

MOBILE SERVICES

First half of 2020

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Executive summary

EXECUTIVE SUMMARY

Penetration of mobile services with actual use reached 117 per 100 inhabitants

At the end of the first half of 2020, the penetration of the mobile service reached 164 per 100 inhabitants. If only mobile accesses with actual use were considered¹ (excluding M2M²), the penetration rate in Portugal would be 117. On the other hand, if we were to exclude accesses exclusively made by data services and Internet access (cards associated with a PC/tablet/pen/router), the penetration of mobile services would be 112 per 100 inhabitants.

The penetration of mobile accesses offered with bundled services provided at a fixed location was 45.4 per 100 inhabitants (convergence bundles).

Number of subscribers decreased by 1.9% in the last 12 months

The number of mobile accesses authorised to use the service³ amounted to 16.9 million. Of these, 12 million (71.4% of the total) were actually used. Excluding the number of accesses made by PC/tablet/pen/router, the number of mobile accesses rose to 11.5 million.

The number of subscribers that actually used the service decreased by 236 thousand subscribers (-1.9%) compared to the same half of the previous year. This change was due to trends in pre-paid plans (-10.6% in the last 12 months), which have been falling since 2013, and which now account for 38.4% of total accesses actually used. Post-paid and hybrid plans⁴ (+4.4% in the last 12 months) continued the growth trend which began in 2012. This trend is tied to the ongoing increased penetration of bundled services which include mobile telephone service.

¹ Active mobile accesses, including for example subscription plans, minutes plans, monthly plans convertible into traffic, etc., which are authorised to use one of the contracted services and which actually use one of the contracted services in the reporting period.

² M2M applications use the mobile networks and Internet to operate, monitor and interconnect machines and equipment (i.e., tele-alarm, tele-security, telemetry, etc.). These are associated to the so-called Internet of things.

³ Active mobile accesses are enabled to use the services, but they might not have been used.

⁴ Hybrid plans are tariff plans which simultaneously show features of both pre-paid and post-paid plans. These plans include a traffic ceiling in a post-paid scheme. However, the extra-ceiling traffic is charged at a pre-paid tariff.

All-time high in voice traffic per access and average duration of calls due to the impact of COVID-19

Mobile voice traffic increased by 17%, compared to 1H2019, regarding minutes. The evolution recorded in voice traffic minutes was influenced by COVID-19. For example, in the week in which the state of emergency was declared (16 to 22 March), mobile voice traffic in minutes increased by 39% compared to the week prior to the declaration of the pandemic (2 to 8 March).

The changes in consumption patterns due to the impact of COVID-19 resulted in the exceptional growth of average traffic per mobile access and the average duration of calls, which reached all-time highs. The number of conversation minutes per mobile voice access in 1H2020 was on average 238 per month, 36 minutes (+17.9%) more than in the same period of the previous year. The average duration of calls was 203 seconds per call, 41 seconds (+25.4%) more than in the same period of the previous year and the highest figure ever recorded.

By type of call, the high growth recorded in voice traffic in minutes resulted mainly from the increase in off-net (+24.9%) and on-net (+12.5%) traffic. Major increases were also seen in mobile-fixed traffic (+20.0%) and calls to short and non-geographic numbers (+20.3%). Traffic destined for international networks fell by 14.6% compared to the same period of the previous year.

Mobile Internet penetration was 76.4 per 100 inhabitants

The number of actual users of the Internet access mobile service stood at 7.9 million (+0.9% than in the same period of the previous year), continuing the slowing trend that began in 2017. This figure corresponds to a penetration of around 76.4 per 100 inhabitants (+0.5 p.p. higher than in 1H2019). This growth is associated with the increase in mobile phone Internet users (+1% compared to 1H2019).

Mobile Internet traffic increased 33.9% and average monthly traffic reached 4.5 GB/month

Mobile broadband (MBB) Internet access traffic increased by 33.9% compared to 1H2019, influenced by the effects of COVID-19.

Average monthly traffic per active mobile Internet user increased by 28.9% compared to the same period of the previous year. Each mobile broadband user consumed on average 4.5 GB per month. We recall that the largest providers offered their customers 10 GB of mobile data at the beginning of the period when the state of emergency took effect. The average monthly traffic generated by PC/pen/tablet/router reached 20.3 GB (+50.2%).

Machine-to-machine (M2M) accesses increased by 3.5%

At the end of 1H2020, there were around 1.2 million active mobile accesses related to M2M, an increase of 3.5% compared to the same period of the previous year.

Significant decline in international roaming traffic due to international travel restrictions

Roaming traffic saw declines in all types of traffic compared to the same period of the previous year, particularly Internet traffic (-27.5% in the case of roaming in and -7.2% in the case of roaming out), with negative year-on-year quarterly growth for the first time since this indicator was measured.

The downturn in all types of roaming in and roaming out traffic was due to the decline in international travel because of the pandemic.

