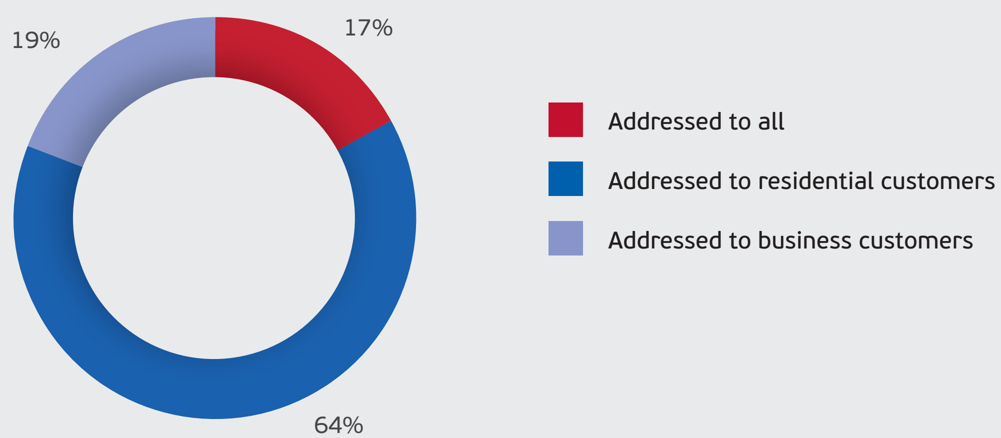
Source: EETT

Chart 1.88: Ratio of add-ons to basic products for mobile post-paid and fixed telephony



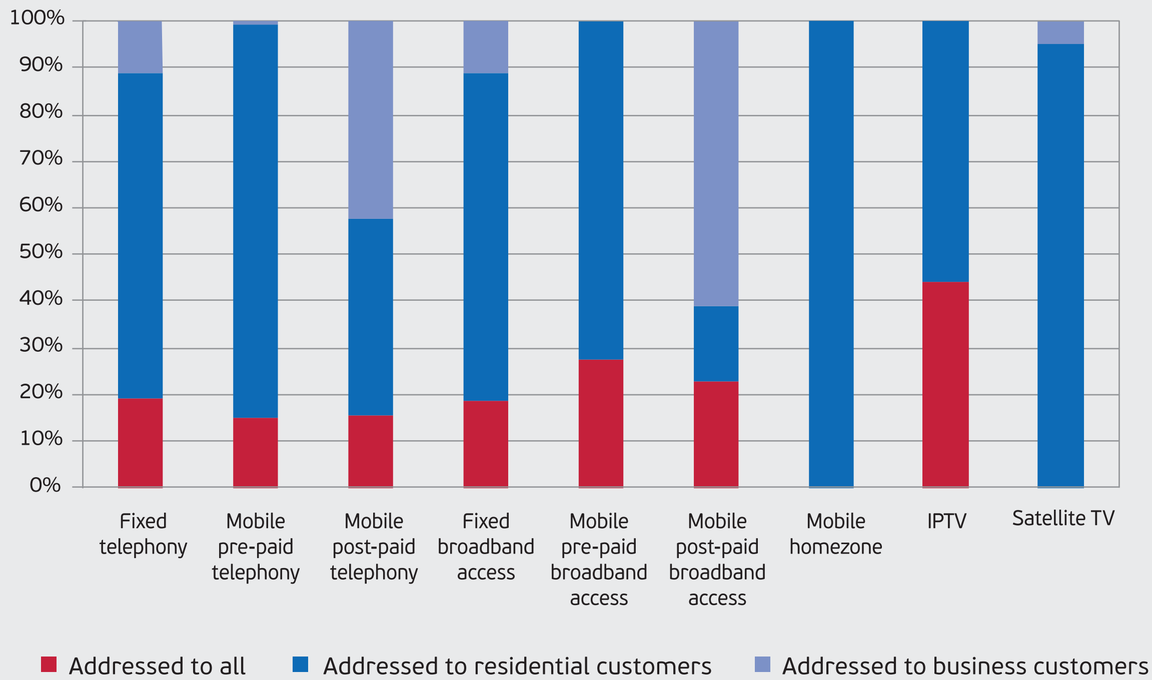
Source: EETT

Chart 1.89: Target-markets of telecommunications products, 2019



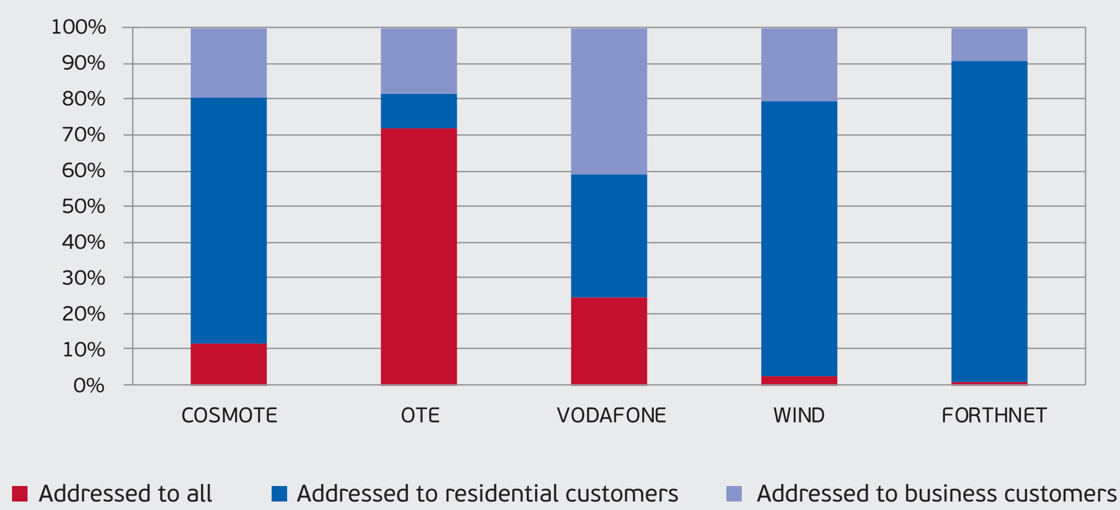
Source: EETT

Chart 1.90: Breakdown of products per service in the target-markets, 2019



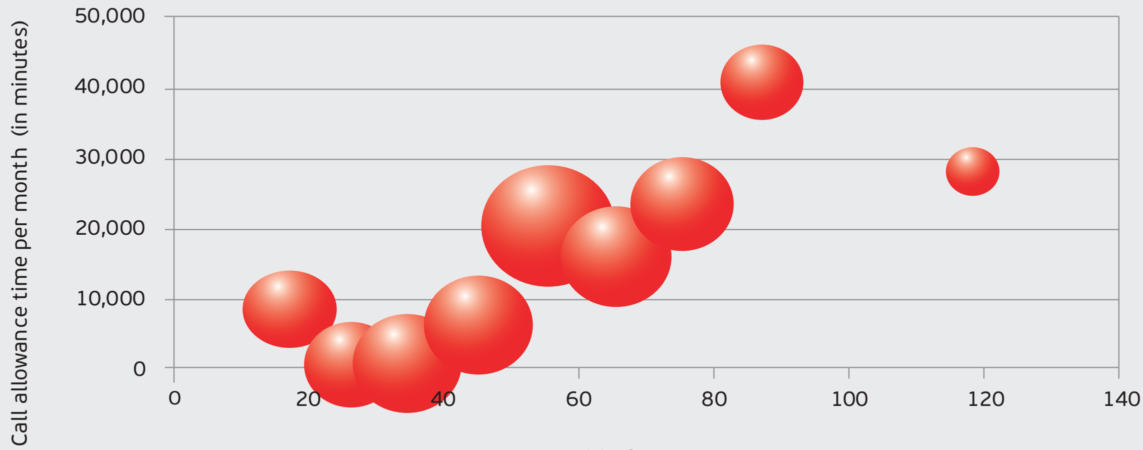
Source: EETT

Chart 1.91: Breakdown of products per operator in the target-markets, 2019



Source: EETT

Chart 1.92: Product concentration for mobile post-paid telephony, 2019



Source: EETT

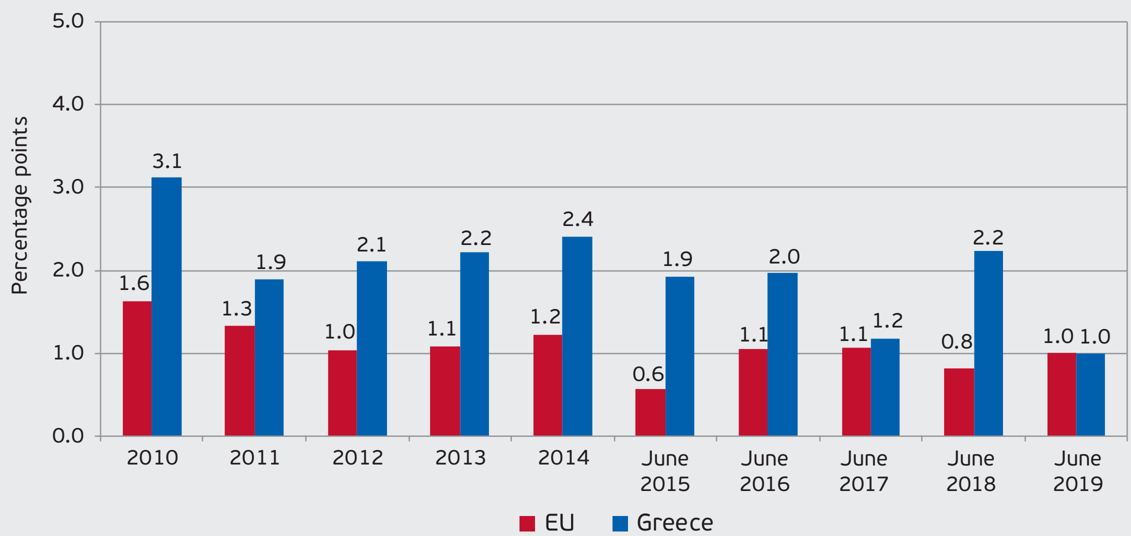
1.2.11. Comparison of Greek and European market indicators[35]

Fixed broadband

The penetration of fixed broadband in the population, i.e. the number of broadband connections per 100 people, continued to increase in Greece, though at a slower rate compared to the previous years (Chart 1.93).

In June 2019, the penetration of fixed broadband in the EU was 35.6% (Chart 1.94) compared to 34.5% in June 2018. The respective figures for Greece were 37.1% and 36.2%, increased by one percentage point (Chart 1.95) and thus ranking Greece in the 11th

Chart 1.93: Change in fixed broadband penetration in Greece and the EU



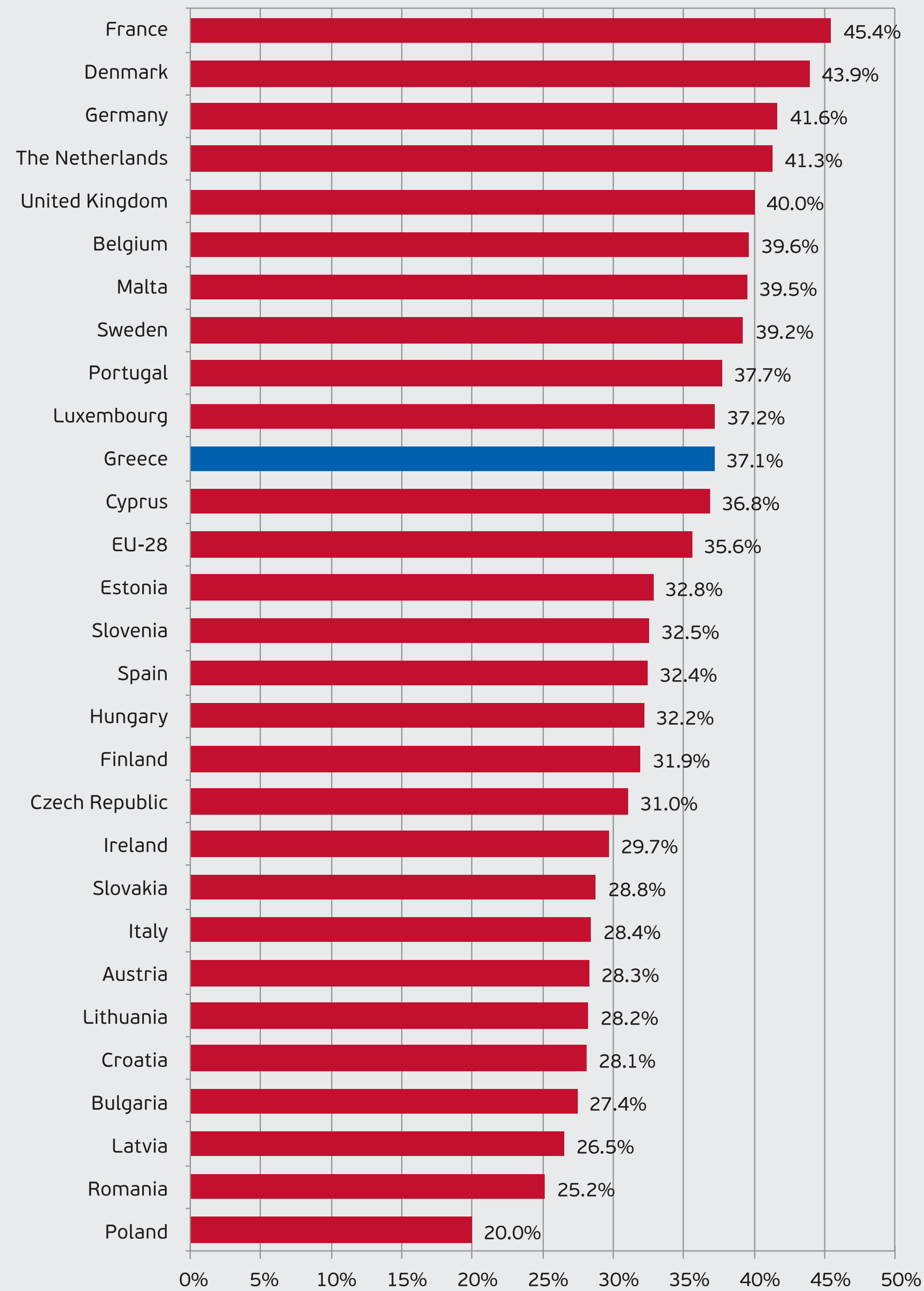
Source: EETT (based on Digital Economy & Society Index data)

35. Based on charts published in Digital Agenda Scorecard.

position among the EU member states. It should be mentioned that the penetration of fixed broadband in Greece has exceeded the respective European average already by mid-2016 (Chart 1.96).

