



Commission for
Communications Regulation

Irish Communications Market

Quarterly Key Data Report

Data as of Q4 2018

QKDR DATA PORTAL

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An Coimisiún um Rialáil Cumarsáide

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Corrigendum to Q3 2018 QKDR

Five operators informed ComReg about incorrect historically provided information.

Note 1: Fixed line retail revenues were revised from Q1 2015 to Q3 2018 following revisions by BT Ireland Limited (Q1 2018 to Q2 2018), Hibernia Atlantic Cable Systems Limited (Q1 2018 to Q3 2018) and Pure Telecom Limited (Q1 2015 to Q3 2018) with such with revisions ranging from +€56k to +€1,317k. Retail market shares (by revenue) were affected by up to 0.17%.

Note 2: Fixed line wholesale revenues were revised for Q3 2018 following a revision by BT Ireland Limited, with this revision resulting in +€100k.

Note 3: Voice over Broadband (VoB) subscriptions were revised from Q1 2015 to Q3 2015 and Q1 2016 to Q3 2018 following revisions by Eircom Limited (Q3 2018), Pure Telecom Limited (Q1 2015 to Q3 2015 and Q1 2016 to Q3 2018) and Vodafone Ireland Limited (Q3 2016 to Q3 2018) with such revisions ranging from -9 to +32,714. Total fixed voice subscriptions and market shares were not affected by these revisions.

Note 4: PSTN access paths (direct) were revised for Q3 2018 following a revision by Eircom Limited (Q3 2018) with this revision resulting in +15,727 access paths. Total fixed voice subscriptions and market shares were not affected by this revision.

Note 5: Fixed voice subscriptions were revised from Q1 2015 to Q3 2018 following revisions by Pure Telecom Limited with these revisions ranging from -20,813 to -97. Market shares (by subscription) were affected by up to 1.4%.

Note 6: Fixed retail market subscriptions by type were revised from Q1 2015 to Q3 2018 following single play and double play revisions by Pure Telecom Limited with these revisions ranging from -19,372 to 1,001 for single play and -1,881 to 139 for double play. In turn, the impact on total fixed subscriptions was -20,937 to 1,140. Percentage proportions in single and bundle subscriptions were impacted in Figure 2.2.4 accordingly.

Note 7: Fixed broadband subscriptions were revised from Q1 2015 to Q3 2018 following revisions by Pure Telecom Limited and Eircom. These consisted of FWA revisions of -17 to +23 for FWA (Pure Telecom Limited from Q1 2015 to Q3 2018), FTTP revisions from -8 to 242 (Pure Telecom Limited from Q1 2015 to Q3 2018) and a DSL revisions of +6 (Eircom Limited for Q3 2018). Pure Telecom Limited also revised DSL and VDSL subscriptions resulting in changes to proportions of residential and non-residential categories with such changes ranging from 22 to 285 for DSL and 9 to 843 for VDSL. This did not affect totals for both platforms, however it did impact broadband subscriptions by speed (Figure 3.1.9), as well as average monthly traffic per fixed broadband subscription (Figure 3.4.2).

Note 8: Fixed voice call traffic (residential) was revised from Q1 2017 to Q3 2018 following revisions by Eircom Limited with such revisions ranging from +1,221k to 1,822k minutes.

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Summary

Overall industry retail revenues for Q4 2018 totalled €893.8 million. There were 1,430,160 fixed broadband subscriptions this quarter which was an increase of 0.8% from Q3 2018 and an increase of 2.2% compared to Q4 2017. Overall voice traffic volumes increased by 0.7% this quarter. Presented below is a tabular summary of the data presented throughout this Quarterly Key Data Report (QKDR).

Irish Quarterly Communications Market Data Q4 2018				
	Q4 2018	Q3 2018	Quarterly Change	Annual change
Total Retail Market Revenues ¹	€893,755,990	€881,996,526	+1.3%	+1.6%
Fixed Line Retail Revenues ²	€347,765,615	€345,508,749	+0.7%	+1.6%
Mobile Retail Revenues	€402,951,931	€395,350,903	+1.9%	+0.9%
Broadcasting Retail Revenues	€143,038,444	€141,136,874	+1.3%	+3.4%
Fixed Line Wholesale Revenues ³	€132,458,319	€133,286,345	-0.6%	-3.4%
Mobile Wholesale Revenues	€45,028,958	€46,680,811	-3.5%	-4.0%
Total Voice Traffic (Minutes)	3,914,091,360	3,885,714,958	+0.7%	-3.0%
Fixed Voice Traffic (Minutes) ⁴	743,472,478	792,498,739	-6.2%	-17.1%
Mobile Voice Traffic (Minutes)	3,170,618,882	3,093,216,219	+2.5%	+1.0%
Fixed Broadband Subscriptions ⁵	1,430,160	1,419,069	+0.8%	+2.2%
Fixed Subscriptions ⁶	2,261,132	2,266,531	-0.24%	-1.4%
Fixed Voice Subscriptions ⁷	1,446,253	1,448,040	-0.1%	-0.8%
Total Mobile Subscriptions	6,282,346	6,238,772	+0.7%	+4.3%
Machine to Machine Subscriptions	1,012,434	974,719	+3.9%	+22.2%
Mobile Broadband Subscriptions	298,419	298,976	-0.2%	+1.8%
Mobile Voice Subscriptions	4,971,493	4,965,077	+0.1%	+1.5%

¹ Mobile and fixed line wholesale revenues are excluded from this figure.

² Fixed line retail revenues were revised from Q1 2015 to Q3 2018. See note 1 within the corrigendum.

³ Fixed line wholesale revenues were revised for Q3 2018. See note 2 within the corrigendum.

⁴ Fixed voice traffic was revised from Q1 2017 to Q3 2018. See note 8 within the corrigendum.

⁵ Fixed broadband subscriptions were revised from Q1 2015 to Q3 2018. See note 7 within the corrigendum.

⁶ Fixed retail market subscriptions were revised from Q1 2015 to Q3 2018. See note 6 within the corrigendum.

⁷ Fixed voice subscriptions were revised from Q1 2015 to Q3 2018. See note 5 within the corrigendum.

- Overall electronic communications network and service retail revenues at the end of Q4 2018 were over €893 million for the quarter.
- At the end of Q4 2018 there were 1,446,253 fixed voice subscriptions, a decrease of 0.1% since last quarter and a decrease of 0.8% since Q4 2017.
- Total voice traffic minutes increased by 0.7% this quarter but were 3.0% lower than in Q4 2017. Mobile minutes form the majority of voice minutes at 81.0%, with fixed minutes representing the remaining 19.0%. Mobile voice minutes increased by 2.5% while fixed voice minutes decreased by 6.2% this quarter.
- Fixed broadband subscriptions increased by 0.8% this quarter and were up by 2.2% compared to Q4 2017. VDSL (+1.9%) and FTTP (+20.3%) showed positive growth this quarter. DSL (-4.5%), satellite (-1.2%), cable (-0.1%), FWA (-3.1%) mobile broadband (-0.2%) all fell this quarter.
- The estimated fixed broadband household penetration rate was 68.5% in Q4 2018. The fixed broadband per capita penetration rate was 29.3%. The broadband per capita penetration rate (including mobile broadband) was 35.4%.
- Average fixed broadband speeds continue to increase. In Q4 2018 approximately 87.4% of all fixed broadband subscriptions were equal to or greater than 10Mbps up from 84.2% in Q4 2017. 77.2% of all fixed broadband subscriptions were equal to or greater than 30Mbps, up from 72.0% in Q4 2017.
- At the end of Q4 2018 there were 6,282,346 mobile subscriptions (inc. mobile broadband and M2M), an increase of 0.7% since the last quarter. Mobile subscriptions (exc. mobile broadband and M2M) totalled 4,971,493, an increase of 0.1% since last quarter.
- There were 1,012,434 M2M subscriptions at the end of Q4 2018. This is an increase of 22.2% since Q4 2017 and represents 16.1% of all mobile subscriptions.
- The number of voice and data subscribers using 3G/4G networks increased to 4,701,150, up by 0.4% from Q3 2018 and up by 3.0% compared to Q4 2017.
- There were 510,899 gross additions in the number of mobile subscriptions in Q4 2018. Of these, 105,587 were subscriptions with ported phone numbers. On average, there were 98,761 mobile numbers ported and 496,981 total gross additions per quarter over the last 12 months.

Notes to data:

- A. Data published in previous QKDRs may have been amended since their publication. Amendments to the Q3 2018 QKDR are noted in the corrigendum notice on page 5 of this report.
- B. Extracts of data used in this report can be downloaded at <http://www.comreg.ie/industry/electronic-communications/data-portal>
- C. Further explanations and descriptions of data supplied in this report can be found in the accompanying explanatory memorandum 19/22a.
- D. While quarter on quarter comparisons are made in the report, definitive conclusions with regard to trends cannot be drawn from this and year on year comparisons are used to improve the reliability of the analysis.
- E. In most cases data has been rounded to one decimal place in this report. Not all charts in this report may sum exactly to 100% due to rounding.
- F. A number of external sources are used for international comparisons. These include the CSO, Eurostat and Strategy Analytics (Teligen).
- G. Irish population estimates of 4,886,400 and an estimated household number of 1,857,600 are used in this report. These statistics are obtained from the Central Statistics Office (CSO) Labour Force Survey (LFS) for Q4 2018.
- H. As of Q4 2016 FTTP and satellite subscriptions have been broken out from the previously reported 'Other' category. Additional subscriptions for FTTP (fibre to the premises, including fibre to the home (FTTH) and fibre to the curb) are included from Q3 2016.
- I. As of Q3 2017 two additional fixed operators have been included in the QKDR, Siro and Host Ireland, with associated broadband and leased line data included. Information on these metrics is therefore not strictly comparable with data published in previous periods.
- J. Cable broadband traffic reported from Q3 2015 to Q2 2018 is based on estimates from Virgin Media Ireland Limited due to issues with reporting accurate data for this metric.
- K. From Q4 2017 broadcasting revenue include data provided by Sky Ireland. Prior to this data had not been included in previous QKDRs. Data prior to Q4 2017 has not been made available. Comparisons with revenues from Q4 2017 are therefore not valid.

- L. From Q4 2017 total fixed subscriptions include actual TV subscription data provided by Sky Ireland. Prior to this, actual data had not been included. For data prior to Q4 2017 ComReg estimated Sky Ireland's TV subscriber data when sold in bundles, with this estimation based on extrapolations from market survey data. Comparisons with fixed subscription data prior to Q4 2017 are therefore not valid.
- M. As of Q1 2018 five additional fixed operators have been included in the QKDR, Goldfish Telecom Limited, Hibernia Atlantic Cable Systems Limited, Intellicom Ireland Limited, Ivertec Limited, Transaction Network Services (Ireland) Limited. Additional data is therefore included on fixed telephony subscriptions (inc. VoB) and associated retail minutes with revenues, broadband lines and subscriptions (notably FWA) and associated retail revenues as well as retail revenues from leased lines/corporate data services/other services. Additional wholesale revenues have also been included. Information on these metrics is therefore not strictly comparable with data published in previous periods.
- N. As of Q2 2018 the mobile operator ID (Carphone Warehouse) is no longer included in the QKDR due to it ceasing to trade.
- O. ComReg has been notified that mobile data traffic reported prior to Q2 2018 from Three Ireland (Hutchison) Limited was underreported (phones and mobile broadband). Due to issues with reporting systems the range of periods affected has not been provided by Three Ireland (Hutchison) Limited. ComReg, however does not believe the underreporting to be of material impact.
- P. As of Q3 2018 data for Casey Cablevision Limited is included with Virgin Media Ireland Limited due to an acquisition.
- Q. Broadband data volumes for Pure Telecom Limited for the quarter Q4 2018 have been excluded in this QKDR while a review is being undertaken.

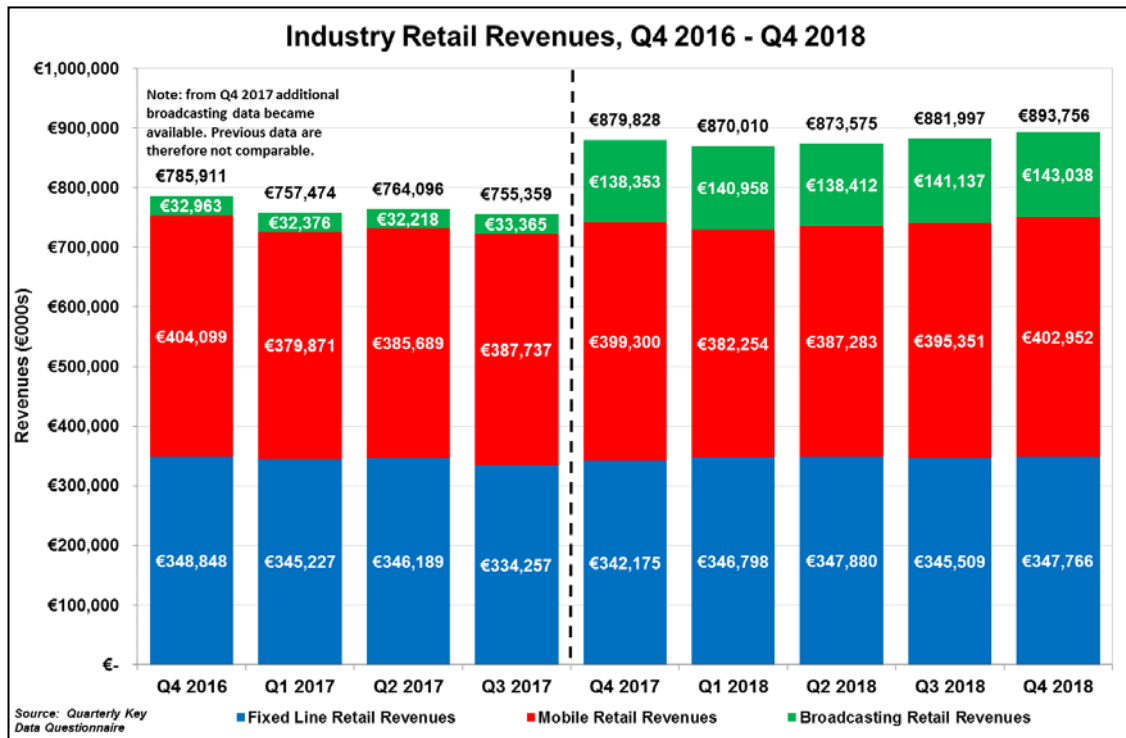
1. Overall Market Data

Data presented in this Quarterly Key Data Report is based on questionnaires completed by certain authorised operators⁸ for the period from 1 October to 31 December 2018. The report is based on submissions from 45 active operators⁹.