In this half-year, the roaming balance (i.e. roaming in traffic – roaming out traffic) showed a deficit in the case of traffic in minutes, in line with the trend from the last five years (with the exception of 2017). The level of roaming in by roaming out traffic coverage in minutes was 74.3%. In contrast, in the case of Internet access, roaming in traffic is substantially higher than roaming out traffic (in 1H2020, roaming in traffic volume was 2.3 times higher than roaming out traffic).

Shares per provider

MEO was the provider with the highest share (41.0%) of active mobile accesses with actual use, followed by Vodafone (30.1%) and NOS (26.2%). Compared to the same period of the previous year, the share of mobile accesses of NOS increased by 1.2 p.p., while those of MEO and Vodafone fell by 1.2 p.p. and 0.1 p.p., respectively. The concentration level, as

measured by the Herfindahl-Hirschman index, although high, decreased slightly compared to the same period in the previous year, as has happened since 2012.

In the case of the shares of subscribers to mobile broadband Internet access, MEO's share was 38.3%, followed by Vodafone with 29.9% and NOS with 29.6%. In 1H2020, the share of NOS increased by 1.0 p.p., while MEO's and Vodafone's shares of subscribers fell by 1.0 p.p. and 0.5 p.p., respectively.

NOS had the highest share of broadband Internet traffic (46.2%), followed by MEO and Vodafone (27.1% and 26.3%, respectively). Compared to the previous year, NOS' share increased by 5.2 p.p., while Vodafone's and MEO's shares fell by 4.1 p.p. and 1.2 p.p., respectively.

Report

1. Mobile service penetration rate

At the end of the first half of 2020 (1H2020), the penetration of the mobile service reached 164 per 100 inhabitants. If only mobile accesses with actual use were considered (excluding M2M), the penetration rate in Portugal would be 117.1 per 100 inhabitants. On the other hand, if we were to exclude accesses exclusively made by data services and Internet access (cards associated with a PC/tablet/pen/router), the penetration of mobile services would be 112 per 100 inhabitants.

The number of cards associated with M2M reached 1.2 million, i.e. about 11.7 per 100 inhabitants.

The penetration of mobile accesses offered with bundled services provided at a fixed location was 45.4 per 100 inhabitants.

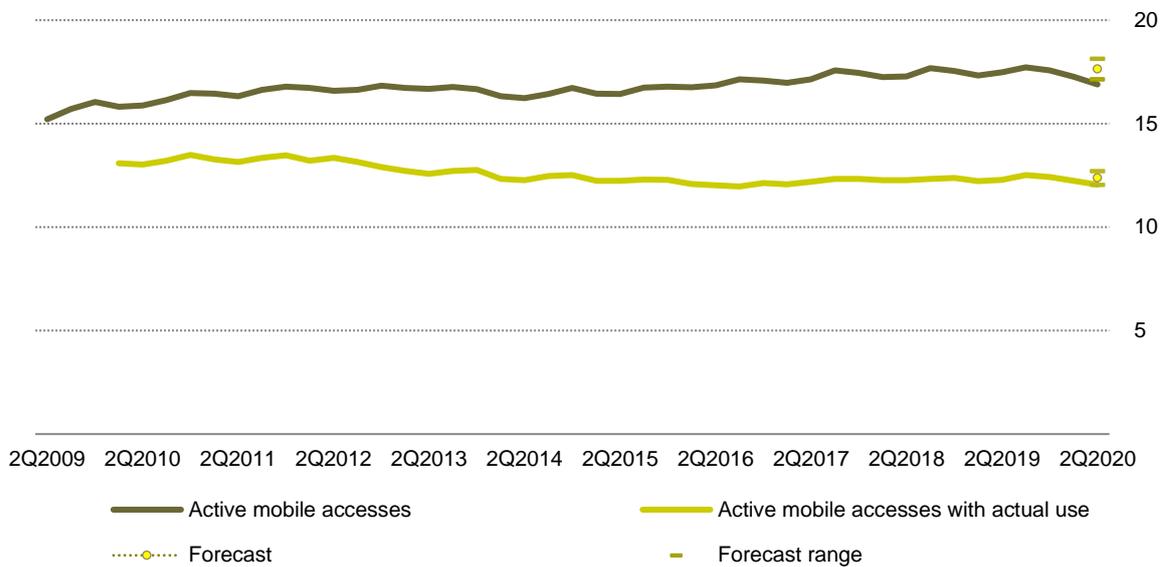
2. Active mobile accesses

At the end of 1H2020, there were around 16.9 million active mobile accesses associated to post-paid tariff plans, pre-paid plans and combined/hybrid plans (-3.4% compared to 1H2019).

About 12.1 million active mobile accesses (71.4% of the total) were actually used in the last month of the first half of the year (-236 thousand, or -1.9% than in the same period last year). Excluding the number of accesses made by PC/tablet/pen/router, the number of mobile accesses rose to 11.5 million.

The figures for active mobile accesses are below the forecast range resulting from the historical trend. In the case of mobile accesses actually used, these are at the lower end of the forecast range resulting from the historical trend (Figure 1).