Additionally, the demand for high-speed broadband access kept on growing, and as a result, the EU broadband connections with advertised download access speeds of at least 30 Mbps in June 2019 accounted for about 63% of total connections. Greece however, is still among the last ranking countries with 23.3%, compared to 15.4% in June 2018 (Chart 1.97). Therefore,

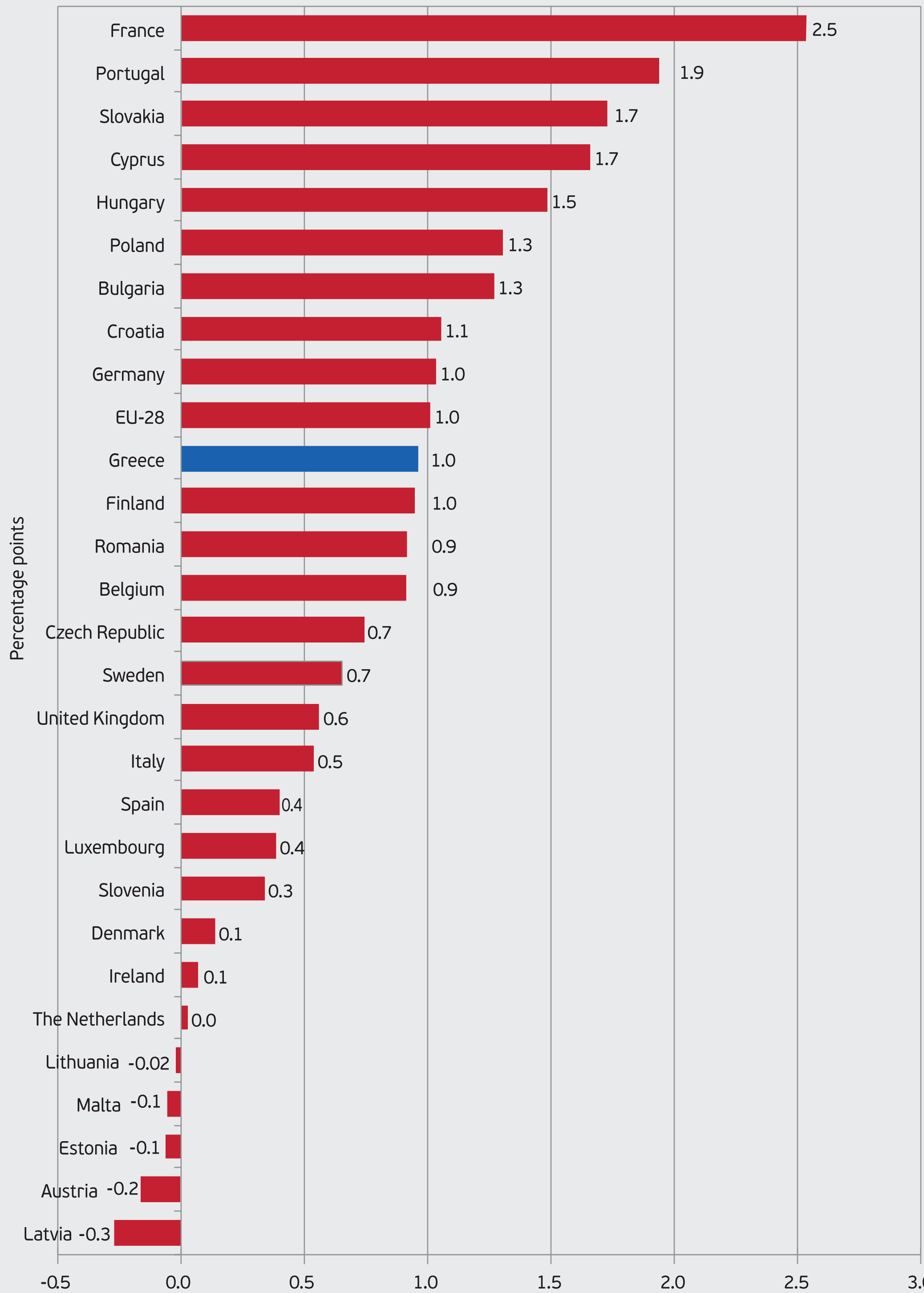
Chart 1.94: Fixed broadband penetration in the EU, June 2019



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

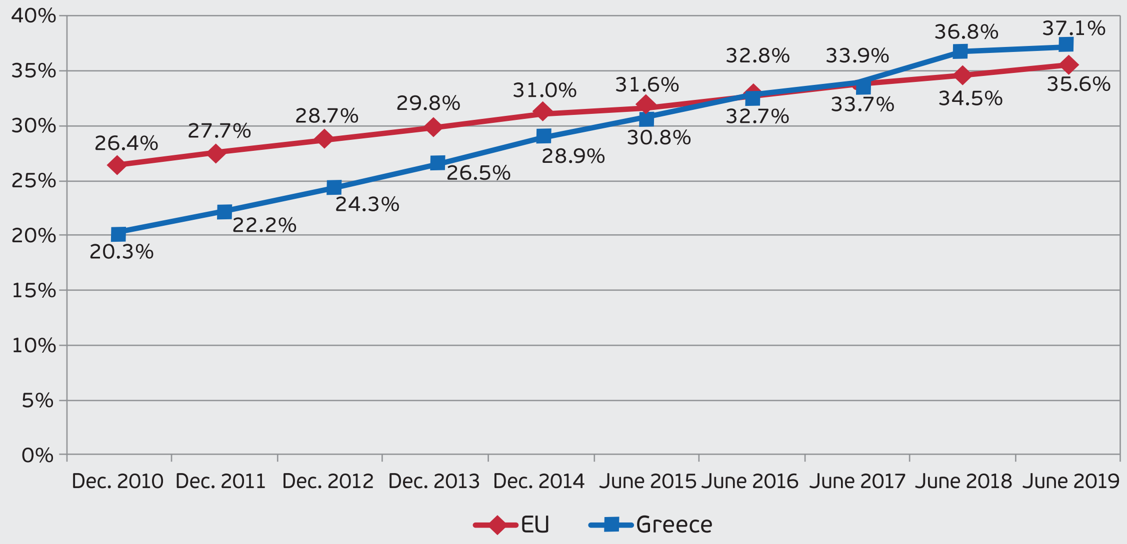
the challenge of convergence with the EU on issues of fixed broadband penetration still persists, since by mid-2019 the gap from the EU average was broadened compared to mid-2018.

Chart 1.95: Fixed broadband penetration change in the EU, June 2019



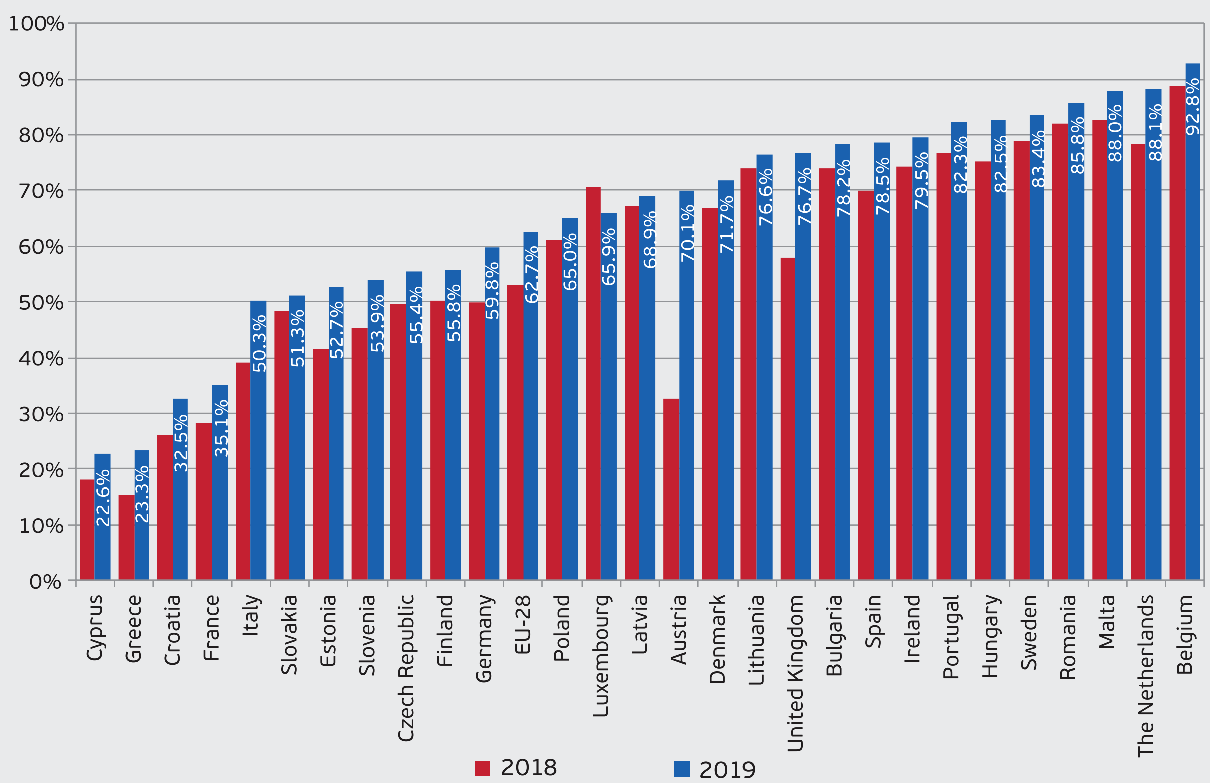
Source: EETT (based on Digital Economy & Society Index data)

Chart 1.96: Evolution of fixed broadband penetration in Greece and the EU



Source: EETT

Chart 1.97: Percentage of lines with advertised download access speeds ≥ 30 Mbps in the EU, June 2019



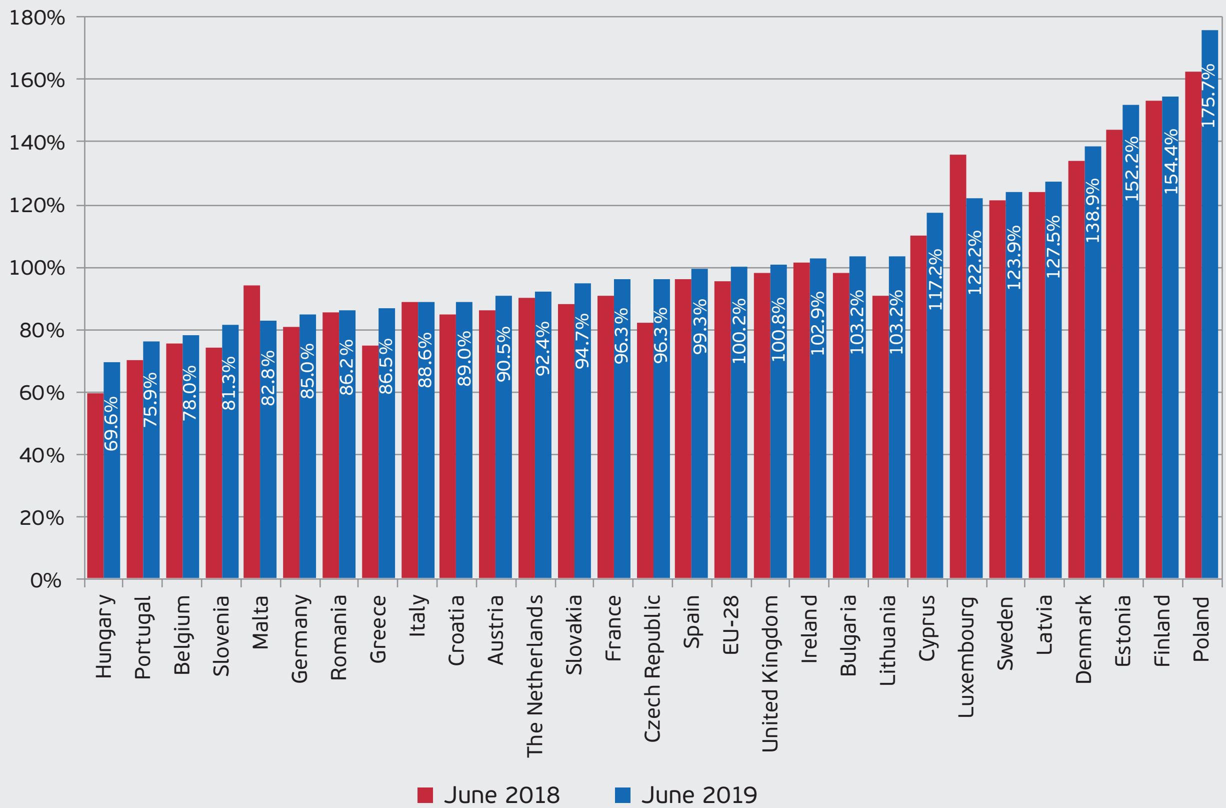
Source: EETT (based on Digital Economy & Society Index data)

Mobile broadband

The mobile broadband penetration in the EU continued its steady upward trend, reaching 100.2% (connections per 100 people) in June 2019, versus 95.7% in June 2018 (Chart 1.98). In 12 countries (United Kingdom, Ireland, Bulgaria, Lithuania, Cyprus, Luxembourg, Sweden, Latvia, Denmark, Estonia, Finland and Poland) the mobile broadband penetration was more than 100%.

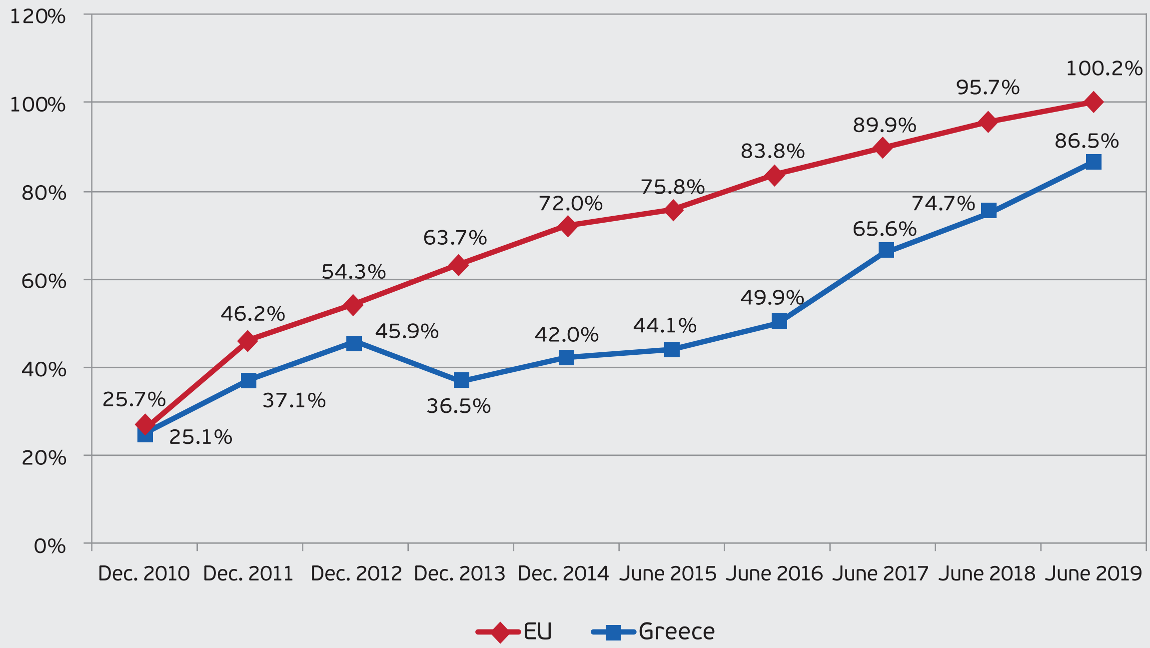
Greece, with a 86.5% penetration, is among the last ten countries with the lowest mobile broadband penetration. However, the penetration in Greece increases faster that the EU average penetration, as within a year it has increased by 11.8 percentage points versus 4.4 percentage points of the EU (Chart 1.99). This current trend suggests that the convergence with the EU is imminent within the next two years.

Chart 1.98: Mobile broadband penetration in the EU (connections per 100 people), June 2019



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

Chart 1.99: Evolution of mobile broadband penetration in Greece and the EU (connections per 100 people)



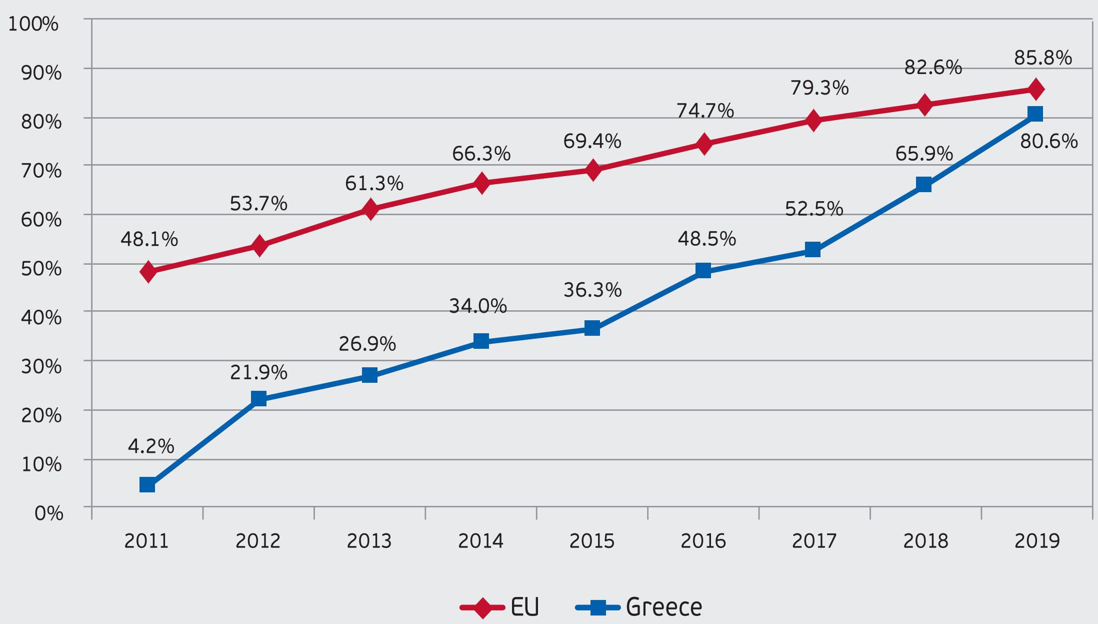
Source: EETT (based on Digital Economy & Society Index data)

Network infrastructure deployment

The broadband coverage of the NGAs in the EU reached 85.8% of households by mid-2019, versus 82.6% of mid-2018 (Chart 1.100). Greece however, with 80.6% coverage, is below the European average but seems to bridge the gap since it has narrowed its distance to the EU average to 5.2 percentage points within a year, compared to 16.7 percentage points of mid-2018.