1.1 Overall Electronic Communications Revenues¹⁰

Figure 1.1.1 shows the developments in revenues attributable to the provision of fixed line, mobile and certain TV broadcasting services. In Q4 2018 mobile revenues accounted for 45.1% of total industry retail revenues followed by fixed line (38.9%) and broadcasting (16.0%) revenues. This quarter, mobile retail revenues increased by 1.9% and increased by 0.9% compared to Q4 2017. Fixed line retail revenues increased by 0.7% this quarter and increased by 1.6% compared to Q4 2017.

Figure 1.1.1 – Fixed, Mobile & Broadcasting Retail Revenues¹¹



According to the CSO, Ireland’s Gross National Product for Q3 2018¹² was approximately €63.1 billion. Based on the Q3 2018 retail revenue data reported to ComReg by operators in the Irish communications sector, these revenues were approximately 1.4% of GNP in that quarter.

⁸ Operators who generate in excess of €500,000 in retail and/or wholesale revenues from electronic communications networks and services per annum.

⁹ See table A2 in the Appendix on page 81 for the list of respondents who submitted data to ComReg.

¹⁰ Further detail on terms and definitions - ComReg Doc. 19/22a Explanatory Memorandum.

¹¹ Fixed line retail revenues were revised for Q1 2018 and Q2 2018. See note 1 in the corrigendum.

¹² Q3 2018 is the latest period for which GNP data is available.

1.2 Overall Call Volumes

Figure 1.2.1 – Fixed and Mobile Voice Call Volumes (Minutes)¹³

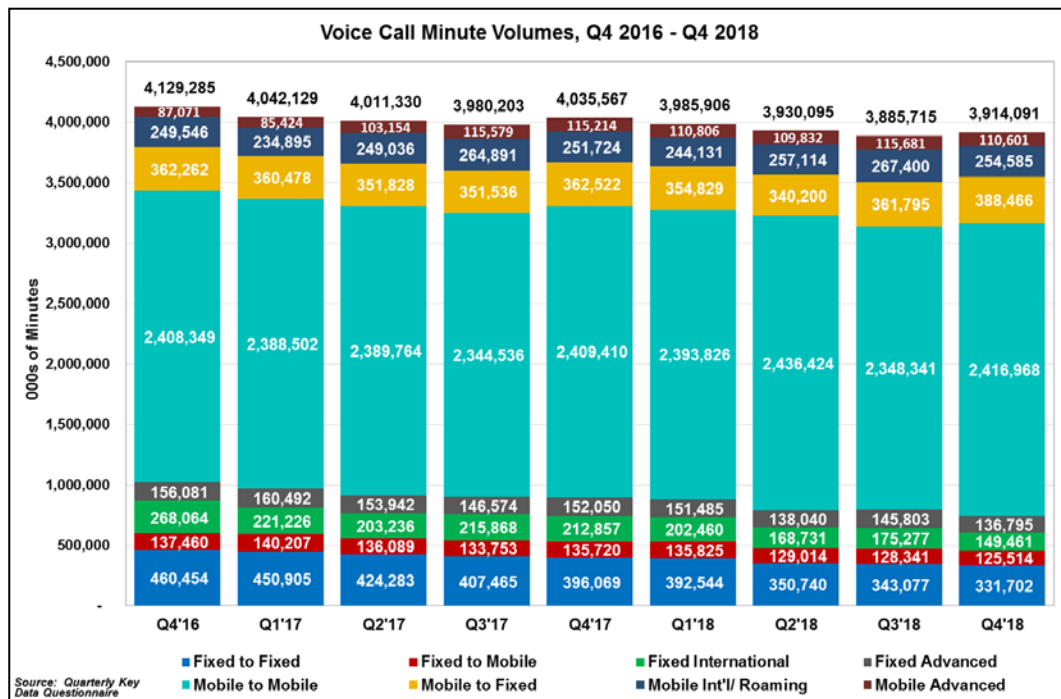


Figure 1.2.1 profiles volumes of originating voice calls by call type on both fixed and mobile networks on a quarterly basis. There was a decrease in total voice minutes this quarter. Voice minutes for Q4 2018 totalled 3.914 billion minutes, there were 15.716 billion minutes in the twelve months to the end of Q4 2018. Total voice minutes¹⁴ increased by 0.7% from the previous quarter but decreased by 3.0% since Q4 2017.

It should be noted that managed VoB minutes are included with calls originating from fixed networks in figure 1.2.1, and are split according to the same call categorisations (i.e. domestic, international, mobile, other).

Mobile originating voice minutes (up 1.0% on Q4 2017) accounted for 81.0% of all voice minutes in Q4 2018 (compared to 77.8% in Q4 2017) while traffic originating on fixed line networks (down 17.1% on Q4 2017) accounted for the remaining 19.0% of all voice minutes (compared to 22.2% in Q4 2017). Figure 1.2.2 shows total voice traffic in Ireland for Q4 2018.

¹³ Fixed advanced minutes include premium rate services minutes, freephone minutes, payphone minutes, operator services minutes, national and international virtual private network minutes. Mobile advanced minutes include premium rate services minutes and other mobile minutes such as voicemail, DQ, call completion minutes etc.

¹⁴ Fixed voice call minute volumes were revised from Q1 2017 to Q3 2018. See note 8 in the corrigendum.

Figure 1.2.2 – Total Voice Traffic

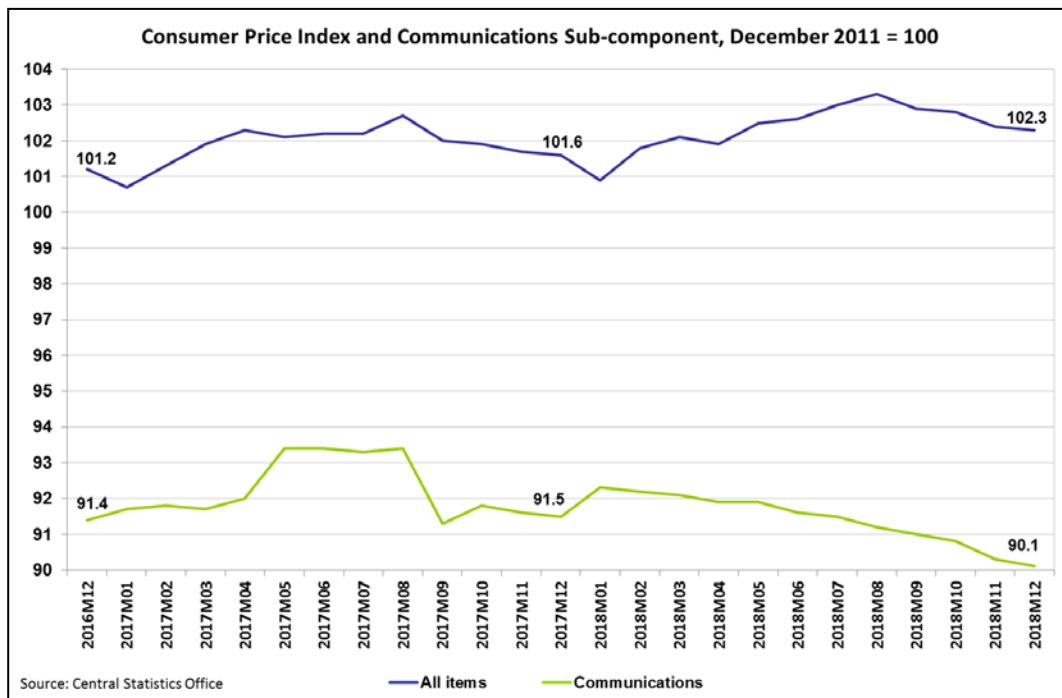
	Q4 2018 Mins	Q3'18 – Q4'18 Growth	Q4'17 – Q4'18 Growth
Fixed Voice Minutes	743,472,478	-6.2%	-17.1%
Mobile Voice Minutes	3,170,618,882	+2.5%	+1.0%
Total Voice Minutes	3,914,091,360	+0.7%	-3.0%

1.3 Communications and the Consumer Price Index

Figure 1.3.1 shows the monthly change in the Consumer Price Index (CPI) and the communications sub-component from Q4 2016 to Q4 2018. In December 2018 the CSO weighting for the communications basket was 3.04%¹⁵ of the total CPI, down from 3.16% in December 2017.

Using December 2011 as the base period, overall communications prices have decreased over the last 12 months. Since Q4 2017 communication prices have decreased by 1.4 percentage points, while the overall CPI has increased by 0.7 of a percentage point.

Figure 1.3.1 – Consumer Price Index and Communications Sub-Component



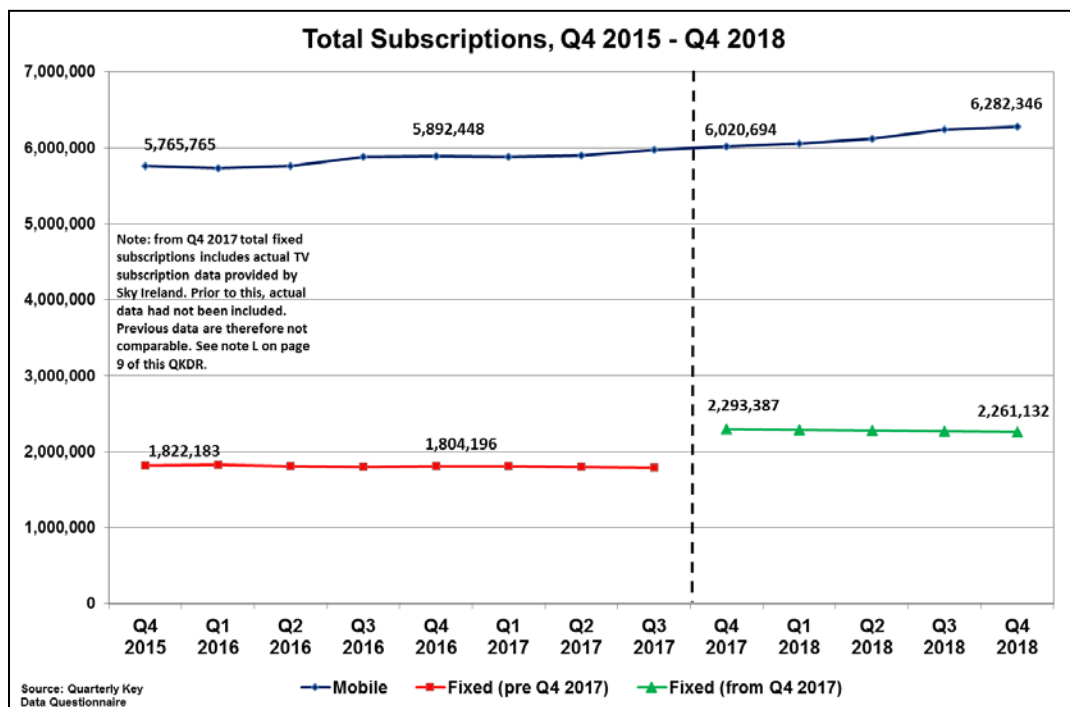
¹⁵ <https://www.cso.ie/en/releasesandpublications/er/cpi/consumerpriceindexdecember2018/>

1.4 Fixed and Mobile Market Retail Voice, Internet and TV Subscriptions

Figure 1.4.1 shows the total number of mobile subscriptions (inc. mobile broadband and M2M) and the estimated number of fixed subscriptions to voice, internet and TV services (both single play and bundled subscriptions) in Ireland.

Customers purchasing either a single fixed service or more than one service (as part of a bundle) are included in the fixed subscriptions category. Total mobile subscriptions have increased by 0.7% since Q3 2018 while fixed subscriptions decreased by 0.2% over the quarter¹⁶. It should be noted that it is possible that a customer may have more than one subscription, particularly where a mobile customer has more than one SIM card or in the case of a business customer with multiple fixed line subscriptions across several offices.

Figure 1.4.1 – Total Subscriptions (Fixed and Mobile)¹⁷



¹⁶ Note: from Q4 2017 additional fixed subscription data became available. Previous data are therefore not comparable. This is reflected in Figure 1.4.1 where, from Q4 2017, a new fixed subscription trend began. See note L on page 9 of this QKDR. Mobile subscriptions were unaffected.

¹⁷ Fixed retail market subscriptions by type were revised from Q1 2015 to Q3 2018. See note 6 in the corrigendum.

2. Fixed Market Data

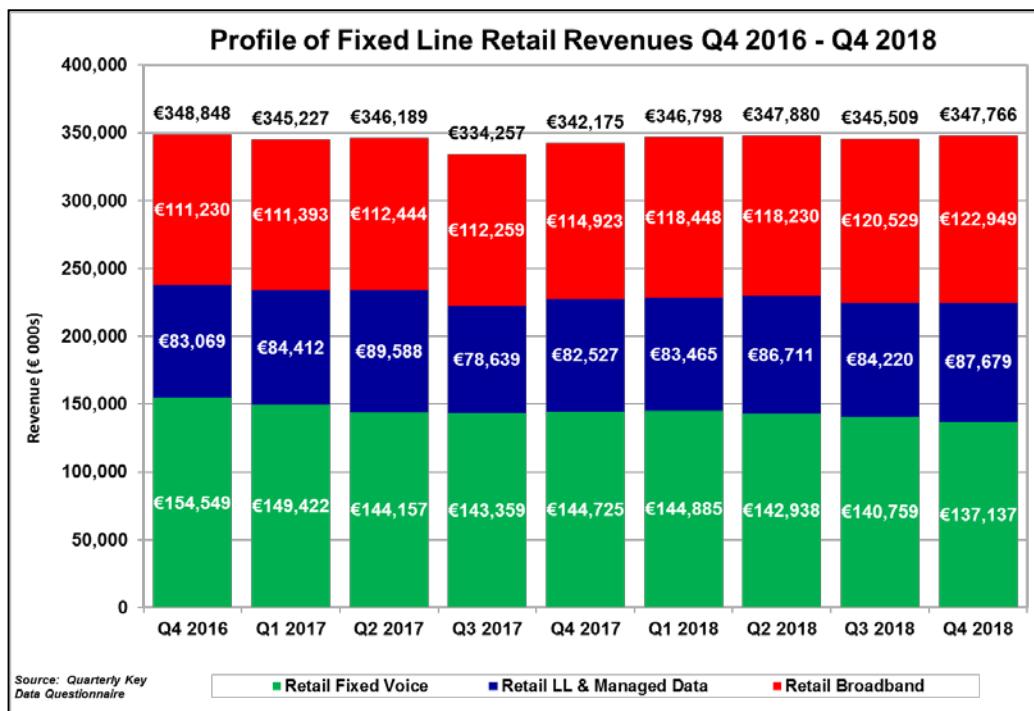
2.1 Fixed Line Revenues¹⁸

Figure 2.1.1 shows the profile of fixed line retail revenues in Ireland over the last two years. Total fixed line retail revenues for Q4 2018 were over €347 million. This was an increase of 0.7% on Q3 2018 revenues and a 1.6% increase on Q4 2017 revenues¹⁹.