Figure 1 – Evolution of the number of active mobile accesses actually used



Unit: millions of mobile accesses

Source: ANACOM

Note: **Active mobile accesses:** For the purposes of modelling this series, historical information beginning in 1Q2004 was used. Two changes in structure are evident, so a linear regression model was considered at three distinct time periods: from 1Q2004 to 4Q2009, from 1Q2010 to 4Q2014, which includes the slowdown in growth partly associated to the economic environment, and from 1Q2015. Seasonal dummies for the fourth quarter and third quarter were also considered, the latter only having an impact in the last time period considered. All the independent variables were significant at a 95% confidence level: $Y_t = 9.178.736 + 322.883 T_3 + 175.168 T_4 + 271.319 D1T2004_t + 7.030.775 D1T2010 + 22.727 D1T2010_t + 7.289.870 D1T2015 + 52.767 D1T2015_t$. T3 and T4 refer to the seasonal dummies for the third quarter and fourth quarter, D1Q2004_t is the variable of the linear trend of the first period; D1Q2015 and D1Q2015_t reflect the constant and the linear trend of the second period; D1Q2015 + 52.767 D1Q2015_t refer to the constant and linear trend of the third period. The adjusted determination coefficient (adjusted R2) is 0.991.

Mobile accesses with actual use: For modelling the series, the regression model $Y_t = 13.231.860 - 2.423t^2 + 127.377 T_3 + 182.006 T_4 - 1.170.176D + 772D*t^2$ was used, with all the independent variables being significant at a confidence level of 95%, namely seasonal dummies relative to the third and fourth quarters, dummy for structural change in the 3 third quarter of 2015. The adjusted determination coefficient (adjusted R2) is 0.906.

This change was due to trends in pre-paid plans (-10.6% in the last 12 months), which have been falling since 2013, and which now account for 38.4% of total accesses actually used.

Post-paid and hybrid plans (+4.4% in the last 12 months) continued to show a growth trend, as has happened since 2012 (

Table 1). The growth in the number of subscribers of these plans is associated with the increased penetration of bundled services which include mobile telephone service (convergence bundles).

Table 1 – Mobile accesses

	1H2019	1H2020	Var. (%) 1H2019 / 1H2020
Active mobile accesses	17,480	16,889	-3.4
of which associated with M2M	1,163	1,204	+3.5
Mobile accesses with actual use (excluding M2M)	12,288	12,052	-1.9
Post-paid and hybrid plans	7,110	7,424	+4.4
Pre-paid plans	5,178	4,628	-10.6
Mobile accesses with actual use (excluding M2M and PC/pen/tablet/router)	11,758	11,526	-2.0

Unit: thousands of mobile accesses, %

Source: ANACOM

Note 1: Active mobile accesses are enabled to use the services, but they might not have been used.

Note 2: Active mobile accesses with actual use are those eligible to use the service and that were actively used during the reporting period, i.e. they recorded traffic in the last month.

3. Distribution of mobile accesses by provider

Table 2 shows the distribution of the total number of mobile accesses by provider according to various indicators.

Table 2 – Distribution of mobile accesses by provider – 1H2020

	Active mobile accesses	Mobile accesses with actual use (excluding M2M)	Mobile accesses with actual use (excluding M2M and PC/pen/tablet/router)
MEO	45.4	41.0	41.2
Vodafone	27.4	30.1	30.6
NOS	25.1	26.2	25.4
NOWO / Onitelecom Group	1.1	1.6	1.6
Lycamobile	1.0	1.2	1.2

Unit: %

Source: ANACOM

Note: It should be noted that the definitions of the indicators used for calculation are those derived from the mobile services form in use in 2020. These definitions may differ from those used by the providers.

MEO continues to be the main provider with 41.0% of active mobile accesses with actual use (excluding M2M), followed by Vodafone and NOS, with shares of 30.1% and 26.2%, respectively (Table 3). Compared to the same period of the previous year, the share of mobile accesses of NOS increased by 1.2 p.p., while those of MEO and Vodafone fell by 1.2 p.p. and 0.1 p.p., respectively.

Table 3 – Distribution of active mobile accesses with actual use (excluding M2M) by provider

	1H2019	1H2020	Var. (p.p.) 1H2019 / 1H2020
MEO	42.1	41.0	-1.2
Vodafone	30.3	30.1	-0.1
NOS	25.0	26.2	1.2
Other providers	2.6	2.7	0.2

Unit: %, p.p.

Source: ANACOM

Note: The variations shown may not correspond to the values in the table due to rounding off.

The concentration level, as measured by the Herfindahl-Hirschman index⁵, although high, decreased slightly compared to the same period in the previous year, as has happened since 2012.

4. Mobile Internet users

At the end of 1H2020, the number of actual users of the mobile Internet access service reached 7.9 million, 0.9% more than in the same period of the previous year (Table 4). This

⁵ The Herfindahl-Hirschman index (HHI) is often applied by the European Commission to assess market concentration levels. This index is calculated by adding the squares of the individual market shares of all market participants. Its theoretical values range from approximately zero (in a fragmented market) to 10,000 (in the case of an absolute monopoly). When the HHI is greater than 1,800, the market is considered to be extremely concentrated. Between 1,000 and 1,800, the market is considered to be moderately concentrated.