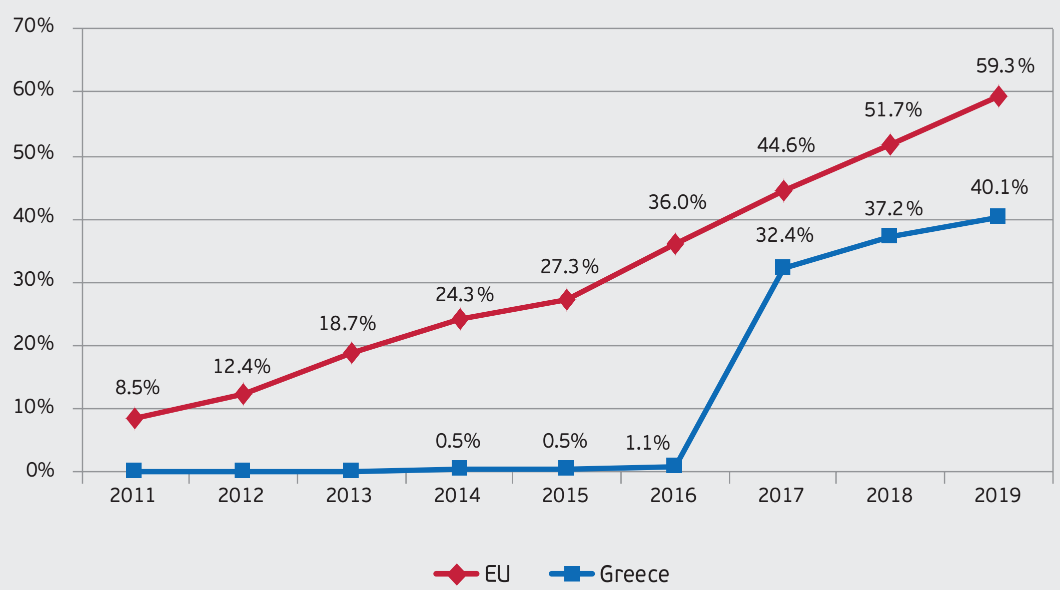
Regarding the coverage of rural areas with fixed broadband NGAs, Greece is still lagging behind the EU average, with its coverage at 40.1% compared to 59.3% of the respective European one (Chart 1.101). It is also noted that the 4G coverage of residential areas in the EU (coverage by at least one operator) reached 99.4% in June 2019, with Greece being slightly behind with 99.1% (Chart 1.102).

Chart 1.100: NGA broadband coverage in Greece and the EU



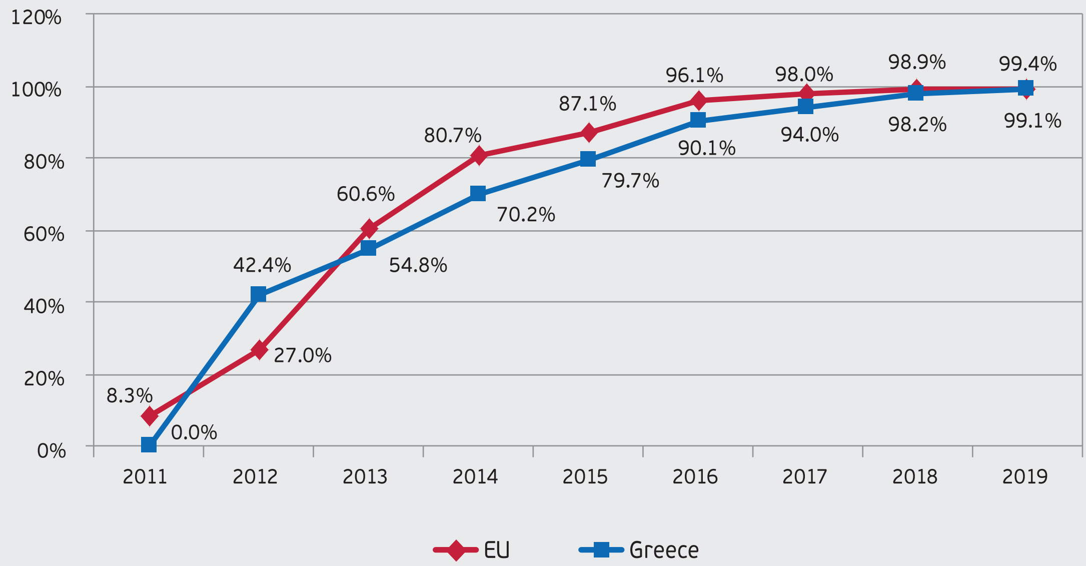
Source: EETT (based on Digital Economy & Society Index data)

Chart 1.101: Rural NGA broadband coverage in Greece and the EU



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

Chart 1.102: 4G coverage in residential areas in Greece and the EU

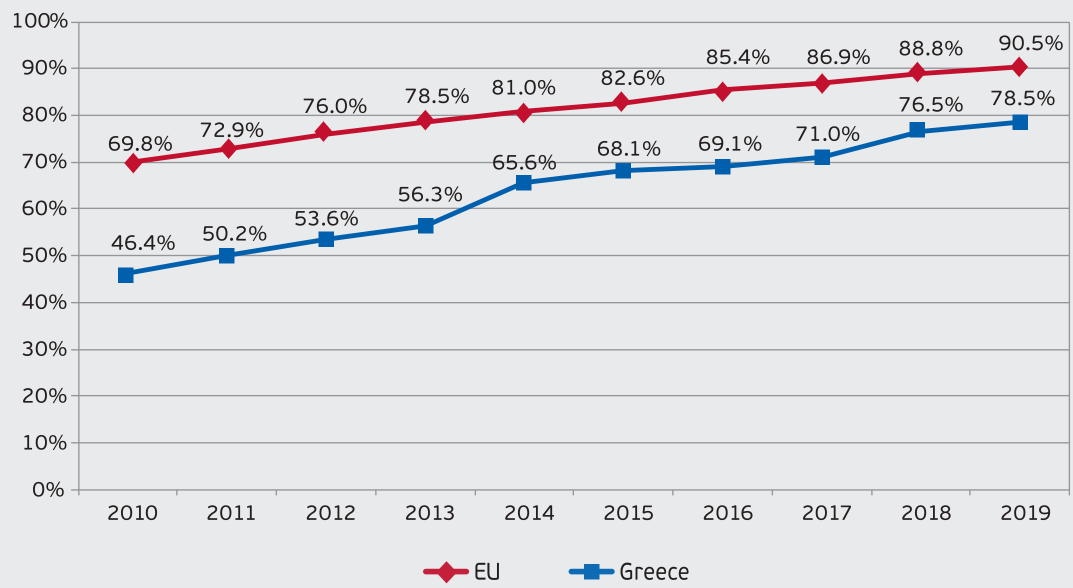


Source: EETT (based on Digital Economy & Society Index data)

Internet access

In 2019, 78.5% of Greek households had access to the Internet, with the respective European average at 90.5%. As a result, Greece lags behind by 12 percentage points from the EU. This record is similar to last year, when the difference from the EU average was 12.3 percentage points (Chart 1.103).

Chart 1.103: Evolution of Internet penetration in households in Greece and the EU



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

02

Postal services

2.1. The Greek postal market

In 2019, 540[36] companies operated in total in the Greek postal market (Graph 2.1 and Chart 2.1). More precisely, a) in the Universal Services (US) sector operate the USP (Hellenic Post-ELTA) and nine private companies holding an Individual License and b) in the courier services sector operate 539 companies under General Authorization.

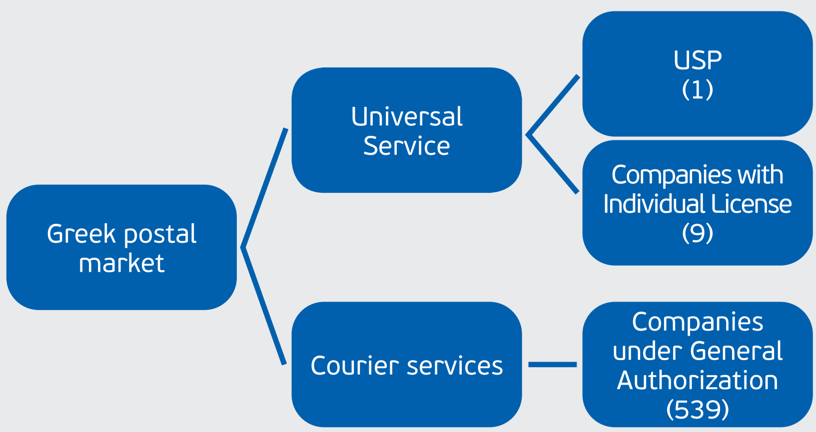
2.2. Evolution of key figures of the postal services market in Greece

2.2.1. Financial data from the published financial statements

The postal services sector showed a positive trend in 2019, as presented in Chart 2.2.

The turnover of postal services sector showed

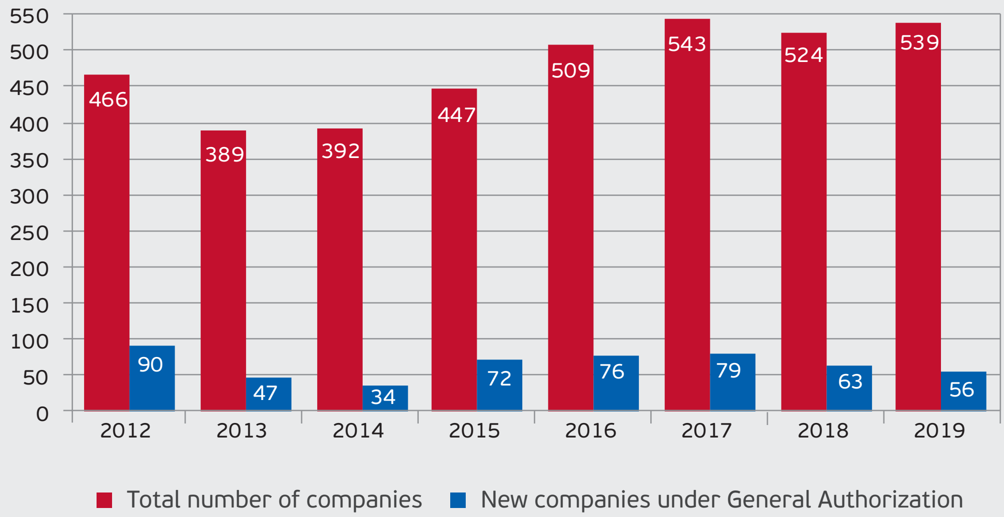
Graph 2.1: Number of companies in the Greek postal market



Source: EETT (Register of postal services providers)

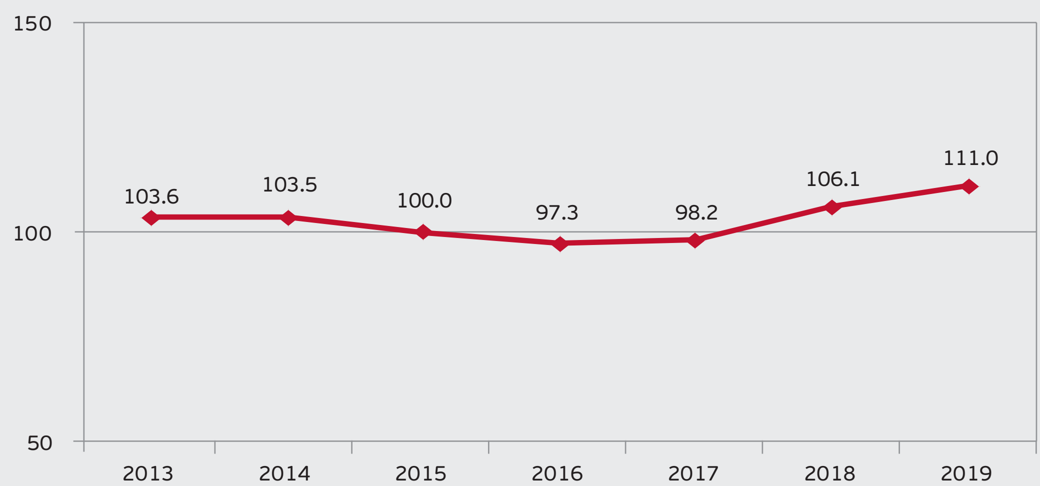
36. There are some companies holding simultaneously an Individual License and a License under General Authorization.

Chart 2.1: Number of companies under General Authorization



Source: EETT (Register of postal services providers)

Chart 2.2: Evolution of the market turnover index for postal and courier activities (base year 2015)



Source: HELLASTAT

Note: The presented data is corrected regarding the actual number of working days.

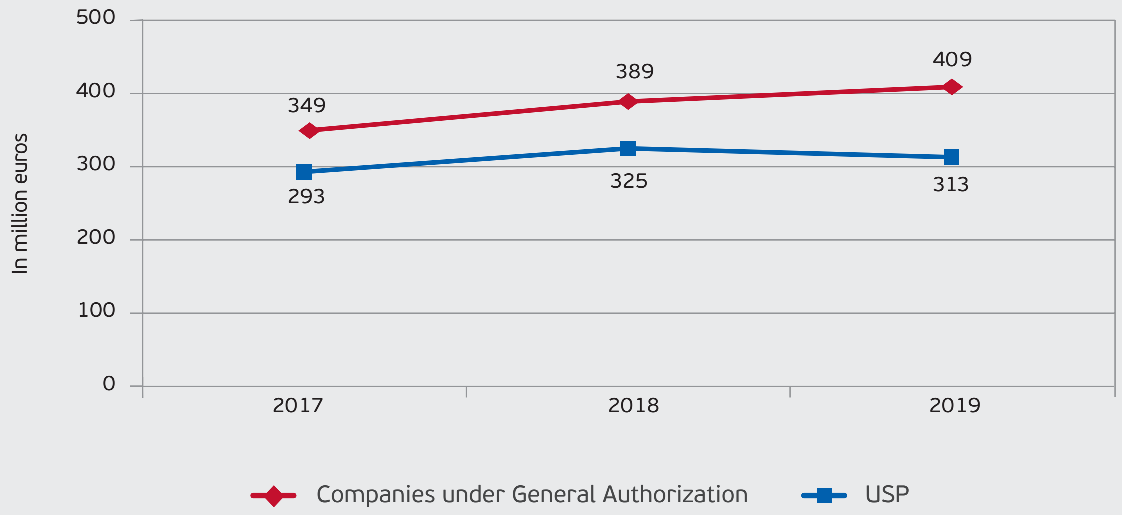
an upward trend compared to 2018, as it is indicated in Chart 2.3. The following analysis takes into account the published financial statements of the USP (ELTA) and nine of the largest companies operating in the courier sector (under General Authorization). It is noted that for one of these companies, the data included in the analysis is an estimate as it was not available until the drafting of this report.

In 2019, the postal companies under General Authorization showed an improving trend on turnover by 5% compared to the previous year, while the USP's turnover decreased by 4% compared with the revised turnover of 2018.

The turnover and the key financial data relevant to the profitability of postal companies are listed in Table 2.1.

It is noted that the postal companies' turnover may include data from non-postal activities, since some companies under General Authorization, also, operate in other sectors of the economy. Consequently, there may be a discrepancy in relation

Chart 2.3: Turnover of postal companies



Source: Annual published financial statements

Table 2.1: Key financial data of postal companies, 2019 (in million euros)

	Turnover	Gross profit	Gross profit margin	Net profit	Net profit margin
USP	313	8	2.5%	7.8	2.5%
Companies under General Authorization	409	60	14.8%	7.6	1.9%

Source: Annual published financial statements

to the amount of revenues analyzed below (data derived from the postal sector companies through EETT's questionnaires), which only concerns the postal market.

Balance sheet analysis

Regarding the financial structure of postal sector companies, the below mentioned indexes show the balance of capital between current assets and liabilities (Table 2.2). In 2019, the companies under General Authorization held the majority of their capital (75%) in current assets, and so did the USP (67%).

Regarding the structure of liabilities, the obligations of the companies under General Authoriza-

Table 2.2: Assets' share in postal market

	2017	2018	2019
Companies under General Authorization			
Fixed assets	15%	18%	22%
Current assets	84%	81%	75%
Other assets	1%	1%	3%
Total assets	100%	100%	100%
USP			
Fixed assets	28%	28%	33%
Current assets	72%	72%	67%
Other assets	0%	0%	0%
Total assets	100%	100%	100%

Source: Annual published financial statements

Table 2.3: Liabilities' share in postal market

	2017	2018	2019
Companies under General Authorization			
Shareholder's equity	20%	22%	21%
Liabilities	78%	77%	78%
Other liabilities	1%	1%	1%
Total liabilities	100%	100%	100%
USP			
Shareholder's equity	-12%	-16%	-10%
Liabilities	112%	116%	110%
Other liabilities	0%	0%	0%
Total liabilities	100%	100%	100%

Source: Annual published financial statements

tion accounted for 79% of total liabilities (Table 2.3). USP's equity is negative due to a number of reasons, the last years, such as financial data, value reduction, tangible assets write-downs and the review of demands from the provision of US. According to the USP's financial statements, the Board of Directors plans a series of actions aiming to strengthen the company's turnover and reduce operational costs.