Retail broadband revenues (+7.0%) and retail leased lines, managed and other data services revenues (+6.2%) have increased since Q4 2017 while retail fixed voice revenues (-5.2%) have fallen.

Comparing Q4 2017 to Q4 2018, the proportion of retail fixed line revenues attributable to retail leased lines, managed data and other advanced data services increased by 1.1 of a percentage point to 25.2% while retail broadband revenue’s share increased by 1.8 percentage points year-on-year to 35.4%. The proportion of retail fixed voice revenues fell by 2.9 percentage points to 39.4% of overall fixed line retail revenues.

Figure 2.1.1 – Profile of Fixed Line Retail Revenues



Fixed line wholesale revenues were over €132 million in Q4 2018, the greatest share of which were related to interconnect and wholesale fixed narrowband access revenues, followed by wholesale leased lines, managed and other data services revenues and

¹⁸ As referred to in notes I and M (pages 8 and 9), additional revenue data became available from new operators in Q3 2017 and Q1 2018. Hence, revenue and market share information in Figures 2.1.1, 2.1.1.1 and 2.1.1.2 are not directly comparable to information in previous periods.

¹⁹ Fixed line retail revenues were revised from Q1 2015 to Q3 2018. See note 1 within the corrigendum.

wholesale broadband access revenues. Wholesale revenues decreased by 0.6% compared to Q3 2018 and were down by 3.4% since Q4 2017²⁰.

2.1.1 Authorised Operators’ Share of Fixed Line Revenues

Figure 2.1.1.1 below outlines the revenue shares for the fixed retail market (comprising narrowband, broadband, leased line, managed and other data revenues) held by the incumbent fixed line operator (Eir), authorised operators having at least a 2% market share, and all other authorised operators (OAOs) with market share less than 2%.

In Q4 2018, Eir had the highest retail revenue share in the fixed retail market with 41.0% market share. Virgin Media Ireland had 16.5%, followed by Vodafone (fixed only) with 12.6%, Sky Ireland (6.5%), BT (5.0%) and AT&T (2.4%). OAOs accounted for the remaining 16.5%.

Figure 2.1.1.1 – Fixed Retail Revenue Market Shares²¹

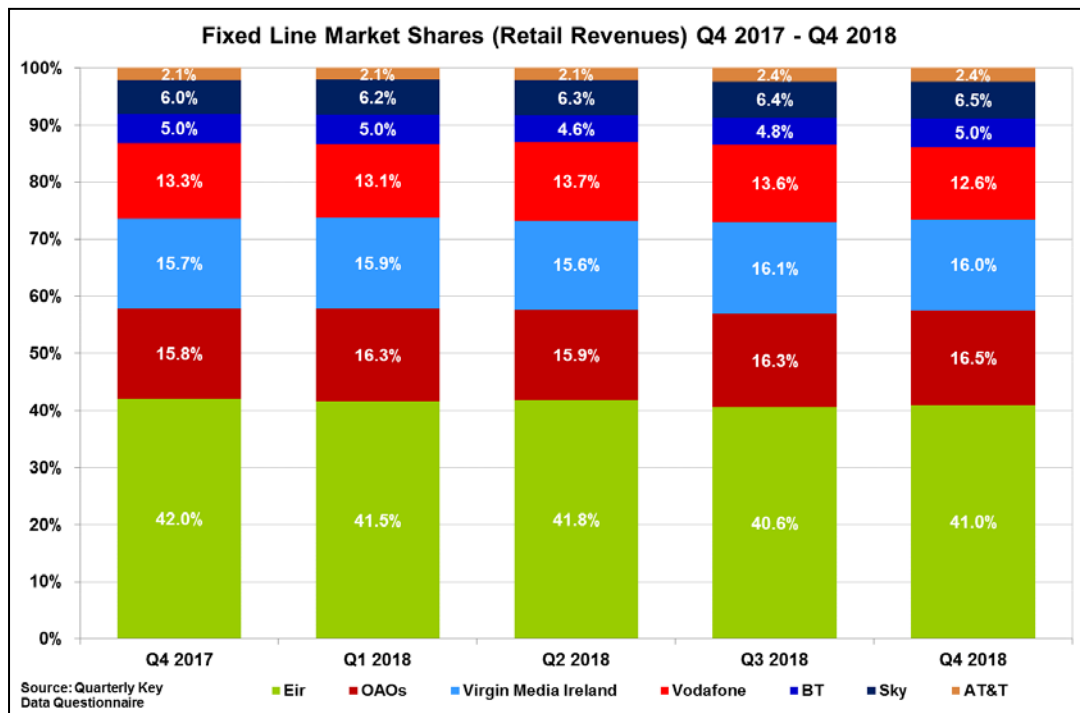


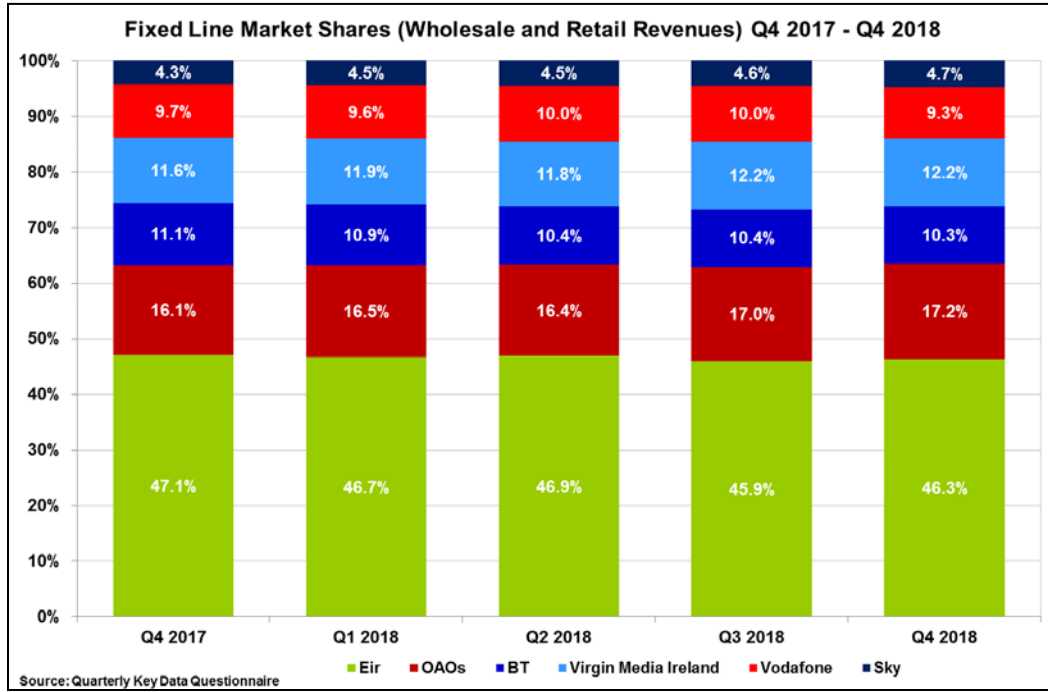
Figure 2.1.1.2 outlines the revenue shares in the fixed market (comprising fixed line retail and wholesale revenues). When making comparisons, it is important to note that the market shares presented below are based on shares across all fixed wholesale and retail revenue streams and some operators may not offer products and services across all segments of these markets.

²⁰ Fixed line wholesale revenues were revised for Q3 2018. See note 2 within the corrigendum.

²¹ Fixed line retail revenues were revised from Q1 2015 to Q3 2018. This affected market share proportions. See note 1 within the corrigendum.

In Q4 2018, Eir had the highest revenue market share with 46.3%. ComReg estimates that the next four largest operators (BT Ireland, Sky Ireland, Virgin Media Ireland and Vodafone (fixed only)) contribute a further 36.5% share of total (retail and wholesale) industry revenue, while OAOs account for the remaining 17.2%.

Figure 2.1.1.2 – Fixed Revenue Market Shares



2.2 Fixed Line Access Paths²² and Subscriptions

2.2.1 Access Paths and VoB Subscriptions

Figure 2.2.1.1 presents the total number of narrowband copper fixed access paths (PSTN and ISDN) and Voice over Broadband (VoB) subscriptions. PSTN and ISDN access paths are usually used for voice services and internet access. There were over 1.31 million direct and indirect PSTN and ISDN access²³ paths in the Irish market in Q4 2018. This represents a decrease of 1.5% on the last quarter and a decline of 5.5% since Q4 2017. The number of PSTN access paths has decreased by 1.1% from last quarter and declined by 4.3% since Q4 2017. The number of ISDN access paths decreased by 3.1% since Q3 2018 and decreased by 9.6% since Q4 2017. At the same time, VoB subscriptions increased by 2.1% since Q3 2018 and rose by 7.4% since Q4 2017.

²² Access paths are not synonymous with access lines as for example in the case of ISDN paths, there may be more than one path provided via a single ISDN line.

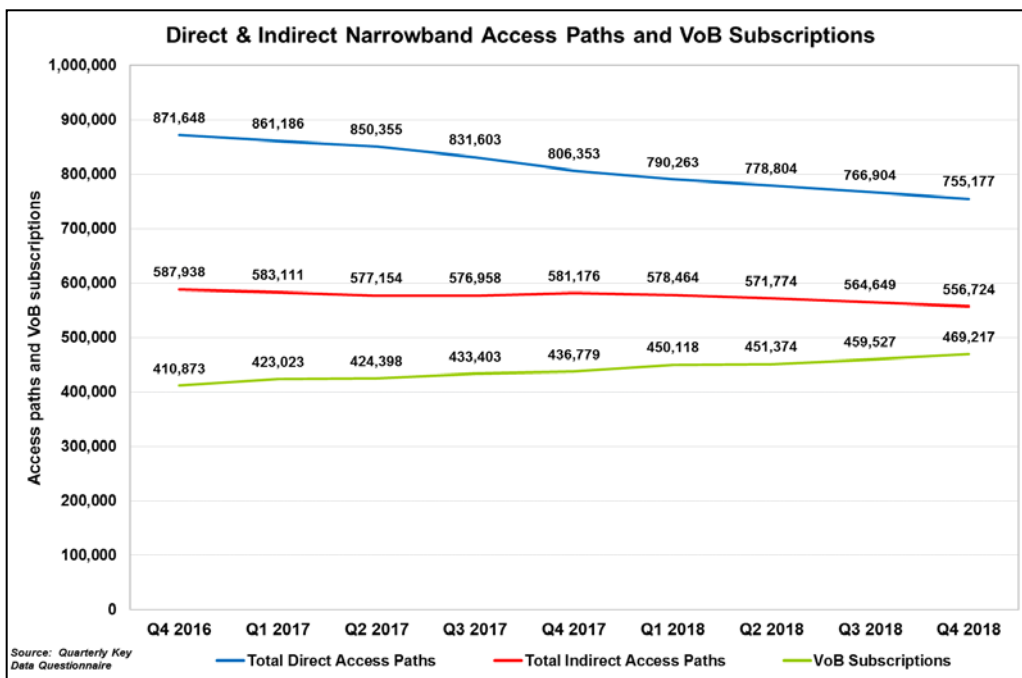
²³ Indirect access paths relate to telephone lines provided to customers by means of Carrier Pre-select (CPS), Wholesale Line Rental (WLR) or Switchless Voice (SV). CPS allows the user to receive all or a portion of calls from one provider and line rental from another provider (usually Eir). SB-WLR (also known as Single Billing-WLR) allows the user to receive every aspect of telephone service, including all calls and line rental from one single supplier. SV also known as White Label Access-Voice Access (WLA-(Voice)) is a switchless voice service which allows an operator to purchase end-to-end call services without the need to have its own interconnection infrastructure.

Figure 2.2.1.1 – Narrowband Fixed Access Paths and VoB Subscriptions²⁴

	Q4 2018	Q3'18 – Q4'18 Growth	Q4'17 – Q4'18 Growth
PSTN²⁵	1,048,349	-1.1%	-4.3%
ISDN Basic	101,968	-1.6%	-6.6%
ISDN Fractional	40,864	-4.4%	-10.3%
ISDN Primary	120,720	-3.8%	-11.8%
Total ISDN	263,552	-3.1%	-9.6%
Total PSTN and ISDN	1,311,901	-1.5%	-5.5%
VoB Subscriptions²⁶	469,217	+2.1%	+7.4%

Figure 2.2.1.2 presents the total number of narrowband fixed access paths broken out by direct and indirect access as well as VoB subscriptions. In Q4 2018, indirect access accounted for 42.4% of all narrowband access paths in the fixed line market.

Figure 2.2.1.2 – Direct & Indirect Narrowband Fixed Access Paths and VoB Subscriptions



²⁴ VoB subscriptions were revised from Q1 2015 to Q3 2015 and Q1 2016 to Q3 2018. See note 3 within the corrigendum.

²⁵ PSTN access paths (direct) were revised for Q3 2018. See note 4 within the corrigendum.