The index amount is calculated with the shares of all active providers, not only those specifically referred to in Table 3.

service's penetration rose to 76.4 per 100 inhabitants, 0.5 p.p. higher than the previous year. These users represent 65.3% of total mobile accesses actually used.

Table 4 – Mobile Internet users

	1H2019	1H2020	Var. (%) 1H2019 / 1H2020
Number of mobile accesses (excluding M2M) with actual use of the broadband Internet access service	7,802	7,870	+0.9
(of which) PC/tablet/pen/router	530	526	-0.7
(of which) mobile phone	7,273	7,344	+1.0

Unit: thousands of users, %

Source: ANACOM

The growth observed in Internet mobile accesses has been associated to the increase of mobile phone Internet access (+1% compared to 1H2019) particularly when associated with bundled offers, the widespread uptake of smartphones and the development of mobile apps.

Among the total users of mobile Internet access services that recorded traffic in the last reporting month, 6.7% were users of the Internet access service via PC/tablet/pen/router.

MEO has the largest share of mobile Internet users (38.3%), followed by Vodafone (29.9%) and NOS (29.6%) – see

Table 5. In 1H2020, the share of NOS increased by 1.0 p.p., while MEO's and Vodafone's shares of subscribers fell by 1.0 p.p. and 0.5 p.p., respectively.

Table 5 – Distribution of mobile Internet users by provider

	1H2019	1H2020	Var. (p.p.) 1H2019 / 1H2020
MEO	39.3	38.3	-1.0
Vodafone	30.4	29.9	-0.5
NOS	28.6	29.6	1.0
Other providers	1.8	2.2	0.5

Unit: %, p.p.

Source: ANACOM

Note: The variations shown may not correspond to the values in the table due to rounding off.

It should also be noted that, in 2019, two new service providers (T-Mobile HotSpot and GmbHP Cubic Telecom Limited) began operations offering mobile Internet access services in vehicles. At the end of 1H2020, the number of accesses actually used to access this service was reduced, having generated around 260 GB of traffic in the half-year.

5. Machine-to-machine (M2M)

At the end of 1H2020, there were around 1.2 million active mobile accesses exclusively related to M2M, an increase of 3.5% compared to the same half of the previous year. These accesses represented 7.1% of the total active accesses, below the EU28 average (18.3%)⁶.

The number of M2M cards in Portugal is equivalent to a penetration of around 11.7 accesses per 100 inhabitants.

The overwhelming majority of these accesses are non-residential, with a small range of applications associated with the residential segment, namely geolocation and mobility security.

We recall that, in July 2018⁷, Vodafone launched a range of product offers of this type aimed at the residential segment.

⁶ EC, *Digital Economy and Society Index 2020* (provisional information)

⁷ <https://www.vodafone.pt/press-releases/2018/7/vodafone-lanca-v-by-vodafone-gama-de-solucoes-iot-para-o-segmento-de-consumo.html>

MEO has the largest share of active mobile accesses exclusively by M2M (51.6%), followed by NOS (25.1%) and Vodafone (23.3%) – see Table 6. In 1H2020, MEO's and NOS's shares of subscribers increased by 1.3 p.p. and 0.5 p.p., respectively, while Vodafone's share decreased by 1.8 p.p.

Table 6 – Distribution of M2M accesses by provider

	1H2019	1H2020	Var. (p.p.) 1H2019 / 1H2020
MEO	50.3	51.6	1.3
NOS	24.6	25.1	0.5
Vodafone	25.1	23.3	-1.8
Other providers	<0.5	<0.5	0.0

Unit: %, p.p.