Ratio analysis

The main ratios derived from the analysis of the balance sheets of the postal companies are presented in Table 2.4.

The liquidity ratio for the companies under General Authorization remained higher than one, suggesting that they could meet short-term liabilities by means of their current assets.

Table 2.4: Postal market financial indicators

	2017	2018	2019
Liquidity ratio			
USP	0.96	0.92	0.82
Companies under General Authorization	1.15	1.24	1.22
Turnover ratio			
USP	0.64	0.74	0.67
Companies under General Authorization	2.16	2.19	2.14
Day sales outstanding ratio			
USP	331	293	285
Companies under General Authorization	103	87	85
Return on equity capital			
USP	27.6%	21.8%	-16.4%
Companies under General Authorization	44.8%	38.8%	18.7%

Source: Annual published financial statements

In 2019, the turnover ratio remained higher than one for companies under General Authorization, due to their current assets intensive character (mainly receivables). The respective USP index remained below one, due to its capital intensity and requirements of fixed assets high value.

The day sales outstanding ratio for companies under General Authorization remained, in 2019, almost at the same level as in the previous year. The USP's corresponding index is slightly improved and remained in a particularly high level. This ratio shows how effectively the company is managing receivables as well as the degree of their liquidity.

The return on equity index is a function of net profit margin and the speed of recycling shareholder's equity. The return on equity capital ratio remained at a satisfactory level for companies under General Authorization over the previous year. The corresponding index for the USP is negative due to negative shareholder's equity.

2.2.2. Postal revenues and volume

Total postal market

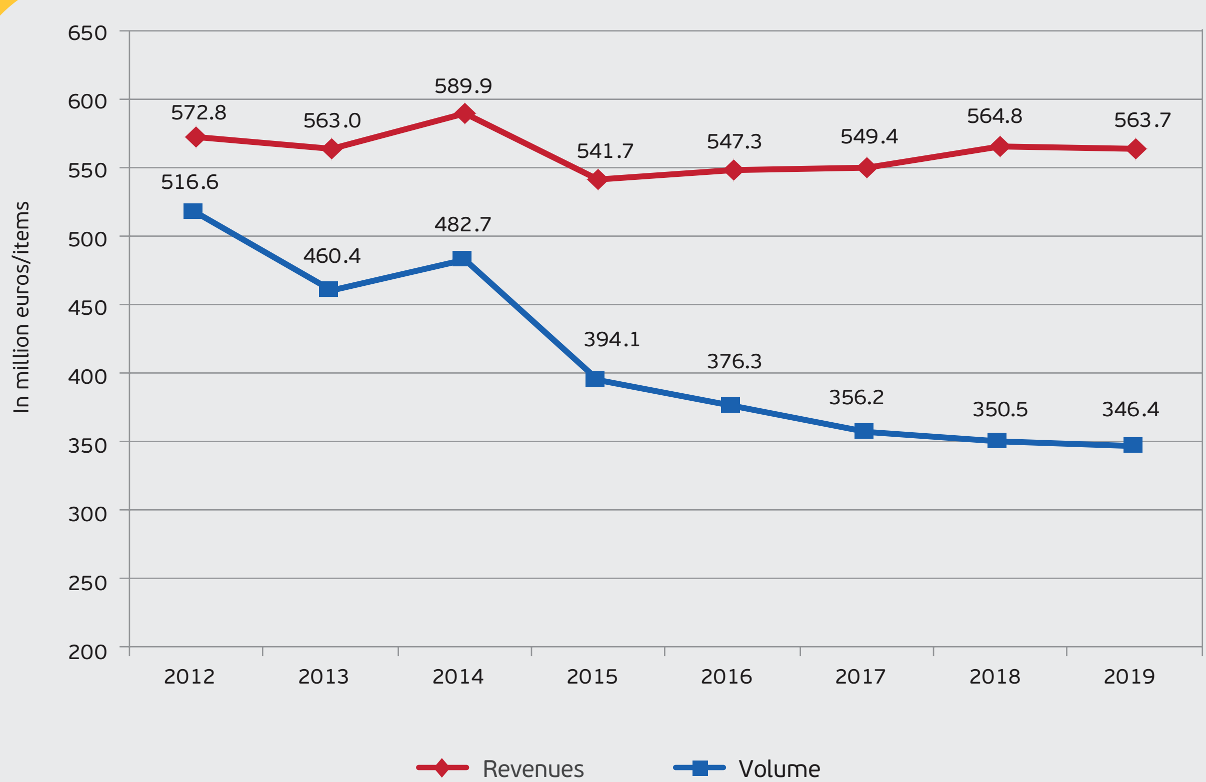
In 2019, the Greek postal market remained almost stable, as regards to revenues, while the volume of the postal items continued to drop, due to the continued drop of letters. Specifically, 346.4 million items were handled, generating revenues of 563.7 million euros.

The course of the postal market over the last eight years is shown in Chart 2.4.

Per market sector

The course of the three sectors that constitute the Greek postal market, thus Universal Service, Individual Licenses and General Authorizations, is shown in Tables 2.5 and 2.6. The total revenues of the postal market decreased by 0.2% in 2019, due to the revenues decline of USP by 5.9%. The to-

Chart 2.4: Revenues and volume of the Greek postal market



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

tal volume of postal items decreased in the same year, despite the volume growth of companies under General Authorization (9.9%) and those holding an Individual License (15.1%). The USP had also a significant decrease in the volume (-7.8%) of postal items.

Table 2.5: Postal market volume (in thousand items)

	2012	2013	2014	2015	2016	2017	2018	2019	2019/18
USP	461,361	402,818	398,325	308,300	278,523	248,452	231,607	213,496	-7.8%
Companies with Individual License	8,065	5,326	26,854	27,251	32,060	37,136	42,312	48,681	15.1%
Companies under General Authorization	47,162	52,278	57,563	58,578	65,752	70,613	76,624	84,199	9.9%
Total	**516,588**	**460,422**	**482,742**	**394,129**	**376,334**	**356,201**	**350,543**	**346,376**	**-1.2%**
Annual change	-12.5%	-10.9%	4.8%	-18.4%	-4.5%	-5.4%	-1.6%	-1.2%	-

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

Table 2.6: Postal market revenues (in thousand euros)

	2012	2013	2014	2015	2016	2017	2018	2019	2019/18
USP	317,486	282,919	272,658	227,417	207,313	195,059	185,273	174,307	-5.9%
Companies with Individual License	3,486	2,471	14,496	14,309	15,865	18,251	19,220	20,852	8.5%
Companies under General Authorization	251,814	277,628	302,753	299,954	324,086	336,110	360,274	368,575	2.3%
Total	**572,786**	**563,018**	**589,907**	**541,680**	**547,265**	**549,421**	**564,768**	**563,734**	**-0.2%**
Annual change	-10.7%	-1.7%	4.8%	-8.2%	1.0%	0.4%	2.8%	-0.2%	-

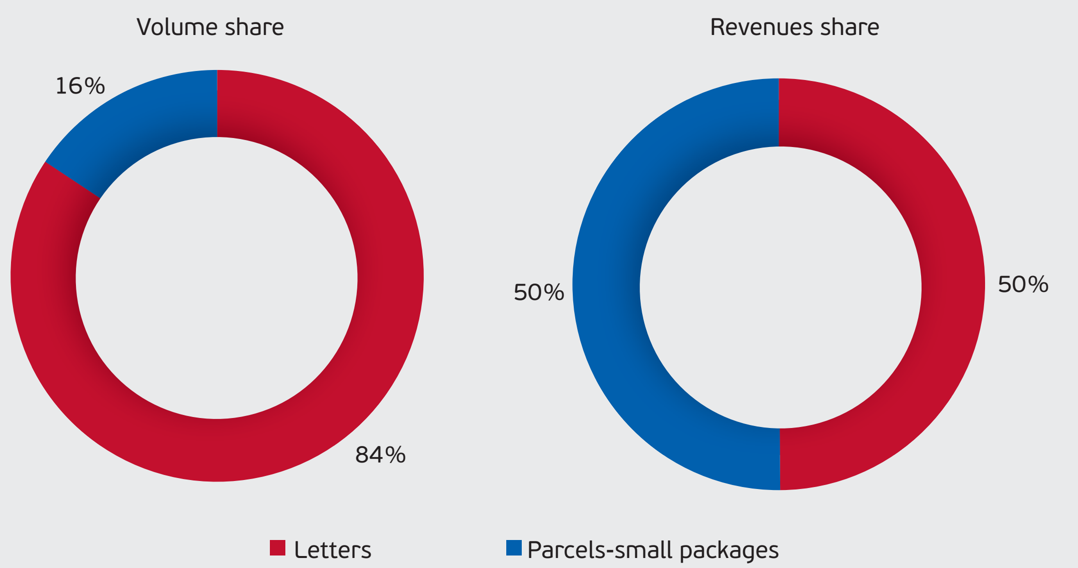
Source: EETT (based on data provided by postal services providers)

Per postal service

In 2019, the share of postal items, which are divided into letters and parcels (including small packages), is depicted in Chart 2.5.

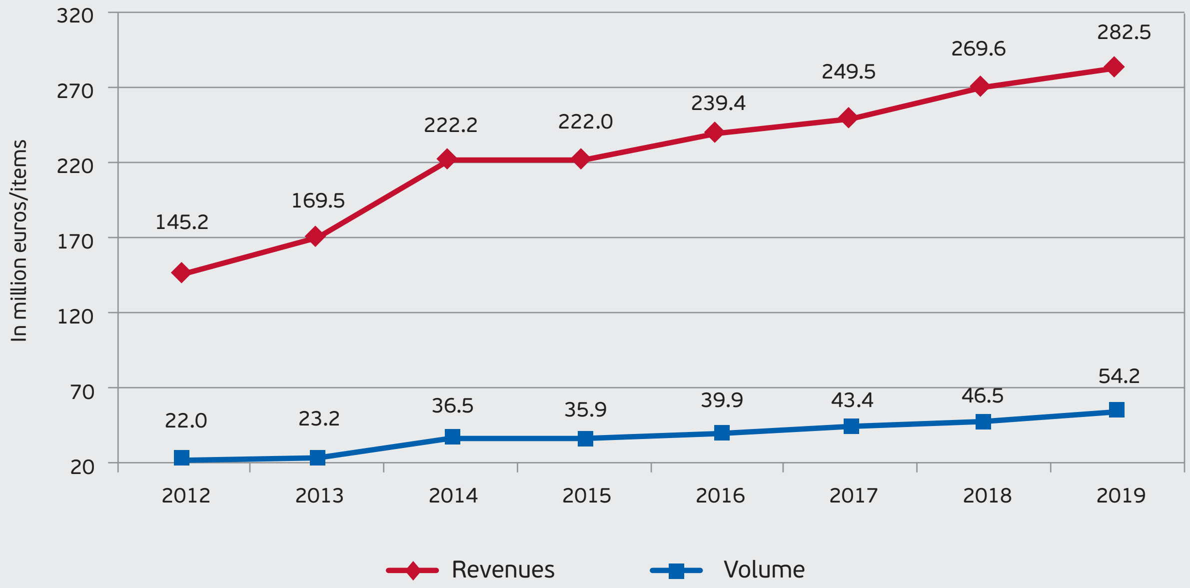
It's noteworthy that the parcels sector, which handled mere 16% of the total volume of postal items, accounted for 50% of total revenues. The over time growth of volume and revenues of parcels-small packages, as well as the respective decline of volume and revenues of letters, although letter mail accounted for 84% of total volume, are mainly due to the e-commerce growth and e-substitution of letter mail. The course of volume and revenues of the two postal services over the last eight years is presented in Charts 2.6 and 2.7 respectively.

Chart 2.5: Postal items volume and revenues shares, 2019



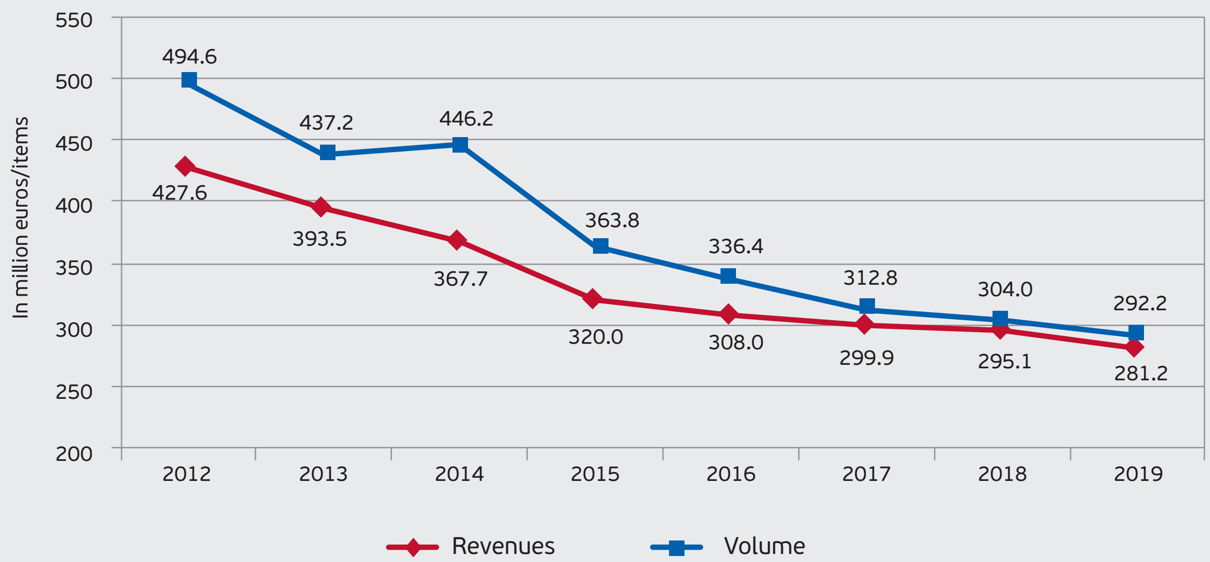
Source: EETT (based on data provided by postal services providers)

Chart 2.6: Volume and revenues of parcels-small packages



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

Chart 2.7: Volume and revenues of letters



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

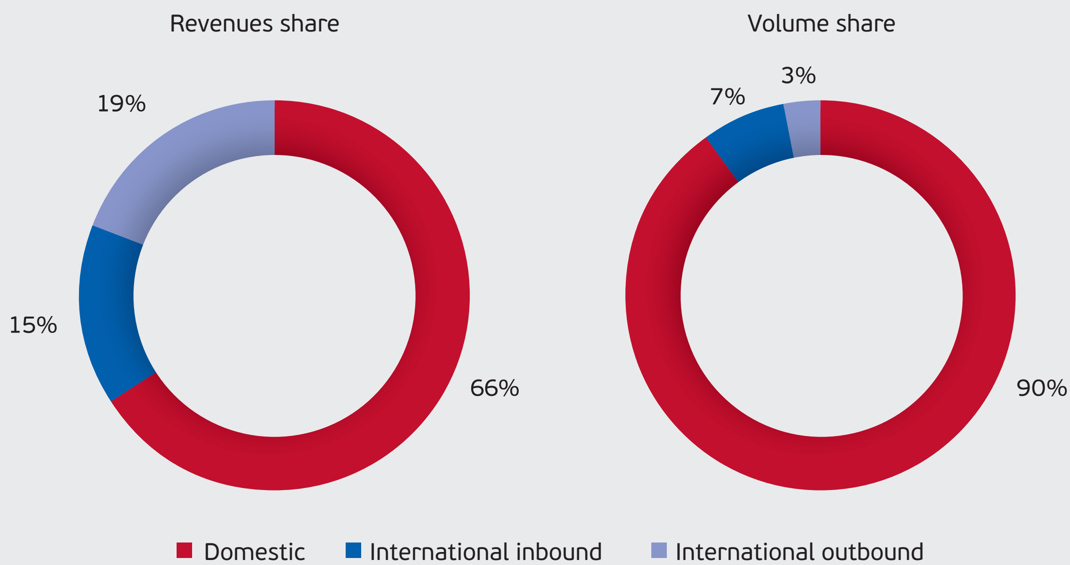
Per destination and origin of deliveries

In 2019, the highest percentage of revenues in the Greek postal market (66%) resulted from domestic traffic (90%). The revenues and volume shares of domestic, international inbound and international outbound items are depicted in Chart 2.8.

As shown in Chart 2.9, the majority of postal items was delivered from Attica (77%) and Macedonia (10%) to domestic and international destinations. These two regions were also the most popular destinations of the items being sent domestically and from international destinations. More specifically, 46% of postal items was delivered in Attica and 18% in Macedonia.