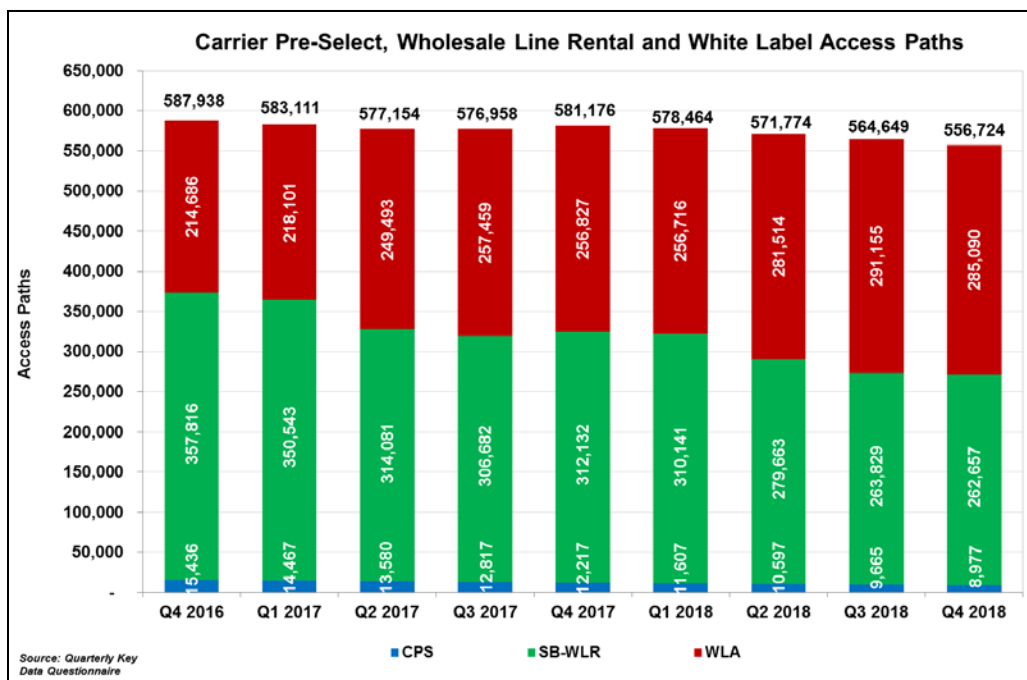
²⁶ Additional data on VoB subscriptions became available from new operators in Q1 2018. Hence, revenue and market share information in Figures 2.1.1, 2.1.1.1 and 2.1.1.2 are not directly comparable to information in previous periods.

2.2.2 Indirect Access Paths

Figure 2.2.2 illustrates the overall number of indirect PSTN and ISDN paths provided by means of either Carrier Pre-Selection (CPS) only, Single Billing Wholesale Line Rental (SB-WLR) and White Label (Voice) Access (WLA). In Q4 2018, there were 556,724 indirect access paths in Ireland. The number of indirect access paths decreased by 1.4% this quarter and declined by 4.2% in the year to Q4 2018. Some of this decline may be related to the increase in VoB subscriptions.

The data indicates that single-bill services, i.e. SB-WLR or WLA rather than CPS only (i.e. a calls only service, excluding line rental) continues to be the predominant form of indirect access. SB-WLR used by OAOs now accounts for 47.2% of indirect access paths compared to 60.9% in Q4 2016. WLA paths account for 51.2% of total indirect access paths compared to 36.5% in Q4 2016. The share of CPS only indirect access paths has declined by 1.0 percentage point in the last two years and now accounts for 1.6% of overall indirect access paths.

Figure 2.2.2 – Narrowband Indirect Access Paths

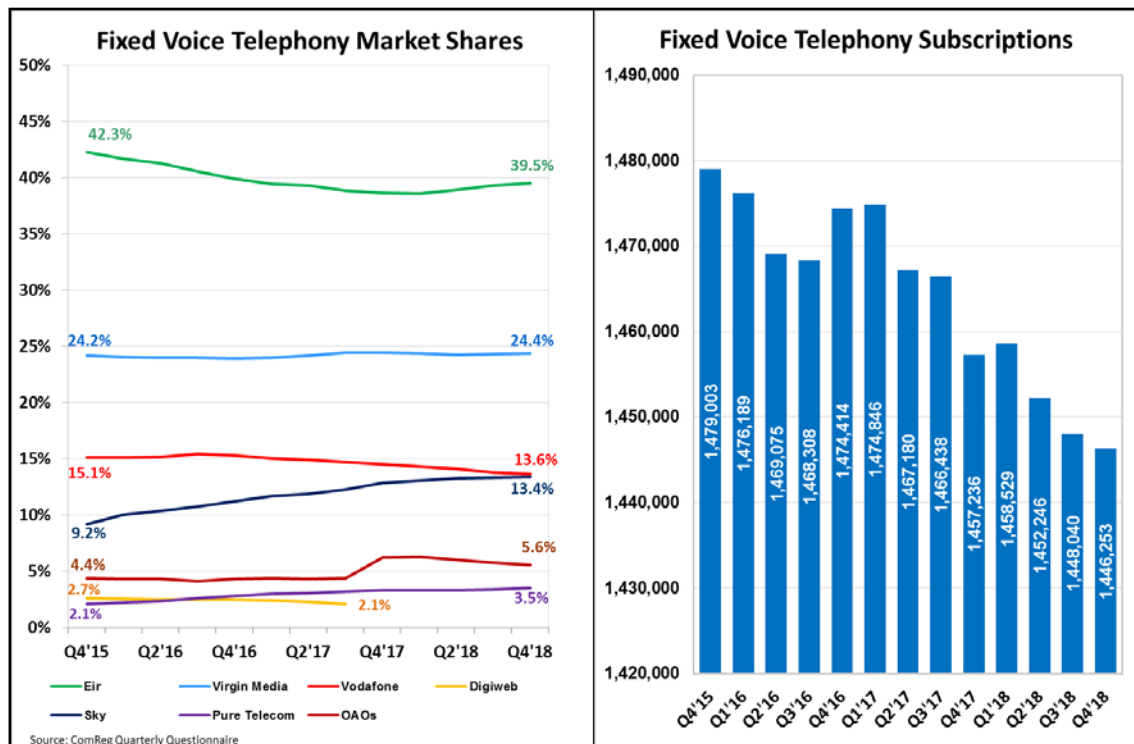


2.2.3 Fixed Voice Subscriptions

Figure 2.2.3 shows the estimated number of retail customers/subscriptions to fixed voice services (either standalone or as part of a bundle) and operators' market shares based on these subscriptions. At the end of Q4 2018 there were 1,446,253 fixed voice subscriptions (a decrease of 0.1% since Q3 2018 and a decrease of 0.8% on Q4 2017). As of Q4 2018 Eir had 39.5% of all fixed voice subscriptions followed by Virgin Media

(24.4%), Vodafone (13.6%), Sky (13.4%) and Pure Telecom (3.5%). OAOs accounted for the remaining 5.6% of fixed voice subscriptions²⁷.

Figure 2.2.3 – Fixed Voice Subscriptions²⁸



2.2.4 Fixed Market Retail Subscriptions by Type²⁹

Figure 2.2.4 shows the estimated proportion of retail customers/subscriptions to fixed line telephony services (mobile is excluded from single play subscriptions, but included when part of a bundle e.g. double/triple/quad play) broken out by those with a single service and those taking a bundle of two or more services (subscriptions mean a customer with at least one contract with an electronic communications service provider).³⁰ Single play subscriptions include fixed line services only (including standalone cable TV, IPTV and satellite subscriptions) which means that standalone mobile voice, standalone mobile broadband subscriptions are excluded from this figure.

²⁷ Note in Q4 2017 the market share for Digiweb fell below 2% and therefore is subsumed into the OAO category.

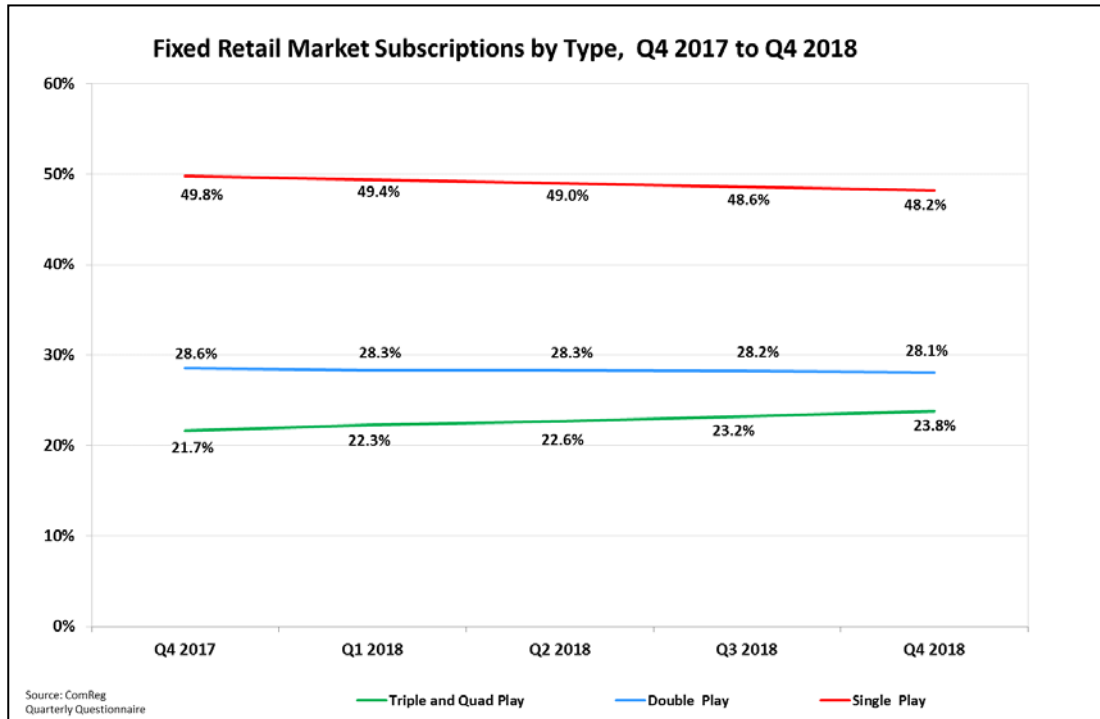
²⁸ Fixed voice subscriptions were revised from Q1 2015 to Q3 2018. Market shares were impacted. See note 5 in the corrigendum.

²⁹ As noted on page 9 (Notes to data, L), from Q4 2017 total fixed subscriptions now include actual TV subscription data provided by Sky Ireland. Prior to this, actual data had not been included. For data prior to Q4 2017 ComReg estimated Sky Ireland’s TV subscriber data when sold in bundles, with this estimation based on extrapolations from market survey data. Comparisons with fixed subscription data prior to Q4 2017 are therefore not valid.

³⁰ Double play subscriptions can refer to either fixed telephony and broadband or television and mobile telephony; television and the broadband; mobile telephony and broadband or television subscriptions. Triple play subscriptions can refer to fixed telephony and broadband and television; fixed telephony and mobile telephony and broadband; fixed telephony and mobile telephony and television; or, mobile telephony and broadband and television subscriptions. Quadruple play subscriptions refer to fixed telephony, broadband, television and mobile subscriptions.

At the end of Q4 2018 there were 2,261,132 fixed retail subscriptions across both business and residential customers (a business customer may have multiple subscriptions). In Q4 2018 48.2% of fixed market retail subscriptions were single play, 28.1% were double play (a bundle of two services) and 23.8% were a combination of triple play (a bundle of three services) and quadruple play (a bundle of four services).

Figure 2.2.4 – Fixed Market Retail Subscription Type³¹



2.3 Fixed Voice Call Volumes³²

Fixed voice traffic in Q4 2018 was just over 743 million minutes, which was a 6.2% decrease on Q3 2018 and a fall of 17.1% since Q4 2017.

Managed voice over broadband (VoB) minutes account for approximately 24.4% of total fixed voice minutes up from 22.0% in Q4 2017.

The numbers quoted in this QKDR represent managed VoB services only (for example by Eir, Virgin Media, Vodafone and others such as Blueface) and do not include unmanaged or over-the-top VoB services offered by providers such as Skype.

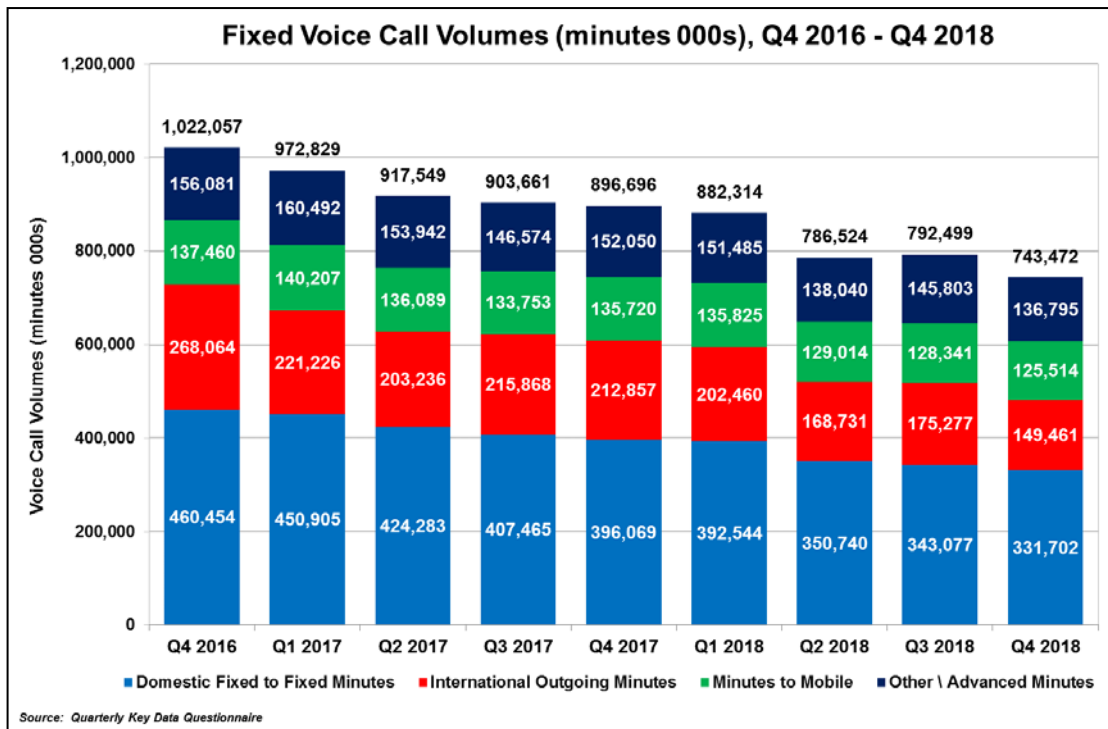
³¹ Fixed retail subscriptions by type were revised from Q1 2015 to Q3 2018. Proportions were impacted. See note 6 in the corrigendum.