Source: ANACOM

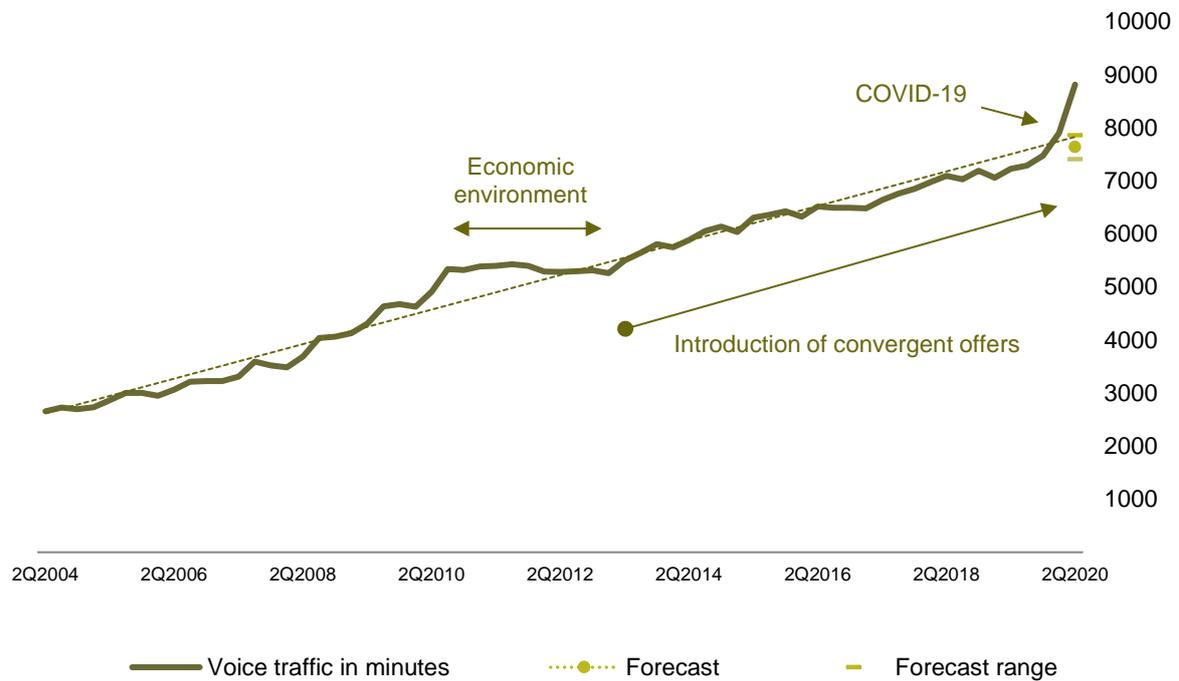
Note: The variations shown may not correspond to the values in the table due to rounding off.

6. Traffic

6.1. Voice

Voice traffic in mobile networks amounted to around 16.7 billion minutes in 1H2020 (+17% compared to the same half of the previous year). This is the highest figure ever recorded. It is above the forecast range derived from the historical trend and the estimated seasonal effect (Figure 2).

Figure 2 – Evolution of voice traffic in minutes



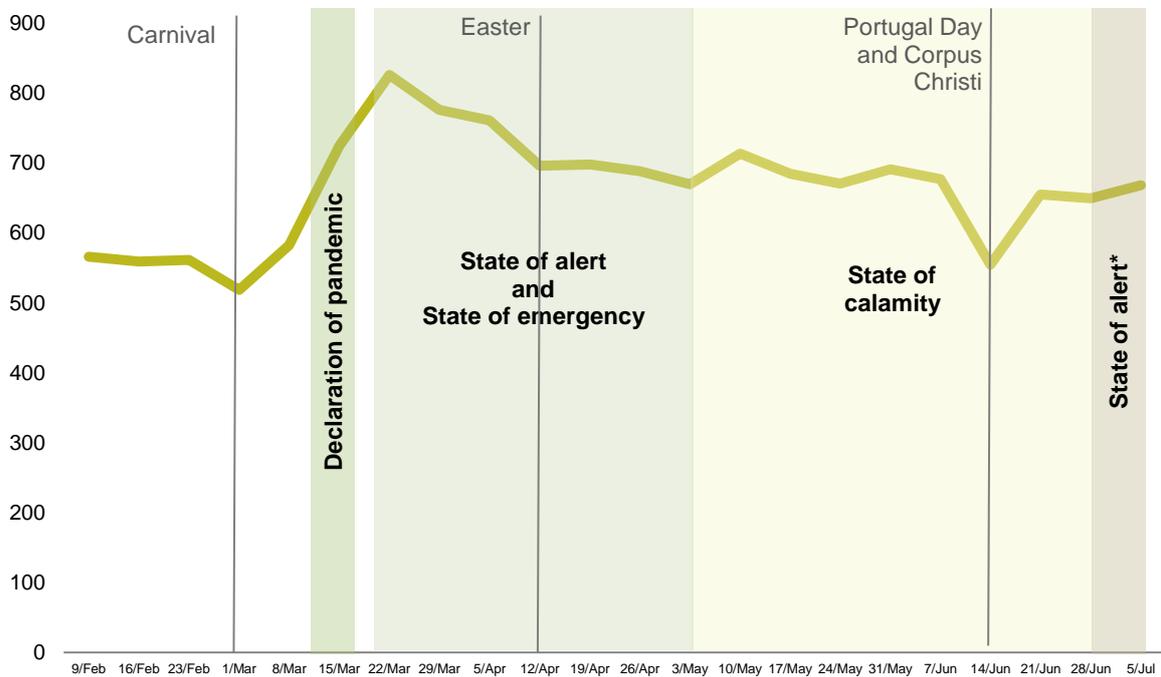
Unit: millions of minutes

Source: ANACOM

Note: The modelling of the series of minutes was based on the regression model $Y_t = 2.389.309 + 2.196t^2 - 85.286T1 + 2.975.435CE + (3.054.426+73.014^*t)P$ with all the independent variables being significant at a confidence level of 95%, namely positive quadratic trend up to the third quarter of 2010, seasonal dummy relative to the first quarter, dummy for change of the country's economic environment with constant effect between the fourth quarter of 2010 and the fourth quarter of 2012 (EC) and dummy for the introduction of bundled offers with mobile telephone service (P) with growing linear trend from the first quarter of 2013 onwards. The adjusted determination coefficient (adjusted R2) is 0.996.