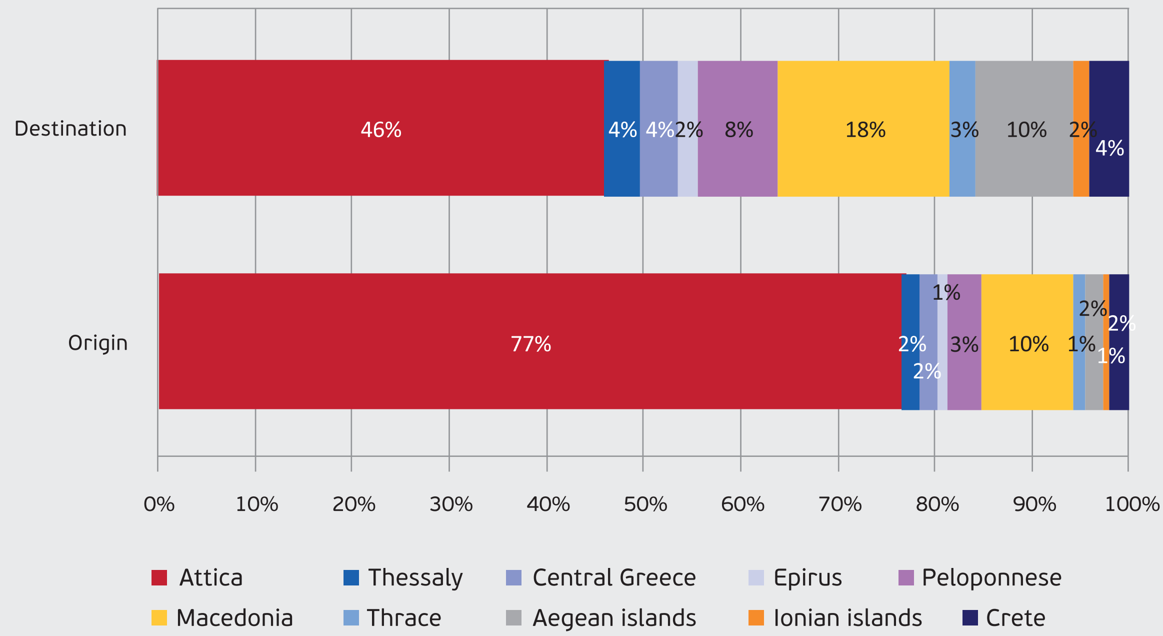
The largest volume of postal items delivered in Greece from international destinations was coming from the European Union (EU) (41%) and Asia (48%), while the deliveries of postal items to international destinations concerned mostly the EU (65%) and the USA-Canada (13%), as presented in Chart 2.10.

Chart 2.8: Revenues and postal items volume shares per domestic-international service, 2019



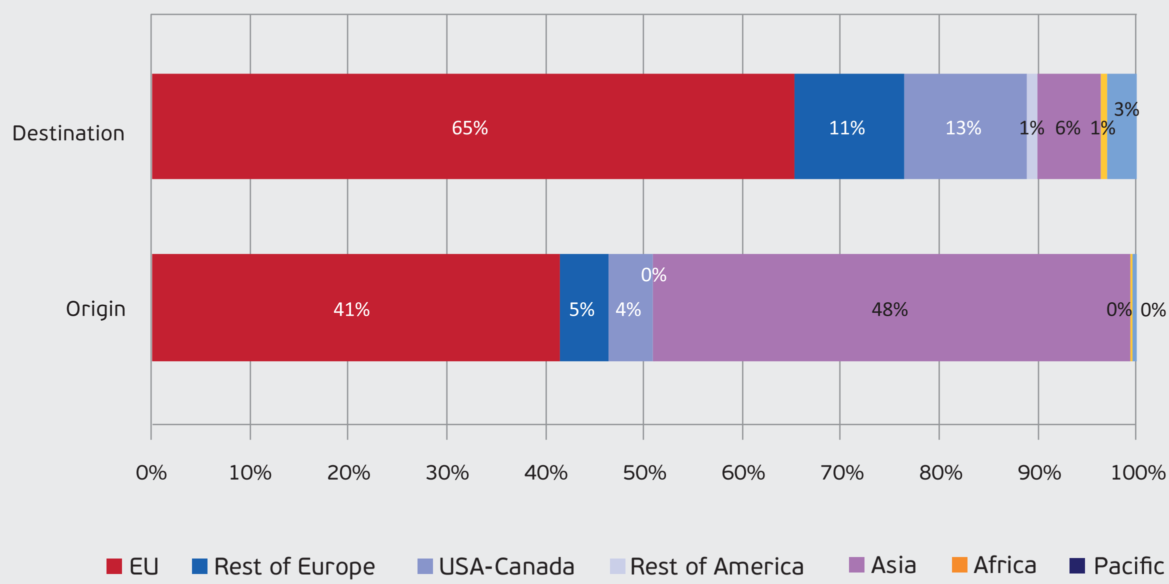
Source: EETT (based on data provided by postal services providers)

Chart 2.9: Destination and origin of postal items deliveries per geographic region, 2019



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

Chart 2.10: Destination and origin of international postal items deliveries, 2019



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

2.2.3. Employment and infrastructure of postal companies

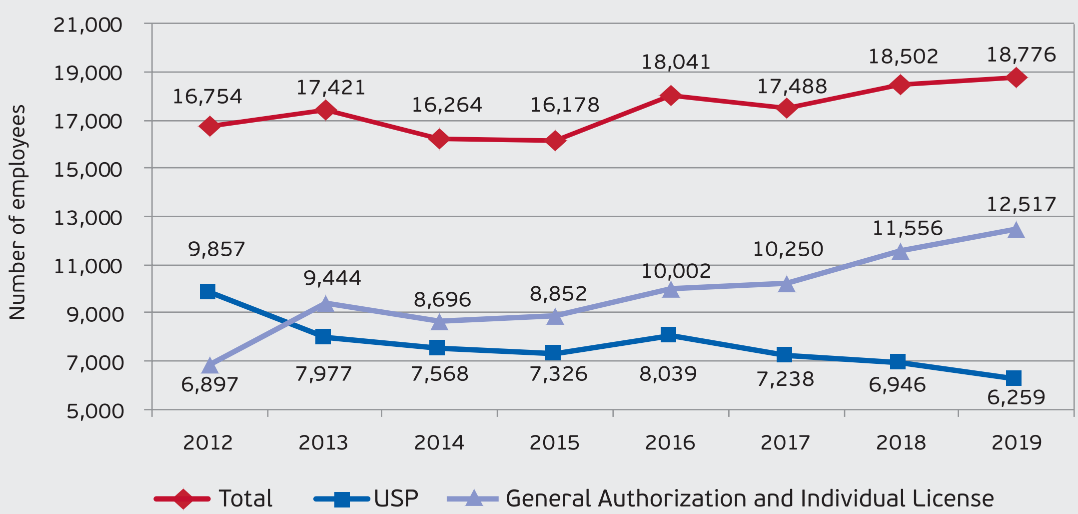
The total number of people employed in the Greek postal market, in 2019, reached 18,776, compared to 18,502 in 2018. The course of employment over the last eight years is shown in Chart 2.11. In particular, 33% of people was employed by the USP, while the remaining 67% was employed by the other postal services providers with Individual License or under General Authorization.

Regarding the infrastructure of postal services providers, in 2019, the USP owned 1,188 post offices and 2,511 vehicles, while the other providers with Individual License or under General Authorization owned 1,903 post offices and 7,286 vehicles.

2.2.4. Consumers complaints for postal companies

The over time evolution of consumers complaints submitted to postal companies is presented in Table 2.7.

Chart 2.11: Employment in the Greek postal market



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

Table 2.7: Evolution of consumers' complaints to postal companies

	2016	2017	2018	2019
Complaints to USP	15,772	18,646	13,533	10,404
Complaints to other companies with Individual License (except USP)	10,270	11,146	10,789	22,467[37]
Complaints to companies under General Authorization	6,868	10,347	12,004	13,709

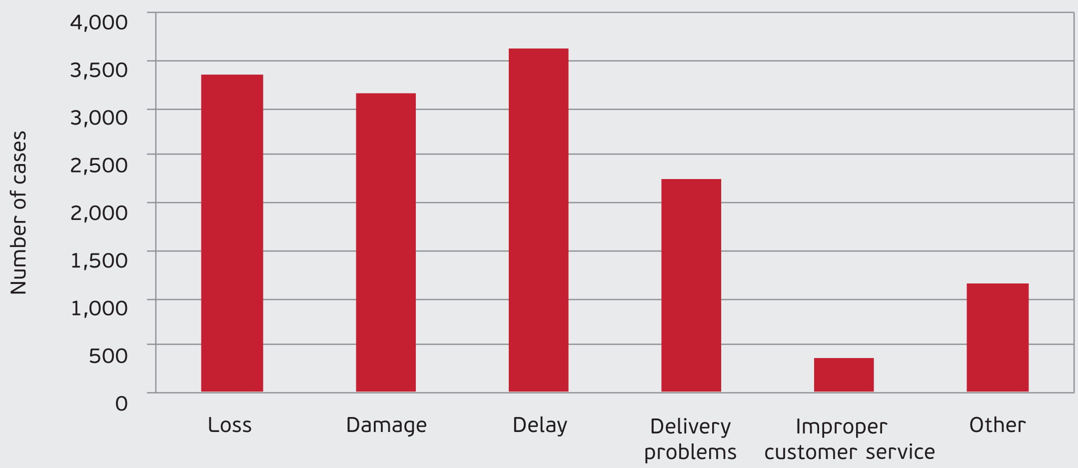
Source: EETT (based on data provided by postal services providers)

37. According to the postal company to which the complaints increased by around 10,000 compared to the previous year, this increase was caused due to incorrect delivery of addresses provided by the client.

The USP received 10,404 claims in 2019 (less by 23.1% than in 2018), referring to a total of 213.5 million handled postal items. All other companies with Individual License received 22,467 complaints referring to a total of 48.7 million handled items, while the companies under General Authorization received 13,709 complaints referring to a total of 84.2 million handled items.

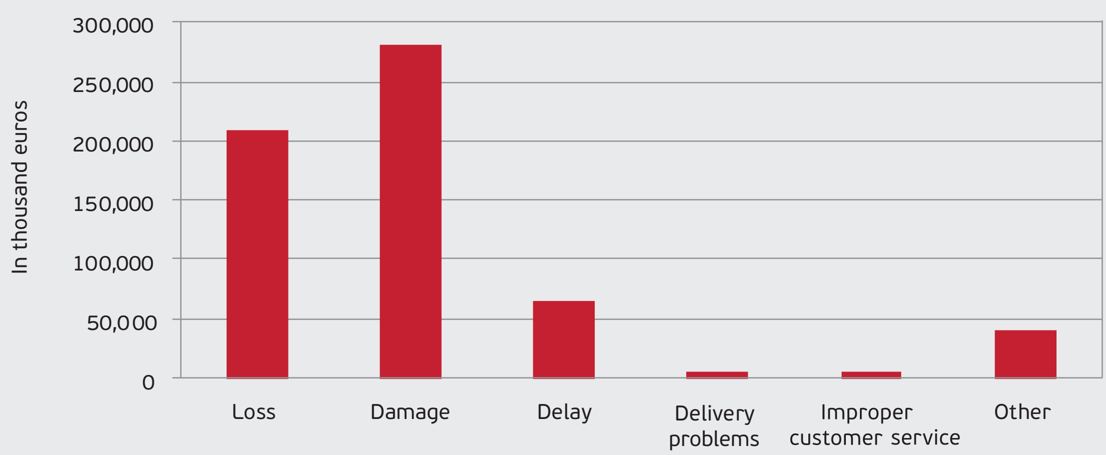
More specifically, the cases regarding differences resolution between consumers and companies under General Authorization referred mainly to delays, losses of postal items and damages (Chart 2.12). The compensations given in 2019 referred mainly to cases of loss and damage of postal items (Chart 2.13).

Chart 2.12: Classification of cases regarding differences resolution between consumers and companies under General Authorization, 2019



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

Chart 2.13: Compensations referring to cases of differences resolution between consumers and companies under General Authorization, 2019



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

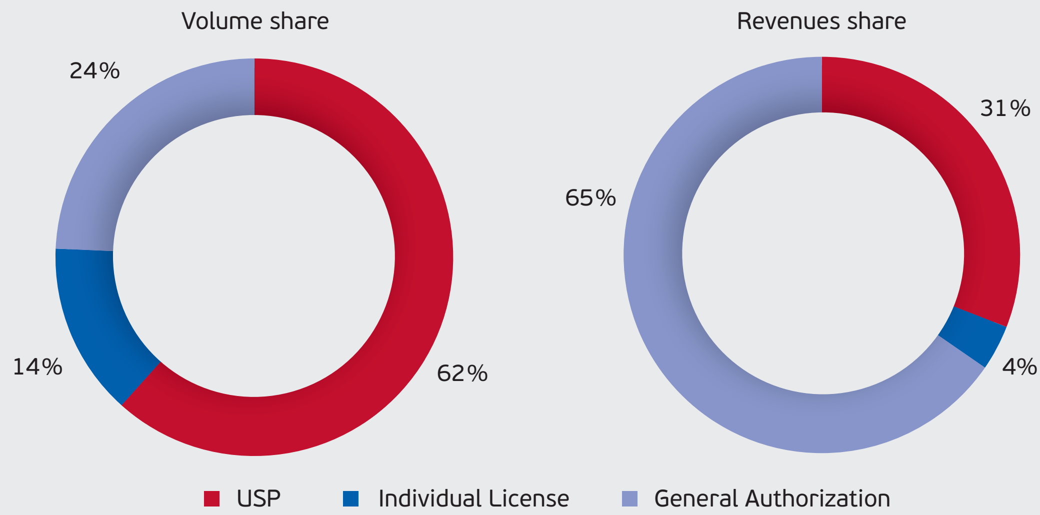
2.3. Competition in the postal market

2.3.1. Market shares

In 2019, the USP accounted for 62% of the market in terms of volume of postal items, while the postal services providers with Individual License and under General Authorization accounted for 14% and 24%, respectively. However, in terms of revenues, the postal companies under General Authorization held the largest market share (65%), followed by the USP which held 31% (Chart 2.14).

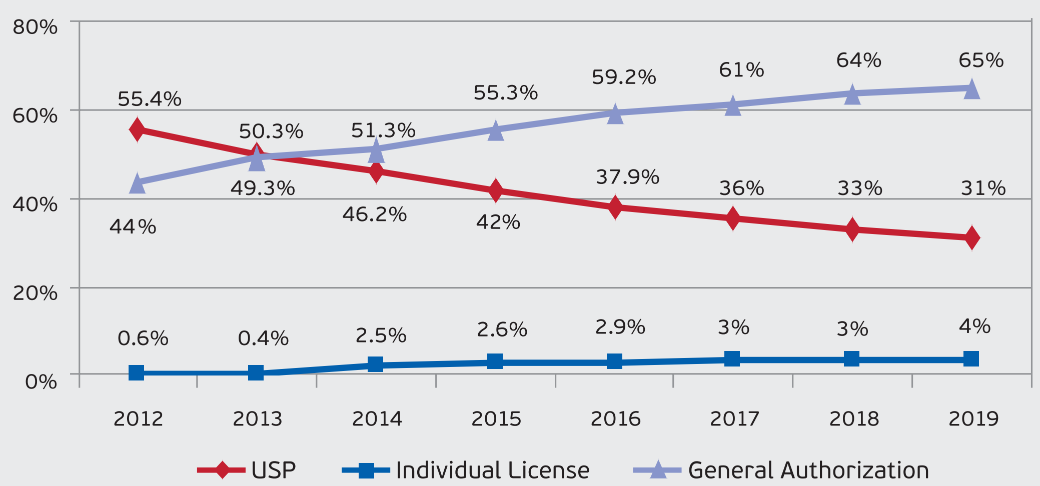
The USP's revenues share decreased over the last eight years, while the respective figure for providers with Individual License and under General Authorization has shown a steady upward trend (Chart 2.15).