³² Fixed voice call volumes (residential) were revised from Q1 2017 to Q3 2018. See note 8 in the corrigendum.

It should be noted that the split of managed VoB minutes by category (i.e. domestic, international, mobile, other) is placed into those respective fixed minutes categories in figures 2.3.1, 2.3.2 and 2.3.3.

Figure 2.3.1 shows the breakdown of fixed voice call volumes by call type. Domestic fixed to fixed minutes accounted for 44.6% of all fixed voice traffic in Q4 2018. International outgoing minutes accounted for 20.1% of all fixed voice traffic. The share of fixed to mobile minutes was 16.9% while other/advanced minutes (which include premium rate minutes) represented 18.4% of all fixed voice traffic³³.

Figure 2.3.1 – Fixed Voice Call Volumes (Minutes)³⁴



Figures 2.3.2 and 2.3.3 show the change in the average monthly fixed voice call minutes per business and residential subscribers respectively. In Q4 2018 the average business subscriber made 624 minutes of voice calls. The average residential subscriber usage was 90 minutes per month.

³³ Additional data on fixed voice call minutes became available from new operators in Q1 2018. Hence, call volume information in Figure 2.2.3 is not directly comparable to information in previous periods.

³⁴ Domestic Calls include local & national calls. Advanced service and other minutes include minutes to premium rate numbers, freephone numbers, callsave, operator services, VPN minutes, payphones and other services.

Figure 2.3.2 – Fixed Voice Call Volume per Business Subscriber (Minutes)

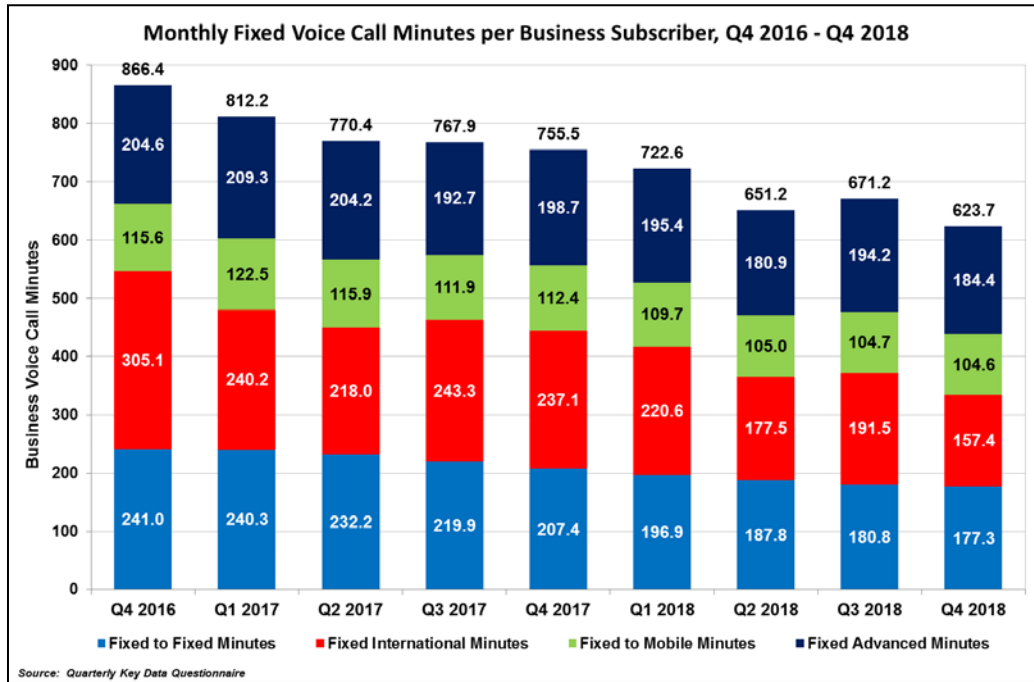
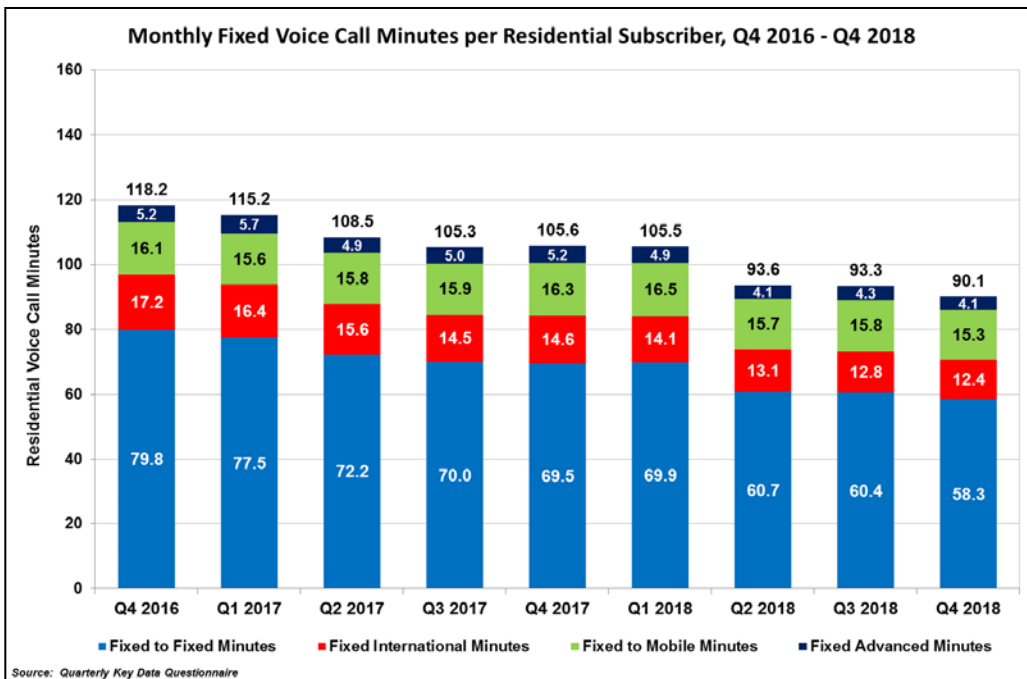


Figure 2.3.3 – Fixed Voice Call Volume per Residential Subscriber (Minutes)



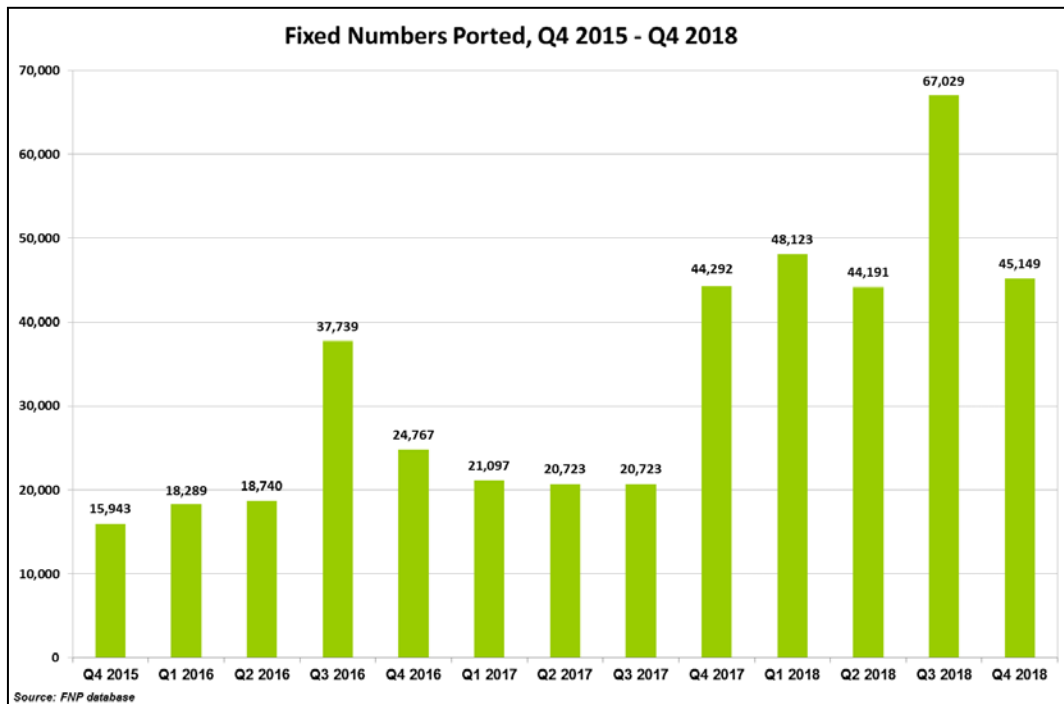
2.4 Fixed Number Portability

Figure 2.4.1 illustrates the number of fixed numbers (geographic and non-geographic) ported between Irish fixed voice service providers since Q4 2015. Fixed Number Portability (FNP) allows consumers to switch fixed voice provider while retaining their fixed number.

In the quarter to December 2018, 45,149 numbers were ported between operators (204,492 numbers in the twelve months to Q4 2018)³⁵. Over the last 12 months, an average of 51,123 numbers have been ported each quarter. ComReg notes a higher than normal quantity in the number of ported numbers in periods Q3 2016³⁶.

ComReg notes that the fixed number portability database only records data on customers that retain their telephone number while switching between different fixed voice service providers' networks. Therefore, porting numbers presented in Figure 2.4.1 should not be considered as a full proxy for switching activity in the fixed voice market as switching between operators using the same underlying network for the provision of fixed voice services (e.g. where a retail customer switches service provider, but both service providers underlying retail services is provided on the same network – as in the case where retail services are provided over the same wholesale network) would not be recorded in the FNP database.

Figure 2.4.1 – Fixed Numbers Ported



³⁵ ComReg notes that the industry project to transition from a porting process based on a legacy central reference database for recording the porting status of geographic and non-geographic ported numbers to a new porting solution has completed its implementation and data migrations phase and has now moved into normal operational mode. Furthermore, the process associated with the new porting solution provides for enhanced data collection capabilities that will improve the accuracy of porting data recorded.

³⁶ This was due to an audit of the central reference database which records porting activity of fixed numbers.

2.5 Standalone Fixed Voice Service Pricing Data

ComReg uses independently collated Strategy Analytics (Teligen) pricing data using OECD-approved methodologies to examine the relative prices of a number of specific fixed voice usage baskets of national and international telecoms services for both residential and business users. The pricing data used for international comparisons currently includes pricing information for selected countries, namely Germany, Denmark, Spain, Netherlands and the United Kingdom³⁷.

For national comparisons, the prices advertised by the largest operators (in terms of number of subscribers to standalone fixed voice services³⁸) during Q4 2018 were analysed³⁹ for selected usage baskets. In this QKDR, standalone fixed voice service prices advertised by Eir, Sky, Digiweb, Pure Telecom and Vodafone were analysed. Thus, the pricing analysis does not necessarily present the lowest prices available in the whole market, but rather the lowest prices offered by the operators having the largest number of subscribers.

For international comparisons, the prices advertised by the largest operators (in terms of number of subscribers to standalone fixed voice service) in each of the respective countries during Q4 2018 were analysed⁴⁰ for selected usage baskets⁴¹ (with an average per country price presented based on the average of lowest price tariffs advertised by three highest ranking operators in national pricing comparisons). In order to enable international comparisons, prices are presented in Euro Purchasing Power Parities (PPPs) and exclude VAT charges. PPPs provide an indication of the cost of telecoms services in countries analysed in relation to the cost of all other products and services.

The presented national and international comparison analysis incorporates discounts offered by operators. Nonrecurring charges (e.g. charges for the installation of a service) are discounted/amortised over five years. Fixed recurring monthly costs such as line rental and any other additional recurring charges are included. Calls to fixed, mobile and international destinations are included⁴².

³⁷ In future QKDRs ComReg may expand the analysis and include more countries for international price comparisons.

³⁸ Standalone fixed voice services are voice services not sold as part of a bundle or other services.

³⁹ The subscribers of these operators jointly account for over 90% of all fixed voice subscribers.

⁴⁰ The subscribers of these operators jointly account for over 80% of all fixed voice subscribers in each of the respective countries.

⁴¹ The same basket was applied to each respective country in order to make the international comparison.

⁴² For the Q1 2018 QKDR the OECD price baskets were reviewed and revised in line with the 2017 OECD methodology. This was retrospectively applied to the period Q4 2017. The criteria for the 2017 OECD methodology differs from the previous 2010 methodology and is therefore not strictly comparable (for example, international minutes do not apply to the 2017 methodology). The 2017 OECD methodology may be accessed at: [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/CDEP/CISP\(2017\)4/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/CDEP/CISP(2017)4/FINAL&docLanguage=En).

For more detailed information on basket methodologies see ComReg’s accompanying Memorandum, document 19/22a.

The following baskets are presented in this report⁴³:

Residential and Business Standalone Fixed Voice Service Baskets

Type of basket	Basket
Residential	60 calls (180 minutes) basket
Business	260 calls (560 minutes) basket

These baskets were selected given they most suitably corresponded (amongst the available OECD usage baskets) to the fixed voice usage patterns presented in figures 2.3.2 and 2.3.3 above. ComReg notes that these baskets reflect usage patterns of an average user and do not necessarily reflect prices of tariffs that are geared towards customers having different usage profiles.

ComReg notes that comparisons are based on the prices of advertised tariffs⁴⁴ only and the analysis does not take into consideration other potentially important factors such as quality of the network, level of customer care, additional units of consumption available after having accounted in the analysis for the units in the OECD usage basket, minimum contract term etc.

OECD Residential Standalone Fixed Voice Service Basket

Figure 2.5.1 compares tariffs advertised by standalone fixed voice service providers for residential customers based on a basket of 60 calls⁴⁵. Pure Telecom offers the cheapest tariff for this particular basket at €35.52, followed by Digiweb (€37.64) and Sky (€42.15).

⁴³ In future QKDRs ComReg may expand the analysis and present price comparisons based on additional and/or different usage baskets.

⁴⁴ Tariffs publically advertised during Q4 2018.

⁴⁵ Basket assumes the usage of 135 fixed to fixed minutes and 45 fixed to mobile minutes.