The registered evolution was influenced by COVID-19. For example, in the week in which the state of emergency was declared (16 to 22 March), mobile voice traffic increased by 39% compared to the week prior to the declaration of the pandemic (2 to 8 March) – see Figure 3 – Evolution of voice traffic between February and July 2020

Figure 3 – Evolution of voice traffic between February and July 2020



Unit: millions of minutes

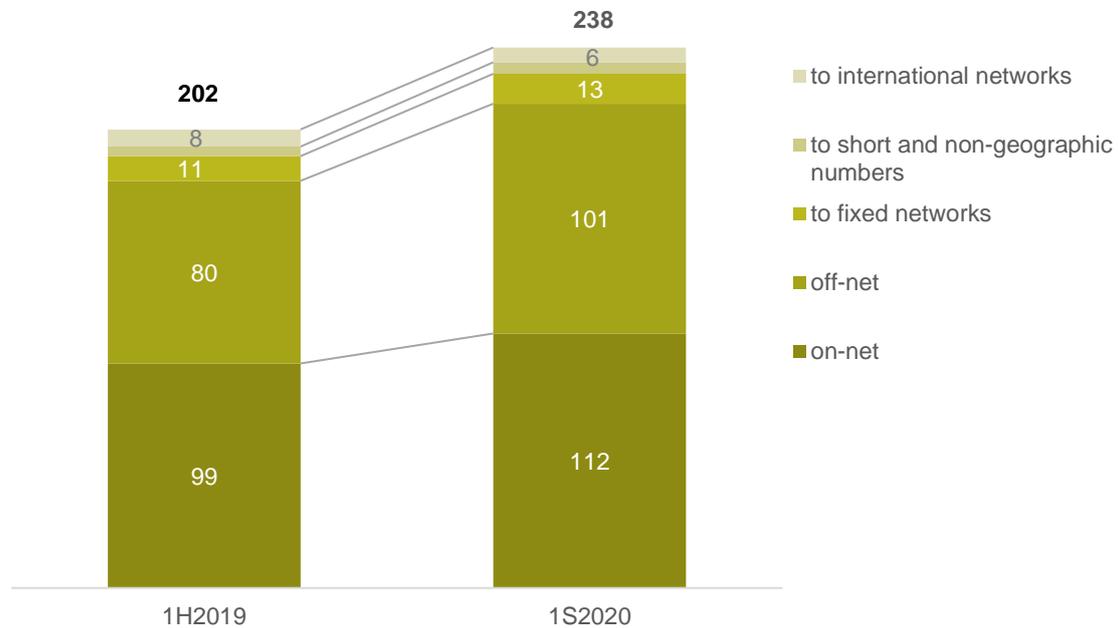
Source: ANACOM

Note: * State of calamity in 19 Greater Lisbon parishes, the Autonomous Region of Madeira and on five islands of the Autonomous Region of the Azores; state of contingency in the rest of the Lisbon Metropolitan Area; state of alert in the rest of the territory.

The changes in consumption patterns due to the impact of COVID-19 resulted in the exceptional growth of average traffic per mobile access and the average duration of calls, which reached all-time highs.

In 1H2020, the number of minutes of conversation through actually used mobile accesses (excluding PC/tablet/pen/router and other M2M equipment) was on average 238 per month, 36 minutes (+17.9%) more than in the first half of 2019 (Figure 4). As regards averages, 112 were on-net minutes, 101 were off-net minutes, 13 were calls to fixed networks, 5 to short/non-geographic numbers and 6 to international networks.

Figure 4 – Monthly average number of minutes per mobile access actually used, excluding PC/tablet/pen/router and M2M



Unit: minutes

Source: ANACOM

Note: The totals might not match the sum of the items due to rounding off or omitted categories.

The significant increase recorded in the number of minutes was not matched by the number of calls, which fell by 6.8% year-on-year in this half year. This evolution resulted in an increase of the average duration of calls generated in the mobile network (excluding PC/tablet/pen/router and M2M equipment), which in 1H2020 was 203 seconds per call, 41 seconds more than that recorded in the same period of the previous year (+25.4%), and the highest value ever recorded.

By type of call, the high growth recorded in voice traffic in minutes resulted mainly from the increase in off-net (+24.9%) and on-net (+12.5%) traffic. Increases were also recorded in mobile-fixed traffic (+20.0%) and calls to short and non-geographic numbers (+20.3%). Traffic destined for international networks fell by 14.6% compared to the same period of the previous year (Table 7).

Since 2012, there has been a trend of increasing off-net traffic and decreasing share of on-net traffic, due to the elimination of price differences between on-net and off-net calls and the appearance of offers with “calls included” to all national networks. In 1H2020, on-net

traffic represented 47.1% of the traffic generated, 1.9 p.p. less than in 1H2019. Since the second half of 2018, on-net traffic has represented less than 50% of all mobile traffic.