Chart 2.14: Volume and revenues shares of postal services providers, 2019



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

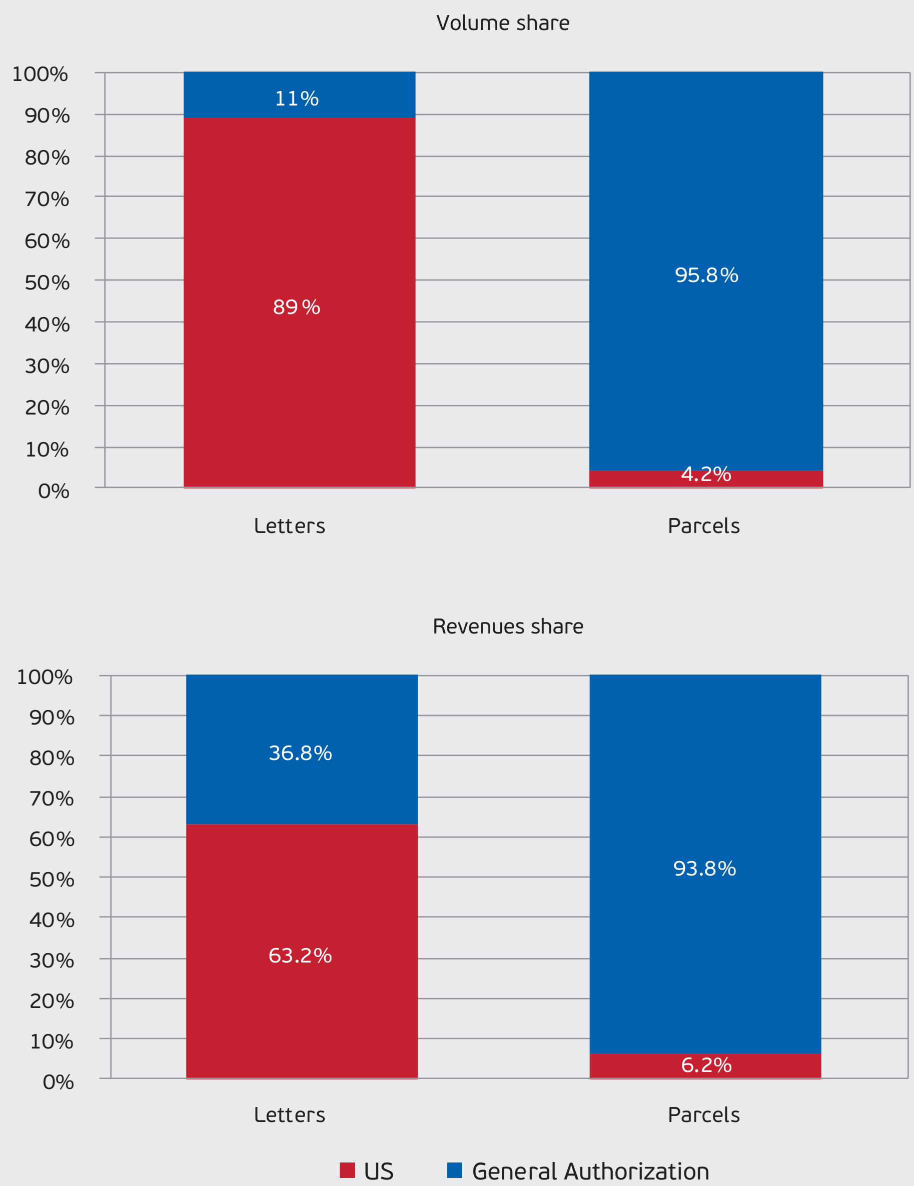
Chart 2.15: Revenues share of postal services providers



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

In terms of the provided services, it is obvious that the US dominates the letter mail sector[38], accounting for 89% of the volume and 63.2% of the revenues, in 2019. As regards to the sector of parcels-small packages, courier companies had a dominant role, accounting for 95.8% of the volume and 93.8% of the revenues (Chart 2.16).

Chart 2.16: Letters and parcels shares for the US and courier services, 2019



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

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

2.3.2. The Universal Service sector

The USP and the companies with Individual License are the two types of providers operating in the US sector. 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 until 31/12/2028[39].

The provision of the US includes the handling of letters, direct mail, newspapers, books, catalogues and periodicals weighing up to 2 kg, as well as parcels up to 20 kg. As shown in Table 2.8, letters are undoubtedly the prevalent postal item in the US sector, accounting for 89.3% of the sector's volume and 85.2% of its revenues for the 2019.

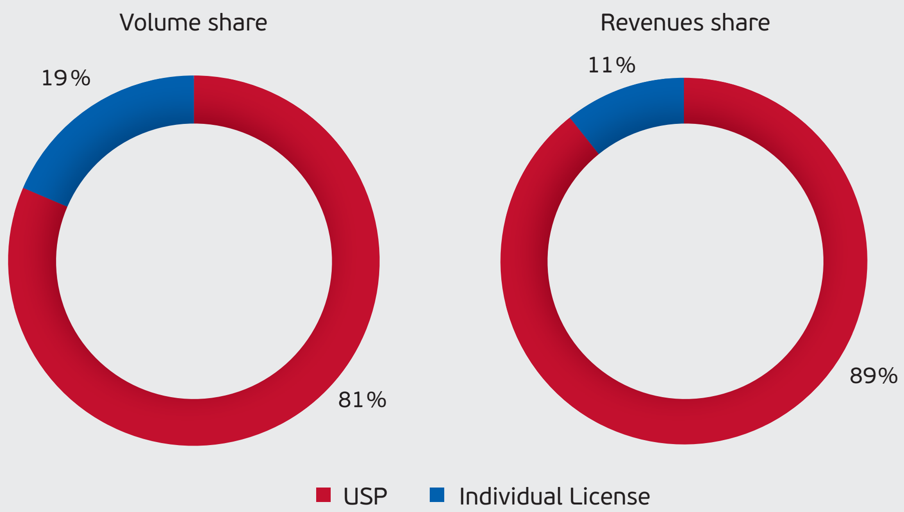
In 2019, the USP was the dominant player in the US market, accounting for 81% of the volume (compared to 85% in 2018) and 89% of the revenues from the postal items, as shown in Chart 2.17.

Table 2.8: Volume and revenues shares of postal items within the US sector, 2019

	Volume	Revenues
Letters	89.3%	85.2%
Direct mail	5.3%	2.7%
Newspapers	4.5%	3.0%
Books-catalogues-periodicals	0.1%	0.06%
Parcels and small packages	0.9%	9.0%
US total	**100%**	**100%**

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

Chart 2.17: Volume and revenues shares of postal services providers within the US sector, 2019



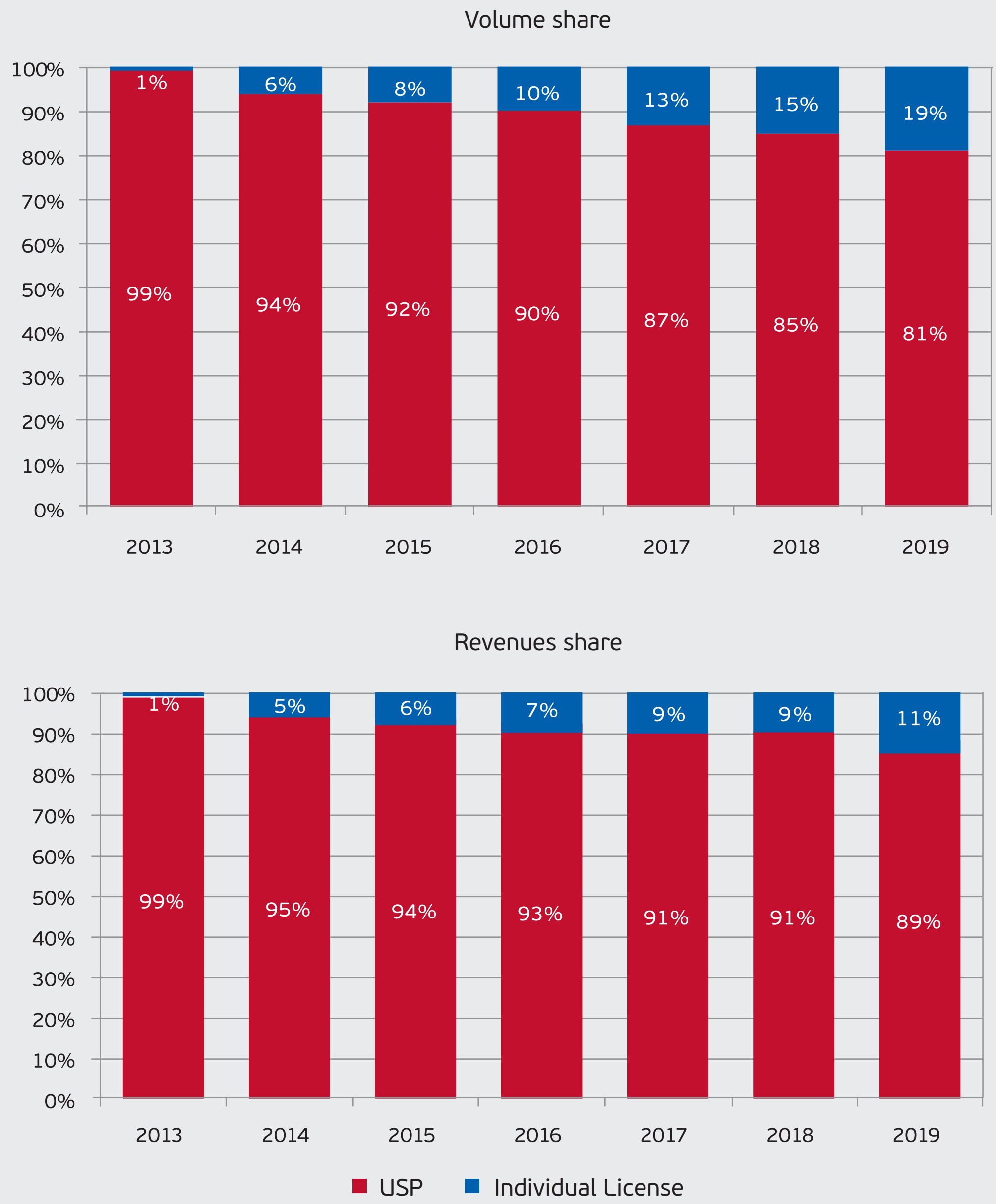
Source: EETT (based on data provided by postal services providers)

39. L.4053/2012 "Regulation for the operation of the postal market, electronic communications issues and other provisions", Government Gazette (GG) 44/A/07-03-2012.

Companies with Individual License seem to gradually increase their market share in the US sector. The course of market shares of companies within the US sector over the last seven years, since the postal market liberalization, is shown in Chart 2.18.

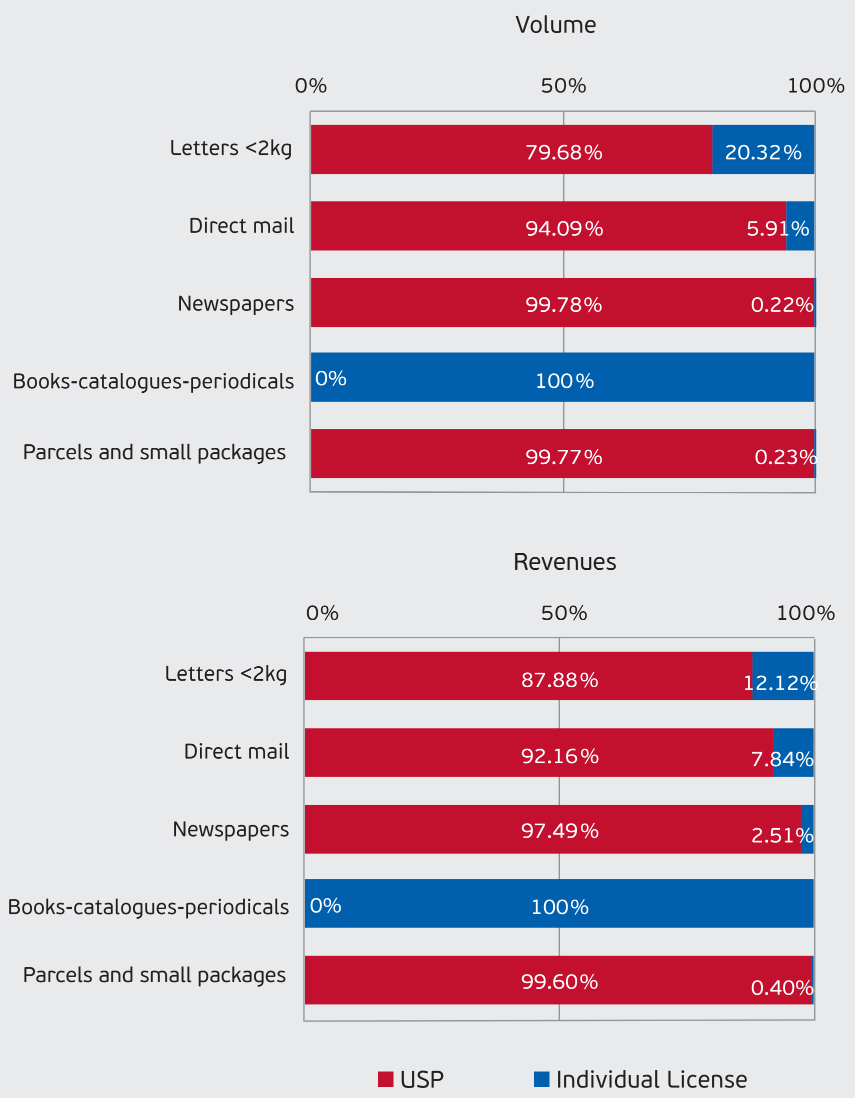
The increase of the market share of companies with Individual License, compared to the previous year, was mainly the result of the letters handling, weighing up to 2 kg. The market shares of providers regarding all postal services, within the US sector in 2019, are shown in Chart 2.19.

Chart 2.18: Evolution of postal services providers market shares within the US sector



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

Chart 2.19: Market shares of postal services providers by postal items type within the US sector, 2019



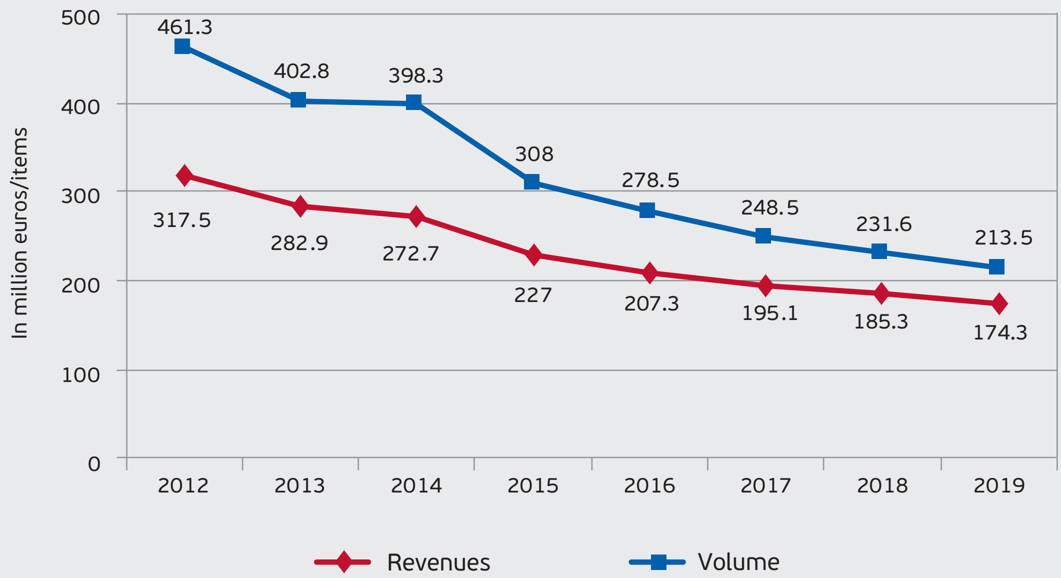
Source: EETT (based on data provided by postal services providers)

The Universal Service Provider (USP)

In 2019, USP's revenues totaled in 174.3 million euros, decreased by 5.9% compared to the previous year. These revenues came from the handling of 213.5 million postal items, 7.8% less compared to 2018. The over time progress of the USP's revenues and postal items volume, during the last eight years, is presented in Chart 2.20.

The majority of the USP's revenues (83.8%) was generated mainly from the handling of letters up to 2 kg, followed by parcels up to 20 kg (9.2%) and newspapers (3.3%). In 2019, the average revenue per service increased significantly for almost all services besides direct mail, which showed a decrease by 22.7%, compared to the previous year. The most important increase came from the handling of parcels up to 20 kg, while there was an increase in newspapers, letters and small packages up to 2 kg, as shown in Table 2.9.

Chart 2.20: USP's revenues and postal items volume



Source: Annual financial statements of the USP

Table 2.9: USP's revenues and postal items volume shares per service, 2019

	Total items (%)	Total revenues (%)	Average revenue (in euros)	Difference 2018-2019 (%)
Letters	87.4%	83.8%	0.78	3.40%
Direct mail	6.1%	2.8%	0.38	-22.67%
Newspapers	5.5%	3.3%	0.50	3.75%
Books-catalogues-periodicals	0%	0%	0	0%
Small packages	0.2%	0.9%	3.09	0.76%
Parcels	0.8%	9.2%	8.93	8.90%
Total	**100%**	**100%**	-	-

Source: Annual financial statements of the USP

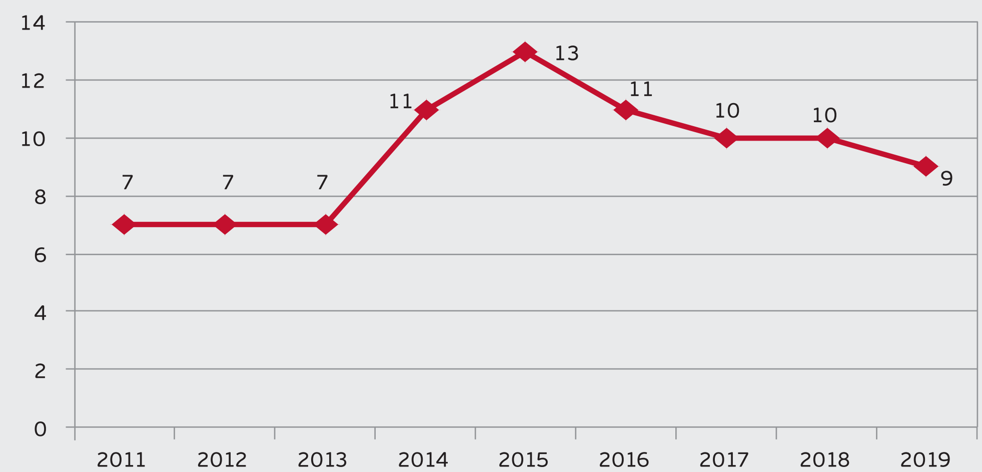
76% of the USP's revenues was generated by customers holding a contract and 24% from retail customers. The USP's customer portfolio consisted of public sector's organizations (18%), banks/assurance companies (22%), energy supply companies (28%) and individuals (24%).