Figure 2.5.1 - Residential Standalone Fixed Voice Basket (National)

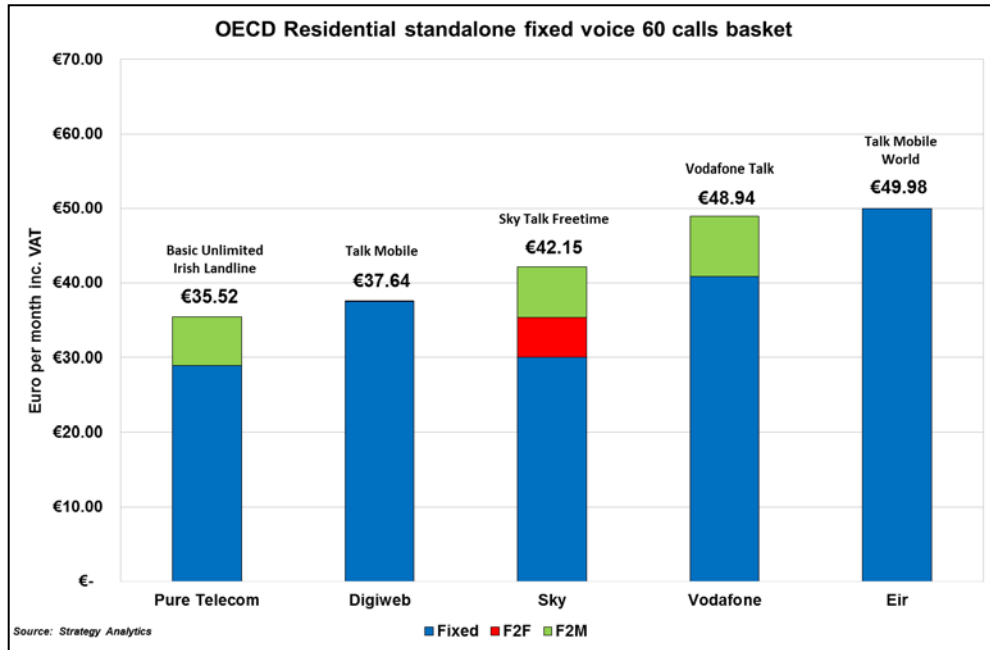
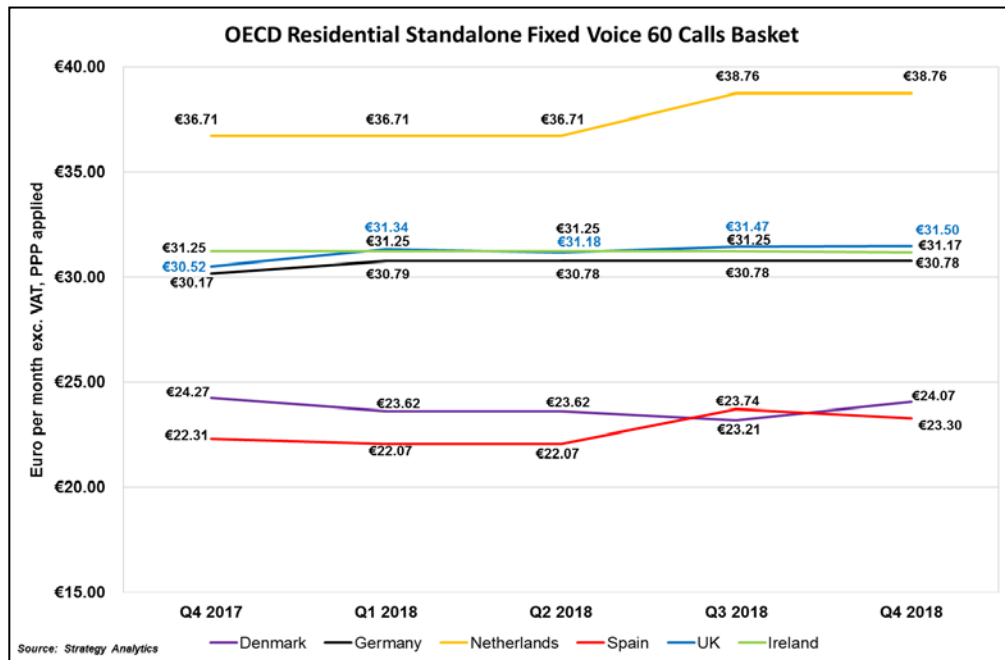


Figure 2.5.2 illustrates Ireland’s ranking alongside five other Western European countries with respect to prices for residential standalone fixed voice services. In Q4 2018 Ireland ranked in fourth place with an average price of €31.17⁴⁶ for this particular basket. The average price in Ireland is 4.1% more expensive than the average price⁴⁷ for all of the countries included in the analysis.

Figure 2.5.2 - Residential Standalone Fixed Voice Basket (International)



⁴⁶ As noted previously, average prices used for international comparisons exclude VAT charges.

⁴⁷ The average of prices presented in Figure 2.5.2. Prices include line rental.

OECD Business Standalone Fixed Voice Service Basket

Figure 2.5.3 compares tariffs advertised by standalone fixed voice service providers⁴⁸ for business customers based on a basket of 260 calls⁴⁹. Presented prices exclude VAT charges. Vodafone offers the cheapest tariff for this particular basket at €32.

Figure 2.5.3 - Business Standalone Fixed Voice Basket (National)

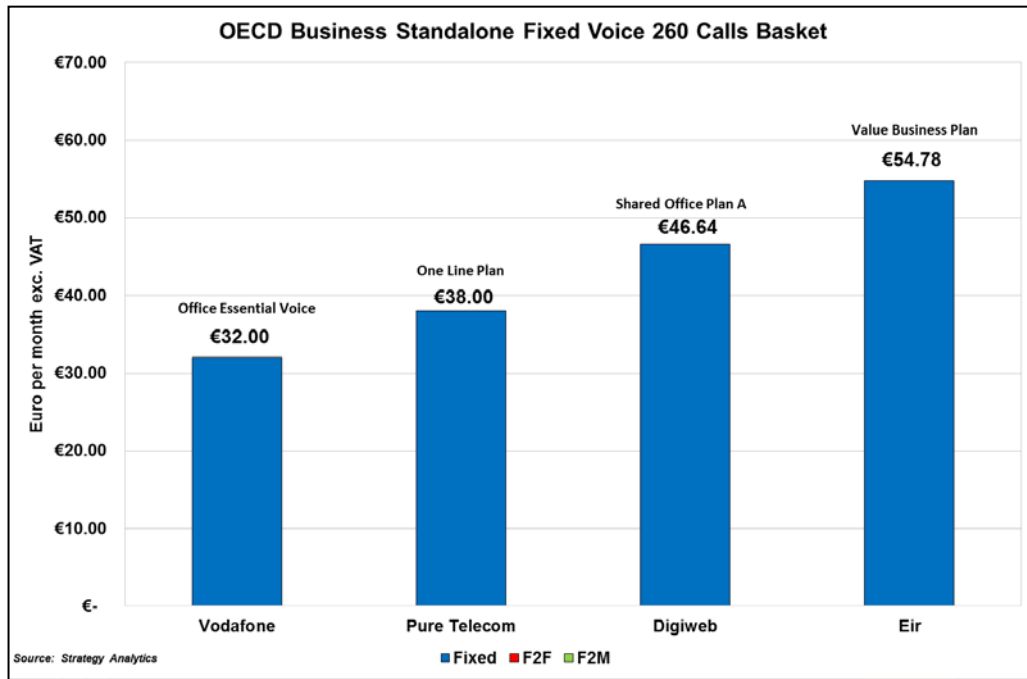


Figure 2.5.4 shows that Ireland (€38.88⁵⁰) ranks in first place. The average price in Ireland is 23.6% cheaper than the average price⁵¹ for all of the countries included in the analysis.

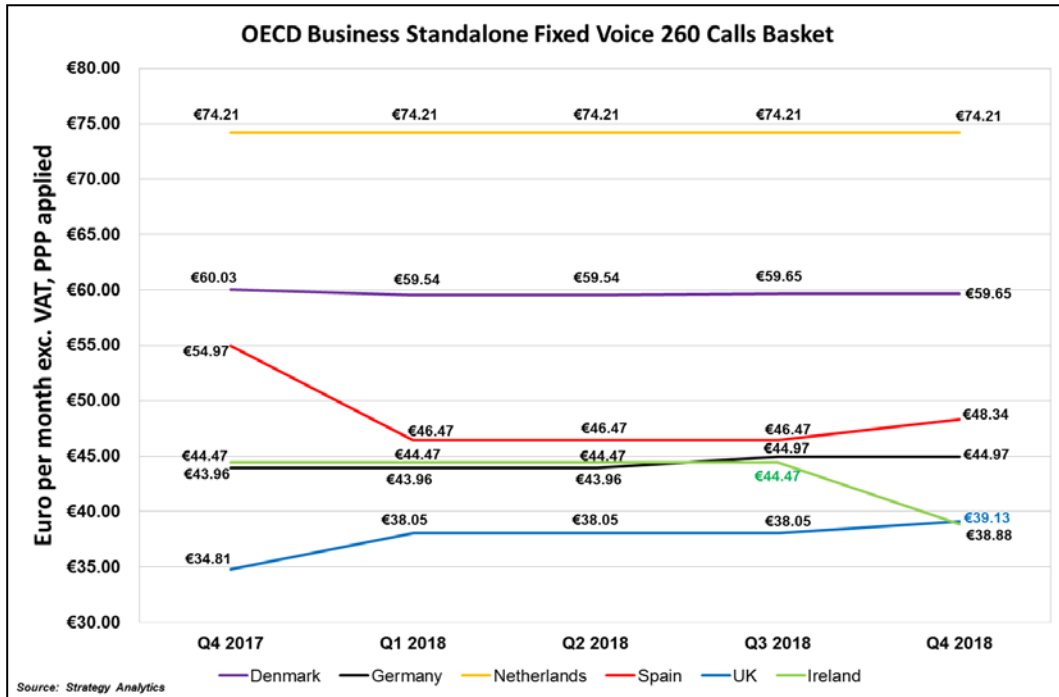
⁴⁸ In this QKDR only tariffs advertised by Vodafone, Digiweb and Eir were analysed for business customers. This can arise for reasons such as operators not offering fixed voice services to business customers or not advertising prices publicly. ComReg may expand the analysis and include additional operators in the future QKDRs.

⁴⁹ Basket assumes the usage of 370 fixed to fixed minutes and 190 fixed to mobile minutes.

⁵⁰ As noted previously, average prices used for international comparisons exclude VAT charges.

⁵¹ The average of prices presented in Figure 2.5.4.

Figure 2.5.4 - Business Standalone Fixed Voice Basket (International)



3. Broadband Services

3.1 Total Broadband⁵² Subscriptions and Provision of Broadband Services

Figure 3.1.1 shows the total number of broadband subscriptions in Ireland as of Q4 2018. At the end of December 2018, there were 1.729 million active broadband subscriptions in Ireland. This was an increase of 0.6% on the previous quarter and a 2.2% increase on Q4 2017.

There was an increase in total fixed line broadband subscriptions this quarter (up by 11,091) and a decrease in mobile broadband subscriptions (down by 557 subscriptions). ComReg reports active dedicated mobile broadband subscriptions and does not include Internet access over mobile handsets within these numbers.

VDSL⁵³ (+1.9%) and FTTP⁵⁴ (+20.3%) showed positive growth this quarter. DSL⁵⁵ (-4.5%), satellite (-1.2%), cable (-0.1%), FWA (-3.1%) mobile broadband (-0.2%) all fell this quarter. It is likely that some of the DSL reductions are accounted for by consumers switching to VDSL based broadband services as well as to broadband services provided on other platforms.

Figure 3.1.1 – Total Number of Active Broadband Subscriptions

Subscription Type	Q4 2018	Quarterly Growth Q3'18 – Q4'18	Annual Growth Q4'17 – Q4'18
DSL Broadband	295,970	-4.5%	-17.6%
VDSL Broadband	618,630	+1.9%	+7.7%
Cable Broadband	372,844	-0.1%	-0.2%
FTTP Broadband	90,642	+20.3%	+128.9%
Satellite Broadband	4,522	-1.2%	-9.3%
FWA Broadband	47,552	-3.1%	+0.2%
Total Fixed broadband ⁵⁶	1,430,160	+0.8%	+2.2%
Mobile Broadband	298,419	-0.2%	+1.8%
Total Broadband	1,728,579	+0.6%	+2.2%

⁵² ComReg notes that the data provided in this section relates to active subscriptions reported by operators. It takes into account multiple active subscriptions to broadband offerings by individual subscribers.

⁵³ VDSL refers to very-high-bit-rate digital subscriber line. These lines are typically utilised in the provision of next generation broadband services.

⁵⁴ FTTP (fibre to the premises) refers to a range of fibre access installations such as fibre to the home (FTTH), fibre to the premises (FTTP) and fibre to the curb.

⁵⁵ DSL refers to a digital subscriber line, the means by which broadband speeds (i.e. in excess of 144k downstream) are delivered over the copper telecoms network.

⁵⁶ Fixed broadband subscriptions were revised from Q1 2015 to Q3 2018. See note 7 in the corrigendum.

Figure 3.1.2 profiles broadband subscriptions in Ireland using the subscription type classifications of outlined in Figure 3.1.1.