Table 7 – Voice traffic: minutes out

	1H2019	1H2020	Var. (%) 1H2019 / 1H2020
Total – traffic out	14,290	16,714	+17.0
To the actual provider (on-net)	6,998	7,871	+12.5
To other national MTS providers (off-net)	5,690	7,105	+24.9
To national FTS providers	770	924	+20.0
To short and non-geographic numbers	297	357	+20.3
To international network providers	535	457	-14.6

Unit: thousands of minutes, %

Source: ANACOM

MEO has the largest share of voice traffic (36.8%), followed by Vodafone and NOS (32.1% and 29.1%, respectively). Compared to the same period of the previous year, NOS's and MEO's shares have increased 0.8 p.p. and 0.3 p.p., respectively, while Vodafone's share has decreased by 1.2 p.p. (Table 8).

Table 8 – Voice traffic distribution (minutes out) by provider

	1H2019	1H2020	Var. (p.p.) 1H2019 / 1H2020
MEO	36.6	36.8	+0.3
Vodafone	33.3	32.1	-1.2
NOS	28.4	29.1	+0.8
Other providers	1.7	2.0	+0.2

Unit: %, p.p.

Source: ANACOM

Note: The variations shown may not correspond to the values in the table due to rounding off.

6.2. SMS

In 1H2020, about 5.7 billion text messages were sent, 22.3% less than the same period of the previous year (Tale 9).

Since 2012, there has been a downward trend in the volume of SMS traffic due to the emergence of alternative forms of communication, such as instant messaging services. However, 1H2020 saw a sharp intensification of this traffic's decline (-22.3% compared to -7.6% in 1H2019), likely associated with the changes in consumer habits from COVID-19.

Tale 9 – Text messages (SMS)

	1H2019	1H2020	Var. (%) 1H2019 / 1H2020
Number of SMS generated	7,333	5,701	-22.3
Value-added services based on sending of messages	43	32	-25.1

Unit: thousands of messages, %

Source: ANACOM

The average monthly number of messages sent by mobile access with actual use (excluding PC/tablet/pen/router and M2M) amounted to 81 messages (103 in 1H2019), the lowest ever figure. This figure represents approximately 3 messages per day per access.

The number of value-added messages reached 32 million in 1H2020, corresponding to 0.6% of the total messages sent.

MEO has the highest share of SMS traffic (33.6%), followed by NOS and Vodafone (33.2% and 31.8%, respectively) – see

Table 10. Compared to the same period of the previous year, NOS's share has increased by 1.3 p.p., while Vodafone's share has decreased by 1.5 p.p. MEO's share has remained unchanged.

Table 10 – Distribution of SMS traffic by provider

	1H2019	1H2020	Var. (p.p.) 1H2019 / 1H2020
MEO	33.6	33.6	0.0
NOS	31.8	33.2	+1.3
Vodafone	33.3	31.8	-1.5
Other providers	1.3	1.4	+0.1

Unit: %, p.p.

Source: ANACOM

Note: The variations shown may not correspond to the values in the table due to rounding off.

6.3. International roaming

Roaming in traffic⁸ saw major decreases in all types of traffic compared to the same period of the previous year, particularly Internet traffic (-27.5%), which was down year-on-year for the first time since this indicator was measured (in 2010) (Table 11).

Table 11 – Roaming in traffic

	1H2019	1H2020	Var. (%) 1H2019 / 1H2020
Number of calls	145	92	-36.6
Number of minutes	485	413	-14.8
Text messages	401	219	-45.5
Volume of Internet access (TB)	10,064	7,298	-27.5
Average duration of calls (seconds)	200	269	+34.3

Unit: thousands, TB, seconds, %

Source: ANACOM

⁸ Roaming in traffic is the traffic flow (generated and terminating) in national networks by foreign network subscribers.

The same held true in the case of roaming out⁹. All types of traffic saw negative growth rates compared to the first half of 2019, with the volume of Internet traffic down (-7.2%) for the first time since this indicator was measured (Table 12).

Table 12 – Roaming out traffic

	1H2019	1H2020	Var. (%) 1H2019 / 1H2020
Number of calls	123	86	-30.0
Number of minutes	642	556	-13.5
Text messages	195	115	-41.0
Volume of Internet access (TB)	3,729	3,461	-7.2
Average duration of calls (seconds)	314	388	+23.6

Unit: thousands, TB, seconds, %

Source: ANACOM

The evolution described above was likely impacted by international travel restrictions due to the pandemic. Up until the start of 2020 (the time prior to the pandemic), roaming traffic saw significant growth, especially in Internet traffic, influenced by the entry into force of new rules on 30 April 2016. These rules are designed to encourage the elimination of the difference between national prices and roaming prices in the European Economic Area (EEA). Roaming prices were gradually reduced from 30 April 2016 and definitively terminated on 15 June 2017.¹⁰

The level of roaming in by roaming out traffic coverage in minutes was 74.3%.¹¹ Over the past five years, the roaming balance (roaming in – roaming out) had a surplus only in 2017. In contrast, in the case of Internet access, roaming in traffic was substantially higher than roaming out traffic. In 1H2020, roaming in traffic volume was 2.1 times higher than roaming out traffic.