In 2019, the USP's personnel decreased, compared to 2018, to 6,259 employees. Regarding infrastructure, the USP owned 1,188 post offices, 536 of which were agencies. In addition, the USP owned 607 cars and 1,904 motorbikes.

Companies with Individual License

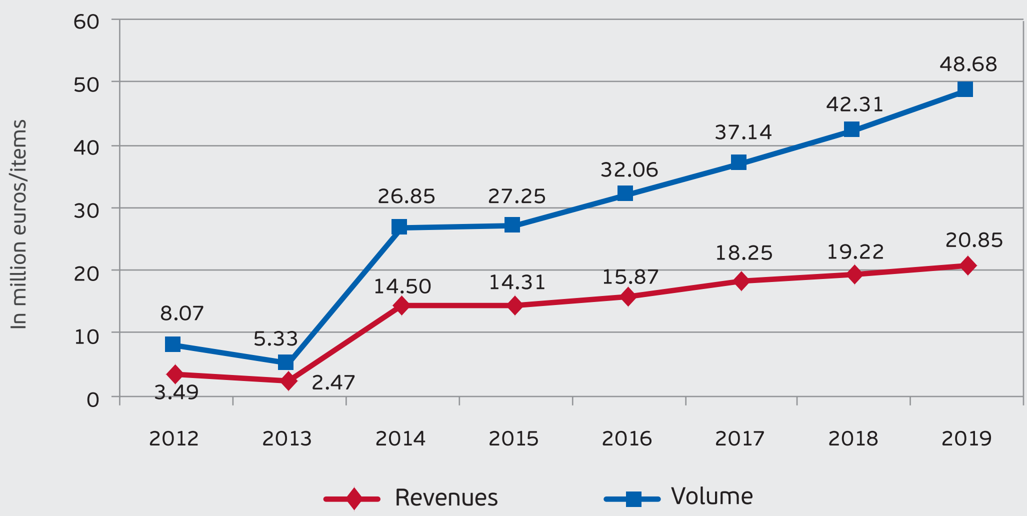
Besides the USP, nine companies with Individual License were operating in the US sector in 2019 (Chart 2.21).

Chart 2.21: Number of companies with Individual License



Source: EETT (Register of postal services providers)

Chart 2.22: Revenues and postal items volume of companies with Individual License



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

In 2019, the companies with Individual License generated 20.85 million euros revenues, increased by 8% year-on-year and handled 48.68 million postal items, 15% more than in 2018. The over time progress of the revenues and postal items volume of companies with Individual License, during the last eight years, is presented in Chart 2.22.

Since the liberalization of the Greek postal market in 2013, large courier companies are showing great interest in letter mail services. This trend is based on the fact that, in 2019, companies with Individual License increased their share, referring to volume of handling postal items, by 19% compared to 15% in 2018, generating 11% of total revenues of US (compared to 9% in 2018).

Particularly, eight companies with Individual License operated in letter mail handling, four in direct mail handling, two in the handling of newspapers and books/catalogues/periodicals and one of them in parcels handling. It is worth noting that 71.2% of the revenues was generated by a single company, which handled 74.8% of letters.

Despite the fact that until 2013 the core activity of the companies with Individual License was the distribution of direct mail, in 2019, similarly to 2018, letter mail handling monopolized almost the sector's activity, as shown in Table 2.10.

Herfindahl-Hirschman Index (HHI)[40] gives an indication of the level of competition among courier services providers. 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 2019, the postal market of companies with Individual License showed a high degree of concentration due to the presence of the USP (Chart 2.23).

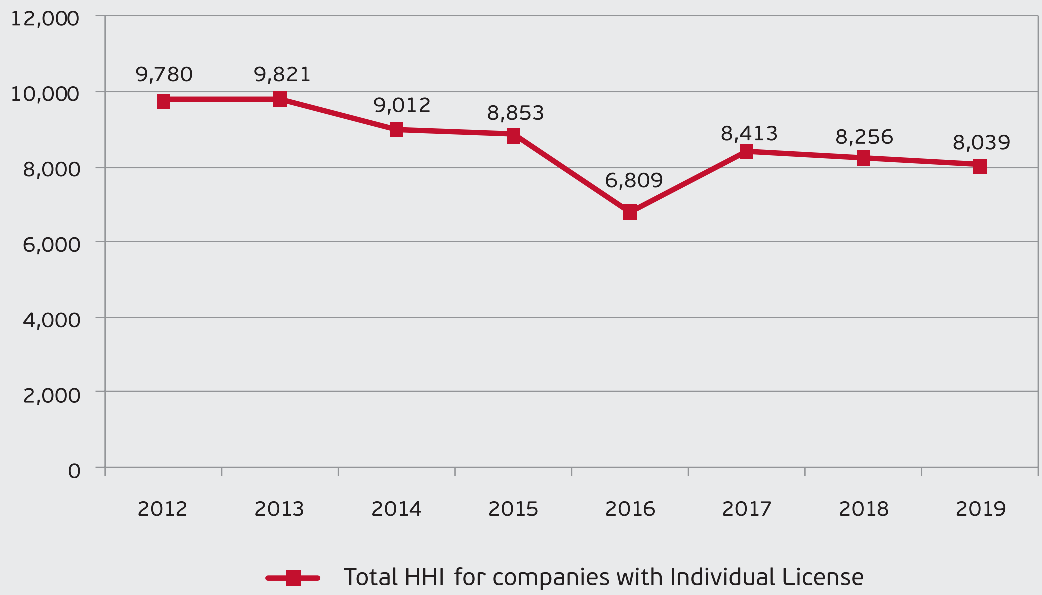
Table 2.10: Postal items volume and revenues shares per service for companies with Individual License, 2019

	Total items (%)	Total revenues (%)
Letters	97.7%	96.6%
Direct mail	1.7%	2.0%
Newspaper	0.05%	0.7%
Books-catalogues-periodicals	0.6%	0.6%
Parcels and small packages	0.011%	0.0%
Total	**100%**	**100%**

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

40. Source: Hirschman A. (1945), National Power and the Structure of Foreign Trade, Berkley and 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 is the market share of company "i" and n is the number of companies.

Chart 2.23: Index Herfindahl-Hirschman for companies with Individual License



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

2.3.3. The courier services sector

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

In 2019, 56 new companies entered the courier services sector, raising the total number of companies operating under General Authorization to 539[41] versus 524 in 2018.

The activities of the courier companies include the handling of:

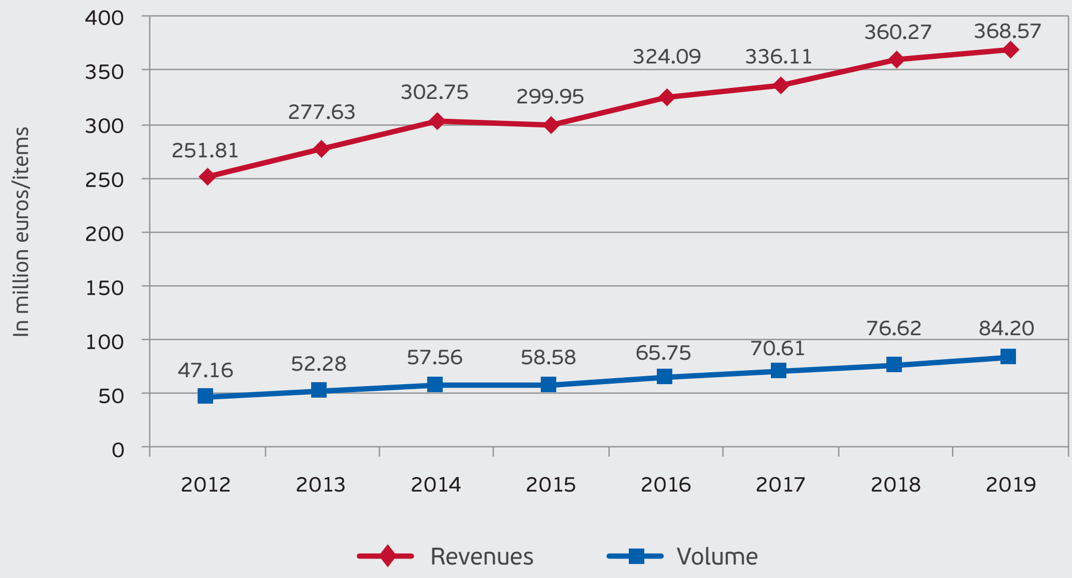
- letters up to 2 kg,
- small packages up to 2 kg,
- parcels from 2 up to 20 kg and
- parcels heavier than 20 kg.

In 2019, companies operating under General Authorization generated 368.57 million euros revenues, increased by 2.3% compared to 2018 and handled 84.20 million postal items, 9.9% more than in 2018. The over time progress of revenues and postal items volume of the companies under General Authorization, during the last eight years, is presented in Chart 2.24.

The volume and revenues shares per category of postal items handled by the courier services providers, in 2019, are presented in Chart 2.25.

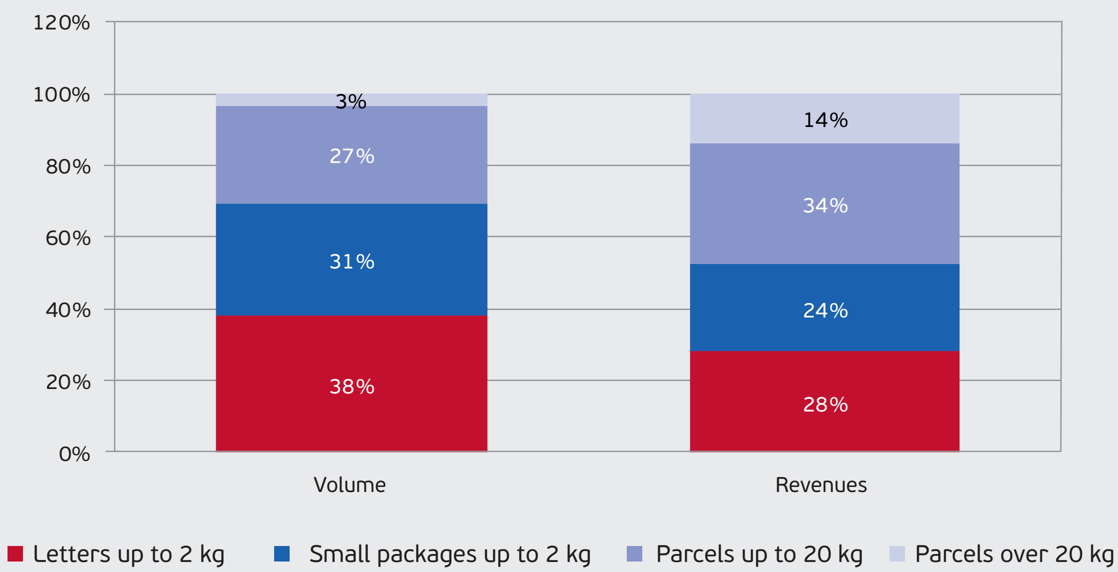
41. Including companies that were active even for a part of the reference year.

Chart 2.24: Postal items volume and revenues of companies under General Authorization



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

Chart 2.25: Postal items volume and revenues shares per service in the courier sector, 2019



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

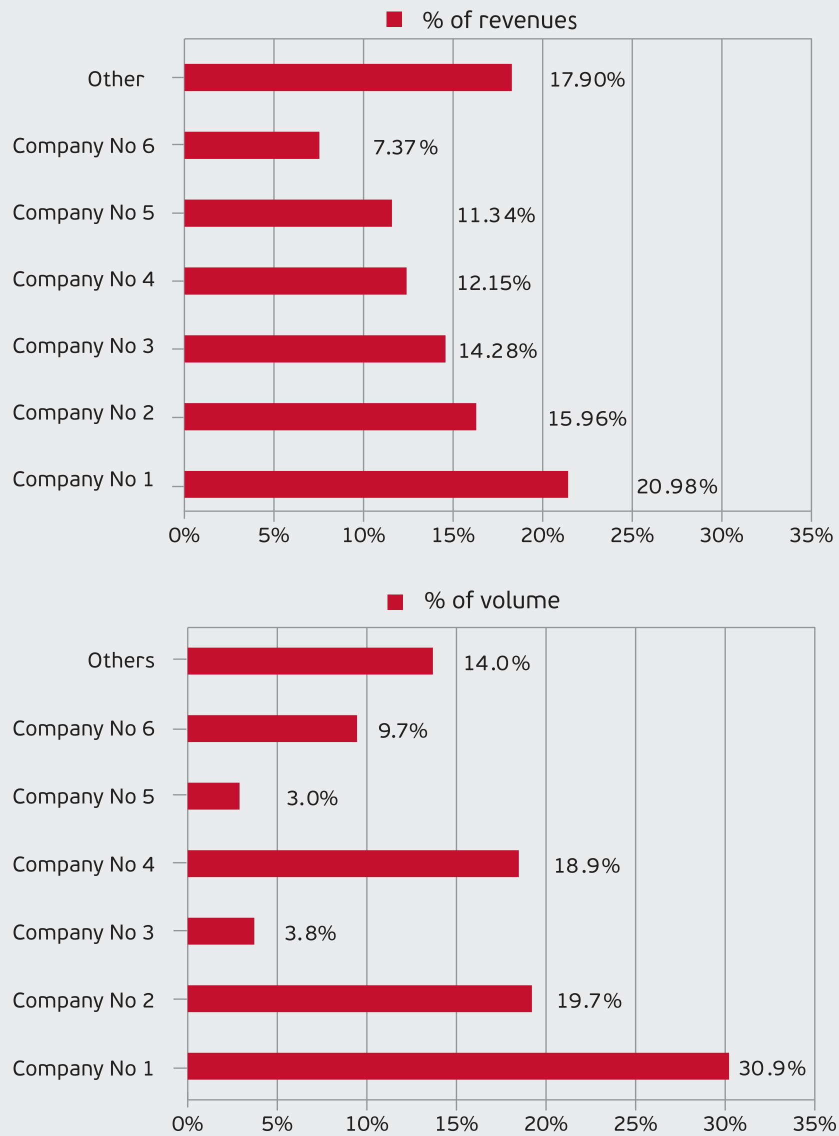
Letters constitute 38% of postal items handled by courier companies, whereas parcels-small packages constitute 58%. Letters generated significantly less revenues (28%) than parcels-small packages (58%).

As regards infrastructure, courier companies owned in total more than 1,867 branches (including network outlets), and 493 parcel lockers, in 2019. Additionally, they owned more than 7,037 vehicles (cars and motorbikes) and employed more than 12,026 employees.

Competition in the courier services sector

Despite the large number of companies operating in the courier services sector in 2019 (539), the largest share of postal items volume was handled by just six companies that generated the majority of revenues in the market. As demonstrated in Chart 2.26, in 2019, the six major companies handled 86% of the postal items and generated 82.1% of the courier services market revenues.