Figure 3.1.2 – Total Broadband Subscriptions

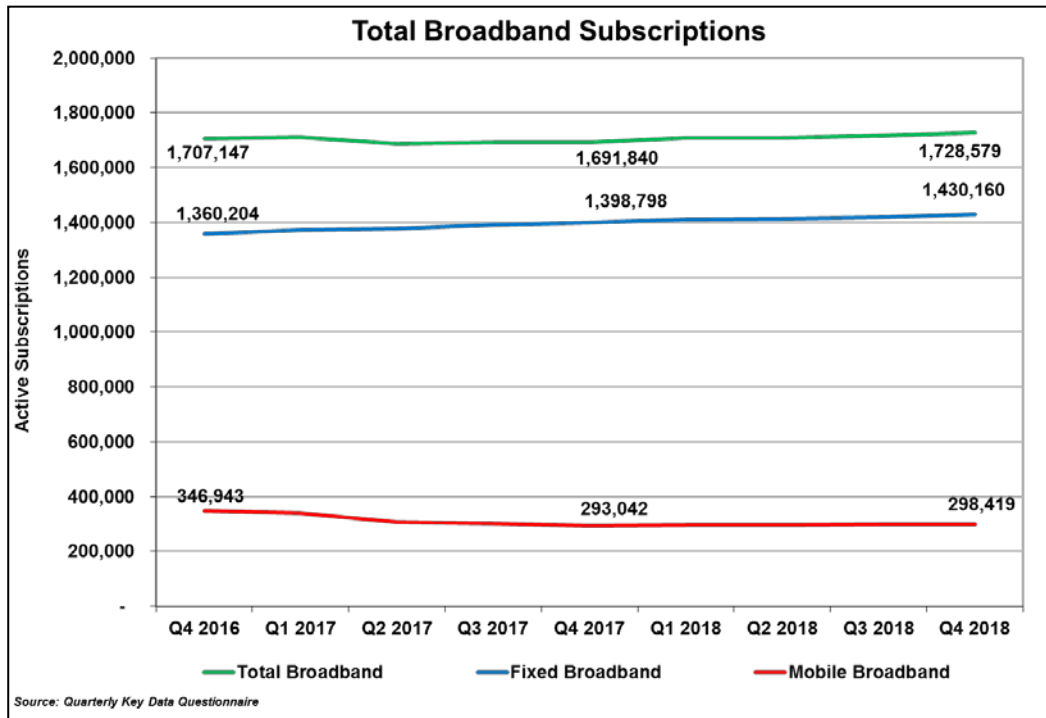
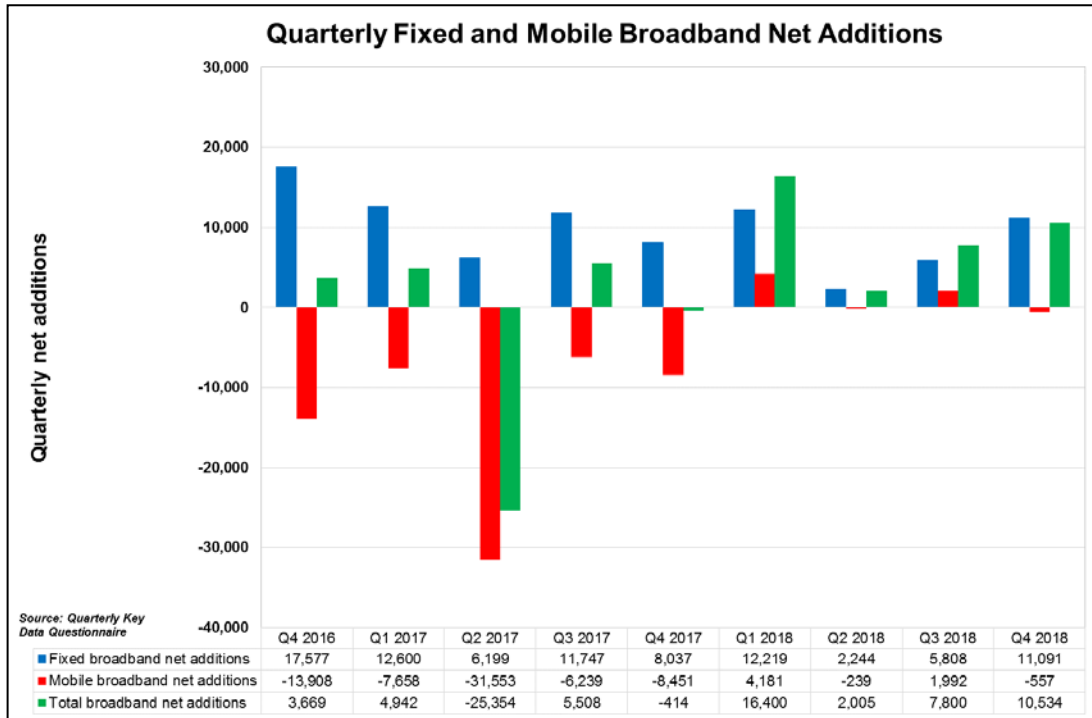


Figure 3.1.3 shows the quarterly growth in fixed and mobile broadband subscriptions since Q4 2016. In general, there has been a steady growth of fixed broadband subscriptions and a decline of mobile broadband subscriptions. It should be noted that ComReg reports on active broadband subscriptions and the mobile broadband subscription numbers reported by ComReg do not include internet access over mobile handsets (such as smartphones).

Figure 3.1.3 – Quarterly Growth in Broadband Subscriptions



Since Q3 2016, VDSL subscriptions reached the largest share of broadband subscriptions at 27.2% with this increasing to 35.8% in Q4 2018. The continuous increase in VDSL subscriptions is likely to be largely accounted for by consumers switching from DSL based broadband services. DSL accounted for 17.1% of all broadband subscriptions in Q4 2018, down from 21.2% in Q4 2017. The share of mobile broadband subscriptions was 17.3% of all broadband subscriptions, the same as in Q4 2017. Cable had a 21.6% share of all broadband subscriptions down from 22.1% in Q4 2017. FWA had a 2.8% share of broadband subscriptions, the same as in Q4 2017. The remainder consists of satellite with a 0.26% share of broadband subscriptions, slightly down from 0.29% in Q4 2017, while FTTP had a 5.2% share of broadband subscriptions in Q4 2018, up from 2.3% in Q4 2017.

Figure 3.1.4 illustrates the split by type of broadband subscriptions in the Irish market since Q4 2017, while Figure 3.1.5 shows the net additions to broadband subscriptions by each platform. The net total number of fixed broadband subscriptions has increased this quarter, driven mainly by increases in VDSL and FTTP subscriptions.

Figure 3.1.4 – Broadband Subscriptions by Platform⁵⁷

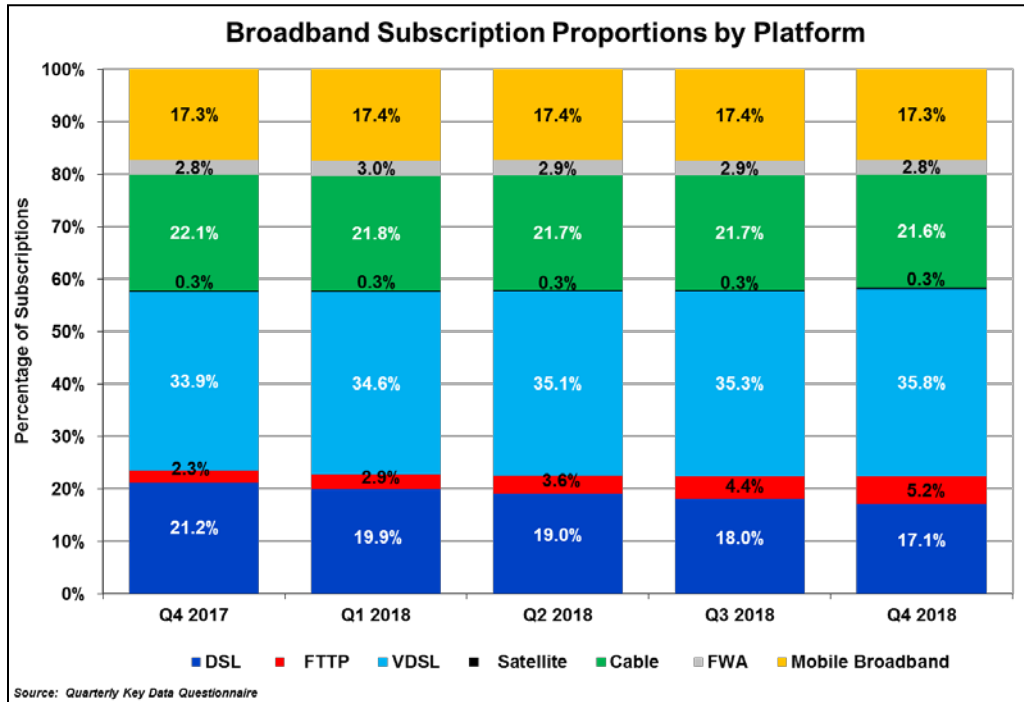


Figure 3.1.5 – Broadband Subscriptions - Net additions

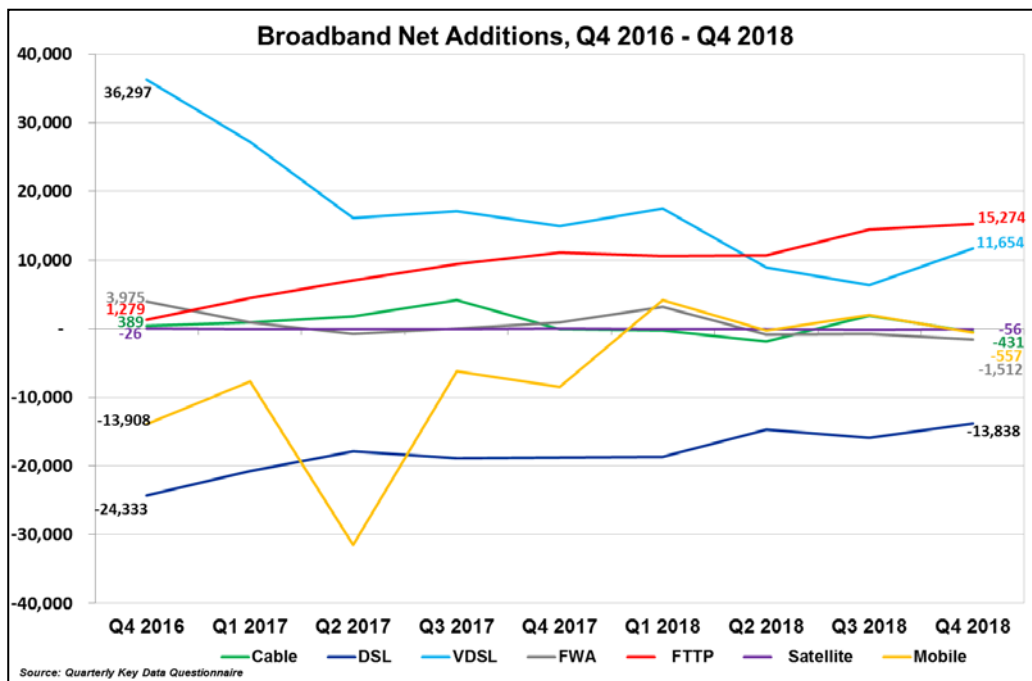


Figure 3.1.6 provides an estimate of the proportion of business and residential subscriptions to DSL, VDSL, cable, FWA, mobile broadband, fibre and satellite

⁵⁷ Figure 3.1.4 is based on number of lines for DSL, VDSL, FTTP and cable plus subscriptions for satellite, FWA and mobile broadband.

broadband services. In Q4 2018, 82.7% of broadband subscriptions on all platforms were classed as residential broadband subscriptions. The platform with the highest percentage of residential vis-à-vis business subscriptions is cable broadband, while the mobile broadband category has the highest percentage of business customers.

Figure 3.1.6 – Broadband Subscriptions by Subscription Type

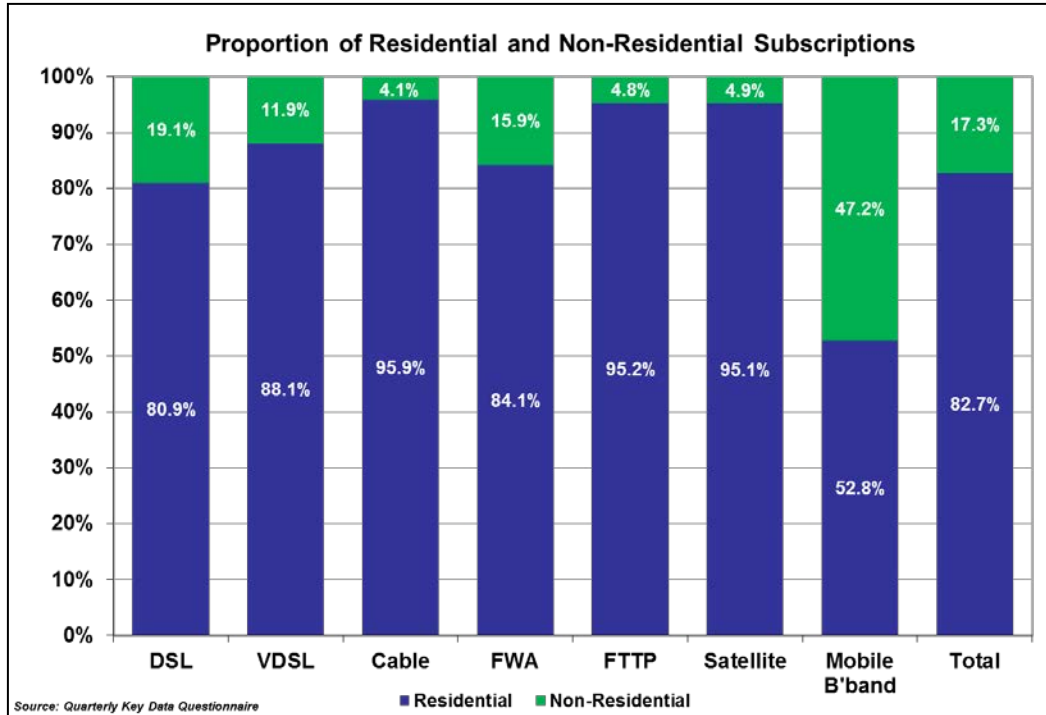


Figure 3.1.7 illustrates the breakdown of broadband subscriptions by advertised (headline) speed across all fixed broadband platforms (mobile broadband is excluded). In total, approximately 77.2% of broadband subscriptions were ≥ 30 Mbps (with 29.6% ≥ 100 Mbps). This equates to approximately 79.3% (with 31.9% ≥ 100 Mbps) of residential subscriptions and 60.1% (with 11.7% ≥ 100 Mbps) of business subscriptions.

The data suggests that most business and residential users subscribe to broadband services with advertised download speeds of between 30Mbps - 100Mbps. Many larger business users access their broadband services over dedicated leased lines. Leased lines are not included in these charts. Leased line speeds can range up to speeds in excess of 1 gigabyte per second.