⁹ Roaming out traffic is traffic generated and terminated by subscribers of national operators as users of networks of other operators abroad.

¹⁰ Since 15 June 2017, operators are required to implement Roam Like at Home (RLAH), unless they demonstrate to the regulator that they cannot recover the cost related to the provision of the roaming services.

¹¹This indicator is calculated as follows: roaming in minutes / roaming out minutes as a percentage.

6.4. Mobile broadband Internet traffic

Mobile broadband Internet access traffic increased by 33.9% in 1H2020 in relation to 1H2019 (Table 13).

Table 13 – Mobile broadband Internet traffic

	1H2019	1H2020	Var. (%) 1H2019 / 1H2020
Total	156,436	209,437	+33.9
of which by PC/tablet/pen/router	41,092	61,537	+49.8
of which by mobile phone	115,344	147,900	+28.2

Unit: TB, %

Source: ANACOM

Note: Includes Internet access traffic, outside of Portugal (roaming out)

This growth is explained by the increased number of users of the service and also by intensity of use.

Monthly traffic per active mobile broadband user increased by 28.9% compared with the same period of the previous year. Each active MBB user consumed on average 4.5 GB per month (Table 14). The monthly traffic generated by PC/pen/tablet/router reached 20.3 GB (+50.2%).

Table 14 – Monthly mobile broadband Internet access traffic per user

	1H2019	1H2020	Var. (%) 1H2019 / 1H2020
GB per active MBB user (monthly)	3.5	4.5	+28.9
of which by PC/tablet/pen/router	13.5	20.3	+50.2
Internet via mobile phone	2.7	3.4	+23.1

Unit: GB, %

Source: ANACOM

Note: Includes Internet access traffic, outside of Portugal (roaming out)

Since the onset of the collection of this indicator (in 2010), mobile Internet traffic has tended to grow exponentially, albeit with some periods of deceleration. In 1H2019, the impact of COVID-19 and the promotional offers launched by the larger operators¹² also contributed to this evolution.

NOS had the highest share of broadband Internet traffic (46.2%), followed by MEO and Vodafone (27.1% and 26.3%, respectively) – see Table 15. Compared to the previous year, NOS's share increased by 5.2 p.p., while Vodafone's and MEO's shares fell by 4.1 p.p. and 1.2 p.p., respectively.

Table 15 – Distribution of mobile broadband Internet traffic by provider

	1H2019	1H2020	Var. (p.p.) 1H2019 / 1H2020
NOS	40.9	46.2	+5.2
MEO	28.3	27.1	-1.2
Vodafone	30.4	26.3	-4.1
Other providers	0.4	0.4	0.0

Unit: %, p.p.

Source: ANACOM

Note 1: Includes Internet access traffic, outside of Portugal (roaming out)

Note 2: The variations shown may not correspond to the values in the table due to rounding off.

¹² Following the exceptional measures taken in response to COVID-19, MEO, NOS and Vodafone offered their customers 10 GB of mobile data to use over a 30-day period. The offer was made available for subscription to individual or business customers between 17 and 31 March.

Methodological note

Methodological note

a. Sources

- Quarterly questionnaire on electronic communication networks and services.

Information collected quarterly from the electronic communications providers in accordance with the specifications and definitions laid down in annex 2 of the Regulation on the provision of statistical information (Regulation 255/2017 of 16 May 2017: <https://www.anacom.pt/render.jsp?contentId=1415433>).

The reference date for the information presented is 30/07/2020. The information now made available may be subject to revisions or updates.

- Statistical aggregates published by Statistics Portugal (INE)

b. Definitions and notes

- Mobile accesses, traffic and revenue

See sections I.6, III.4, III.5 and IV.1.5, respectively, of annex 2 of the Regulation on the provision of statistical information (Regulation 255/2017 of 16 May 2017: <https://www.anacom.pt/render.jsp?contentId=1415433>).

With the entry into force of regulation 255/2017, of 16 May 2017, the number of mobile accesses actually used now excluded accesses associated with M2M. The figures in this report reflect this change, and therefore may be different from the figures published in previous reports.

- High speed

High-speed networks are those that allow download speeds greater than 30 Mbps

- Broadband

Broadband services are those that allow download speeds greater than 144 Kbps.

- Inhabitants

Resident population (number); Annual — Statistics Portugal, Annual Population Estimates. Data reference period: 31/12/2019. This report, and for purposes of calculation of penetrations, uses the most recent estimates of the population, after Census 2011, published by Statistics Portugal on 15 June 2020.

c. Initials and abbreviations

MBB	Mobile broadband	RLAH	Roam Like at Home	1H2019	First half of 2019
EEA	European Economic Area	SMS	Short message service	1H2020	First half of 2020
GB	Gigabyte	MTS	Mobile telephone service		
M2M	Machine-to-machine	TB	Terabyte		

d. Conventional signs

% percentage p.p. percentage points