Chart 2.26: Revenues and volume shares of courier companies, 2019



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

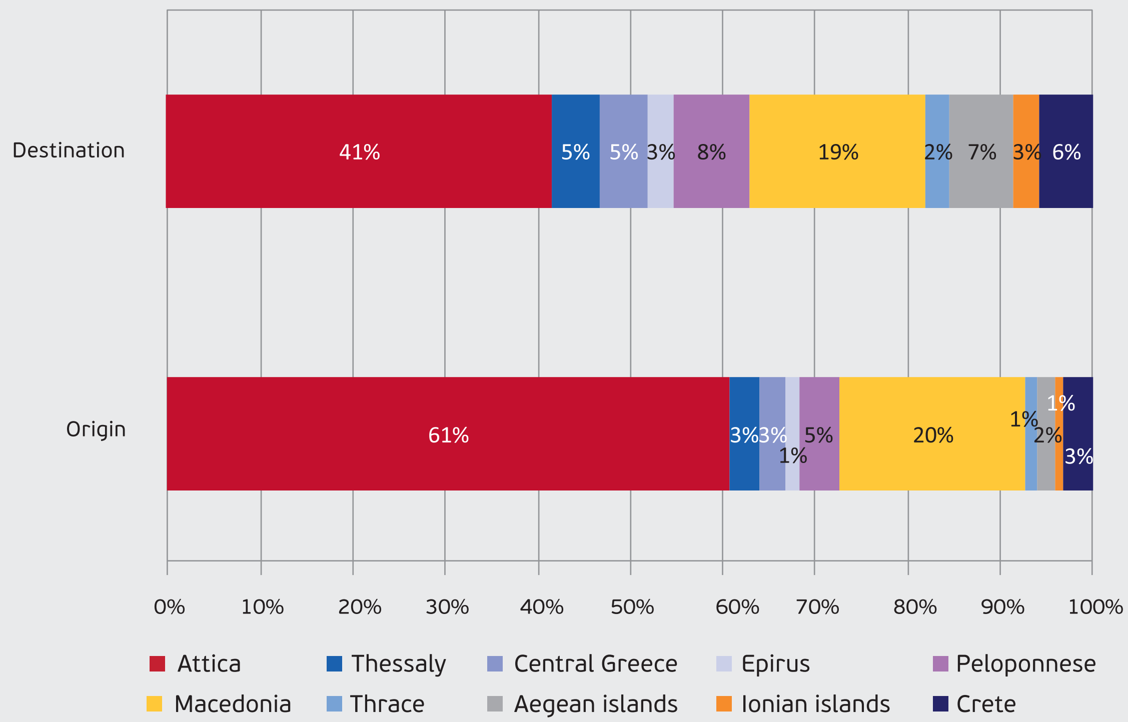
Chart 2.27 demonstrates that the competition was more intense in the regions of Attica and Macedonia, from where approximately 81% of the postal items was delivered to domestic and international destinations. Moreover, 60% of the postal items originating from domestic and international destinations was delivered to these areas.

The growth of cross-border e-commerce boosted the activity of courier services providers, since one fifth approximately (17%) of their revenues was generated by international outbound traffic. The most significant part of outbound traffic was directed to EU countries (71%) and the rest of Europe (9%), while the majority of inbound traffic originated from EU countries (85%) and Asia (8%) (Chart 2.28).

The clientele of courier companies consisted mainly of companies and less of individual consumers, as shown in Chart 2.29. Specifically, main business customers came from the e-commerce sector, followed by retail customers, industry, telecommunications, pharmaceutical industry etc.

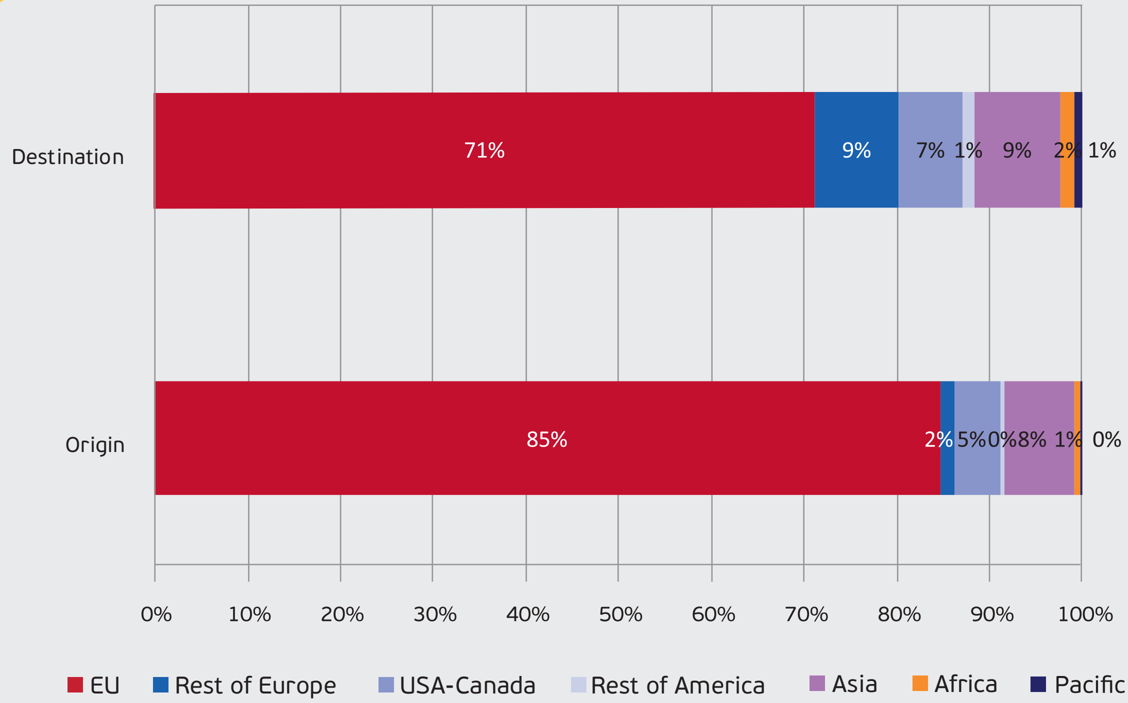
Customers holding a contract generated 89% of courier companies' revenues, while retail customers generated 11%. Revenues per customer type are depicted in Chart 2.30.

Chart 2.27: Destination and origin of courier items deliveries per geographic region, 2019



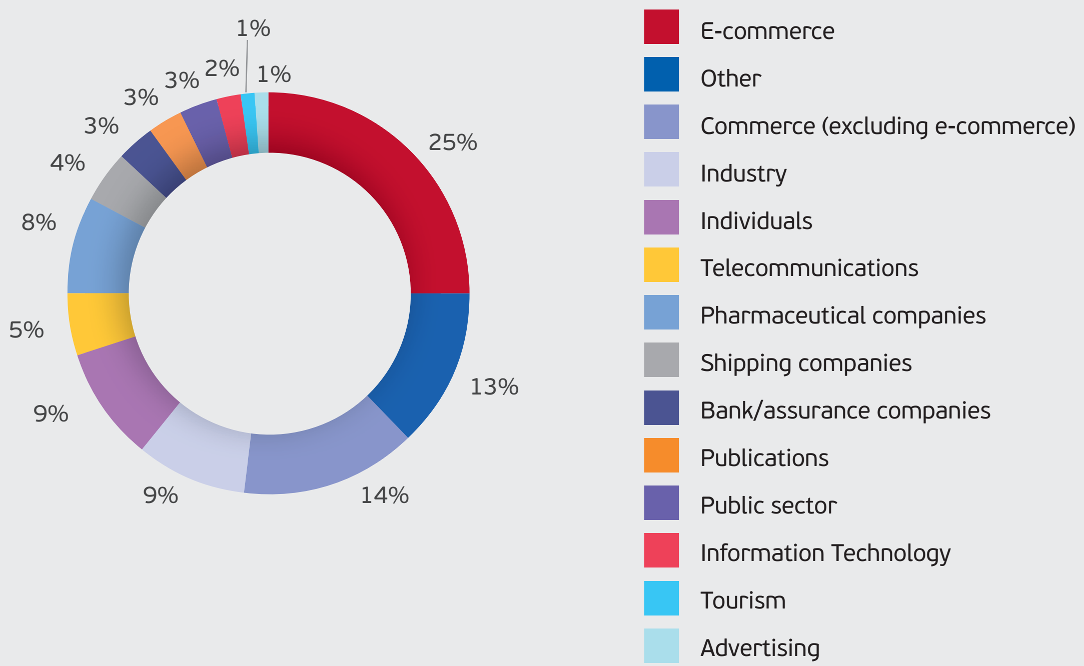
Source: EETT (based on data provided by postal services providers)

Chart 2.28: Destination and origin of cross border deliveries per geographic region, 2019



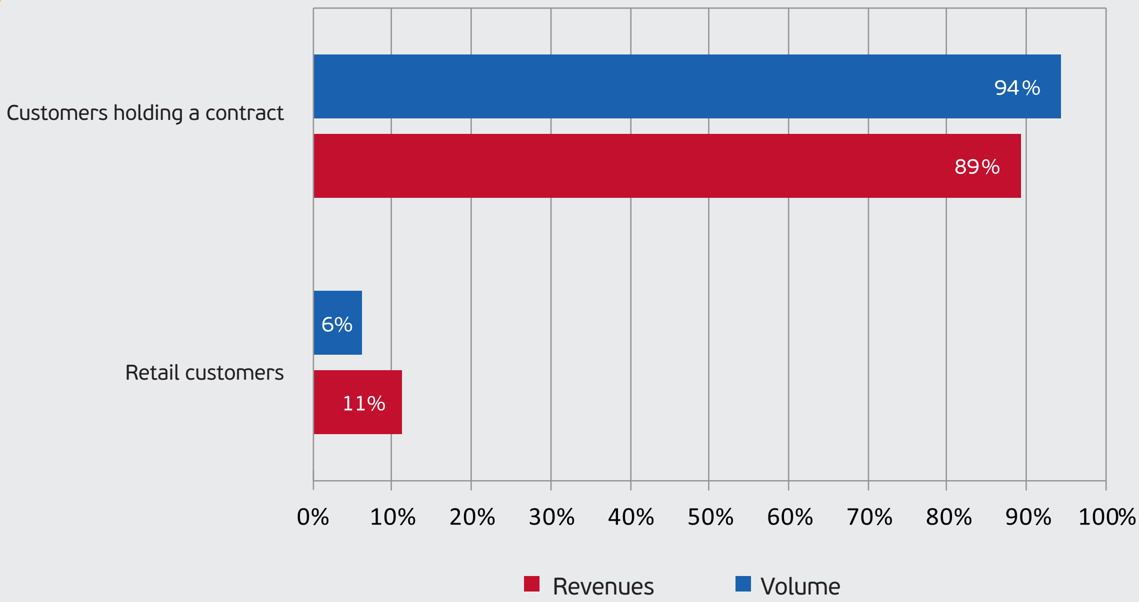
Source: EETT (based on data provided by postal services providers)

Chart 2.29: Breakdown of revenues of courier companies' clientele, 2019



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

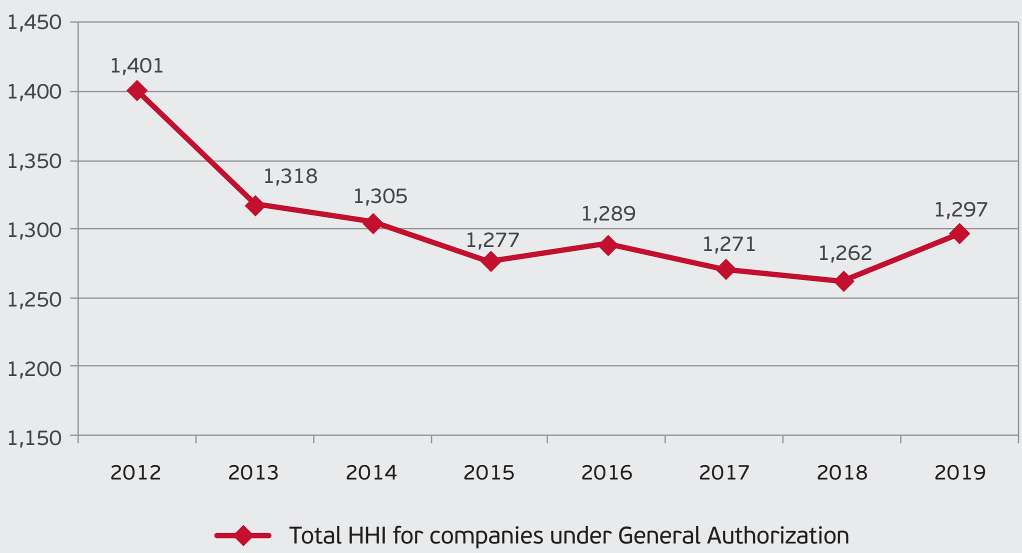
Chart 2.30: Postal items volume and revenues of courier companies per customer type, 2019



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

In 2019, the index Herfindahl-Hirschman (HHI), which gives an indication of the level of competition among courier services providers, was slightly higher for the total market of courier companies, than in the previous year, showing a low level of market concentration (Chart 2.31).

Chart 2.31: Index Herfindahl-Hirschman of companies under General Authorization



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

2.4. The European postal market

In the European postal market[42] the total postal items volume has been declining since 2015, showing an average decrease of 3.6% (approximately nine billion items). This decline is due to the drop of letter mail volume, which declined, on average, by 5.3% (around 11 billion items). In contrast, parcels increased, approximately by 9.2% (nearly two billion items) (Table 2.11).

The revenues of postal market grew by around 1.9% (around five billion euros), compared to 2015 (Table 2.12), mainly due to the boost of parcel sector revenues, which increased by an average of 5.6% (approximately eight billion euros). Conversely, the letter mail revenues decreased, on average, by 2.6% (nearly three billion euros). In 2019, parcels accounted for 55% of total postal market revenues.

As far as the total employment of the postal market is concerned and based on the available data, it decreased approximately by 10.6% the period 2015-2019 (Chart 2.32). The main reason of this drop is the gradual decline by 5.6% of the number of people employed by the USPs, during the same period. The number of people employed by the Other Postal Services Providers (OPSP) was reduced by around 19.2%. The share of the USP employment on total employment showed a decrease, from 77.2% in 2015 to 72% in 2019.

Table 2.11: Postal items volume in the European postal market

	2015 (in billion items)	2018 (in billion items)	2019 (in billion items)	Percentage change 2018-2019	Average percentage change 2015-2019
Total volume	62.9	56.8	54.3	-4.5%	-3.6%
Total letter mail volume	57.8	49.8	46.6	-6.5%	-5.3%
Total parcels volume	5.1	6.6	7.2	+9.1%	+9.2%

Note: It is an estimate, as several countries did not send or publish their data.

Source: ERGP PL II (20) 23 Report on postal core indicators

42. It includes countries of EU and non-EU reporting to the European Regulators group for Postal Services-ERGP.

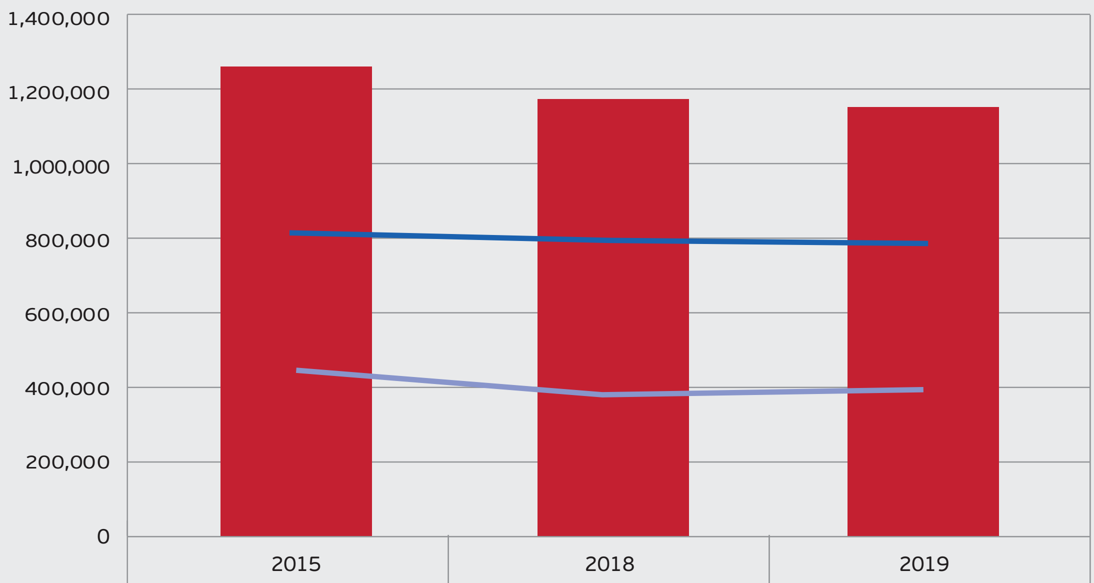
Table 2.12: Total revenues of the European postal market

	2015 (in billion euros)	2018 (in billion euros)	2019 (in billion euros)	Percentage change 2018-2019	Average percentage change 2015-2019
Total revenues	65.6	68.7	70.5	+2.6%	+1.9%
Total letter mail revenues	33.6	31.1	30.2	-2.6%	-2.6%
Total parcels revenues	31.3	36.4	38.8	+6.8%	+5.6%

Note: It is an estimate, as several countries did not send or publish their data.

Source: ERGP PL II (20) 23 Report on postal core indicators

Chart 2.32: Number of employees in the European postal market



	2015	2018	2019
Total	1,300,285	1,180,229	1,162,690
USP	826,440	797,986	779,898
OPSP	473,845	382,243	382,792

Note: It is an estimate, as several countries did not send or publish their data.

Source: ERGP PL II (20) 23 Report on postal core indicators

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