Figure 3.1.7 – Fixed Broadband Download Speeds and Subscription Type

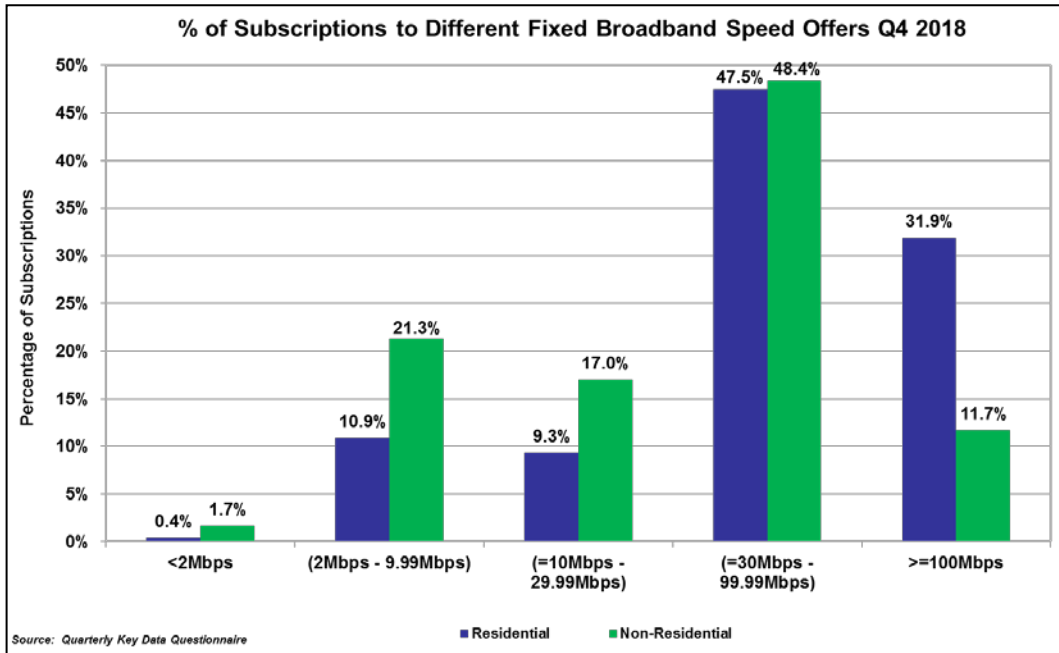


Figure 3.1.8 shows broadband subscriptions by advertised (headline) speed and the type of broadband platform subscribed to.

Figure 3.1.8 – Fixed Broadband Download Speeds and Platform

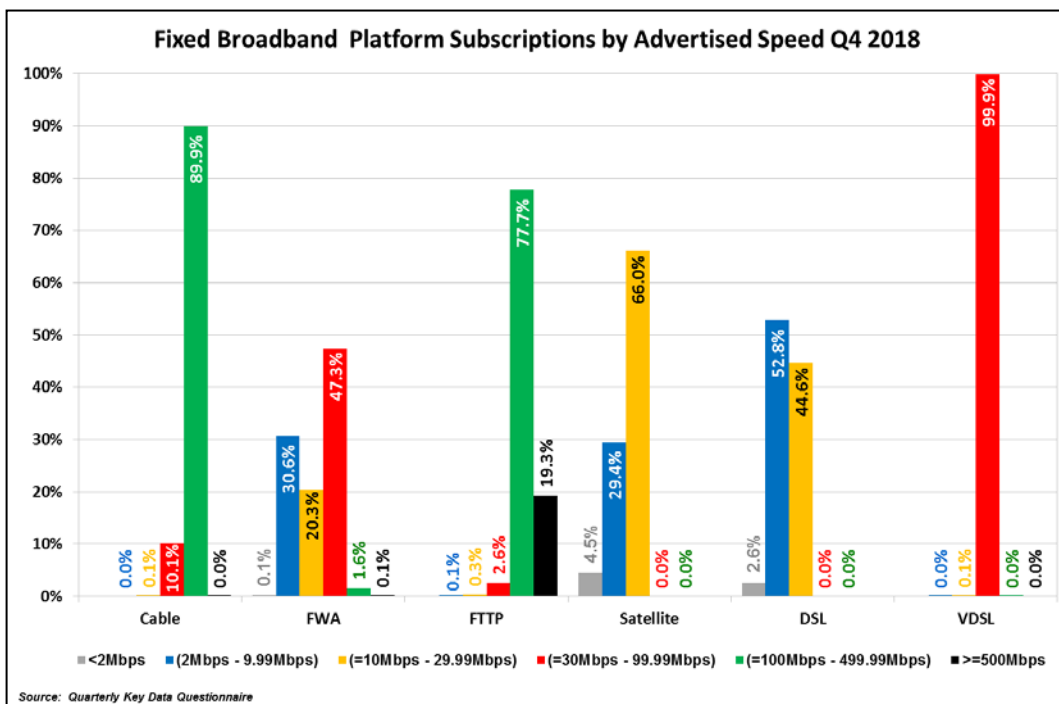


Figure 3.1.9 shows the change in fixed broadband subscriptions by advertised (headline) download speeds between Q4 2016 and Q4 2018. Over the entire period, growth in

broadband speeds has been mainly in subscriptions with speeds above 30Mbps. The share of these subscriptions increased from 72.0% in Q4 2017 to 77.2% in Q4 2018.

Figure 3.1.9 – Fixed Broadband Subscriptions by Advertised (Headline) Download Speeds⁵⁸

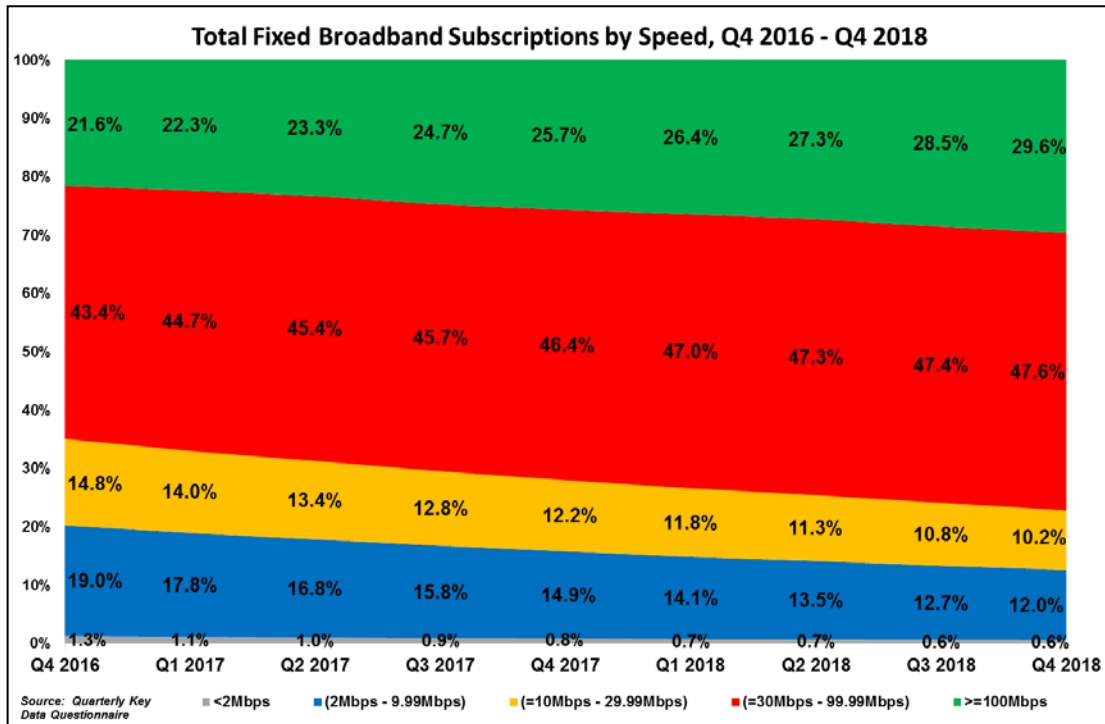


Figure 3.1.10 provides the market shares of fixed broadband operators by number of subscriptions. DSL, VDSL, cable, FWA, satellite and FTTP subscriptions are used to calculate fixed broadband market shares.

Operators with a market share of 2% or more are shown in the chart below. All those operators with less than 2% of total fixed broadband subscriptions are grouped together under the heading 'OAOs'.

According to the data received from operators for Q4 2018, Eir had 32.5% of total fixed broadband subscriptions, followed by Virgin Media who had 26.4% of subscriptions. Vodafone had 18.4% (excluding mobile broadband subscriptions) and Sky Ireland had a 13.3% market share. All other OAOs combined accounted for the remaining 9.4% share of fixed broadband subscriptions.

⁵⁸ Download speeds were impacted by revisions to broadband subscription data. See note 7 in the corrigendum.

Figure 3.1.10 – Subscription Market Share of Fixed Broadband Market⁵⁹

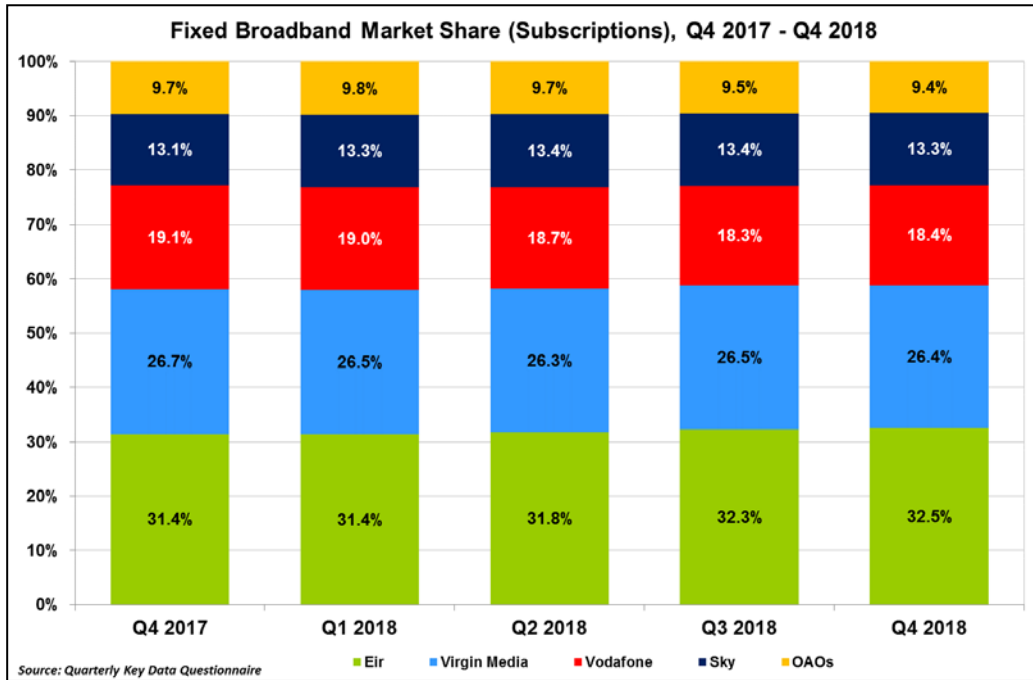
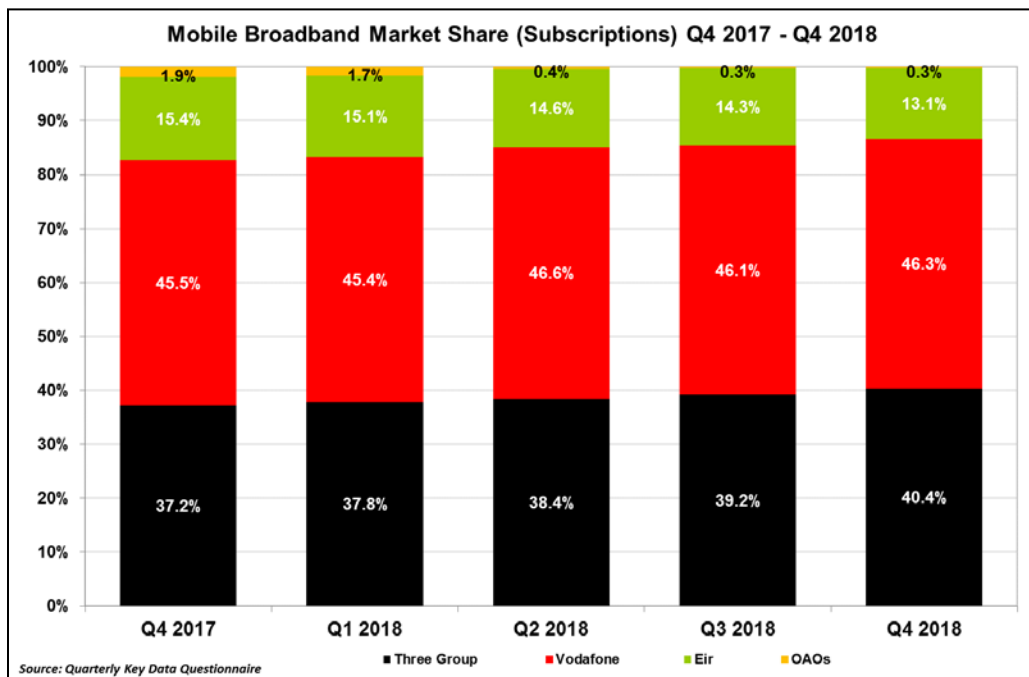


Figure 3.1.11 shows the market share of mobile broadband operators by subscriptions. As of Q4 2018, Vodafone had the largest share with 46.3%. Three Group’s market share was 40.4%, up from 37.2% in Q4 2017. Eir had a market share of 13.1% down from 15.4% in Q4 2017 while OAOs accounted for the remaining 0.3%.

Figure 3.1.11 – Subscription Market Share of Mobile Broadband Market



⁵⁹ Figure 3.1.10 is based on operator share of the number of lines for DSL, VDSL, FTTP and cable plus subscriptions for satellite, FWA and mobile broadband.

3.2 Provision of DSL Access

Figure 3.2.1 examines the provision of DSL access. DSL broadband services are provided to consumers by operators using three alternative methods of access. DSL may be provided directly to the consumer by Eir using direct access to its network; this accounted for 45.0% of all DSL subscriptions in Q4 2018. Eir’s market share of retail DSL lines has increased by 1.3 percentage points over the last year. Retail DSL may also be provided by OAOs who use either Eir’s wholesale bitstream service, which enables OAOs to resell another operator’s DSL service, or by offering DSL-based broadband using local-loop unbundling (LLU).

In Q4 2018, 44.7% of all DSL lines were provided by OAOs using wholesale bitstream. In absolute terms there were 132,285 wholesale bitstream lines, a decrease of 16.4% since Q4 2017. The remaining 10.3% of DSL lines were provided to subscribers by OAOs using local-loop unbundling. In Q4 2018 there were 30,517 unbundled local loops, down from 43,791 in Q4 2017 (-30.3%).

Figure 3.2.1 - Provision of DSL Access

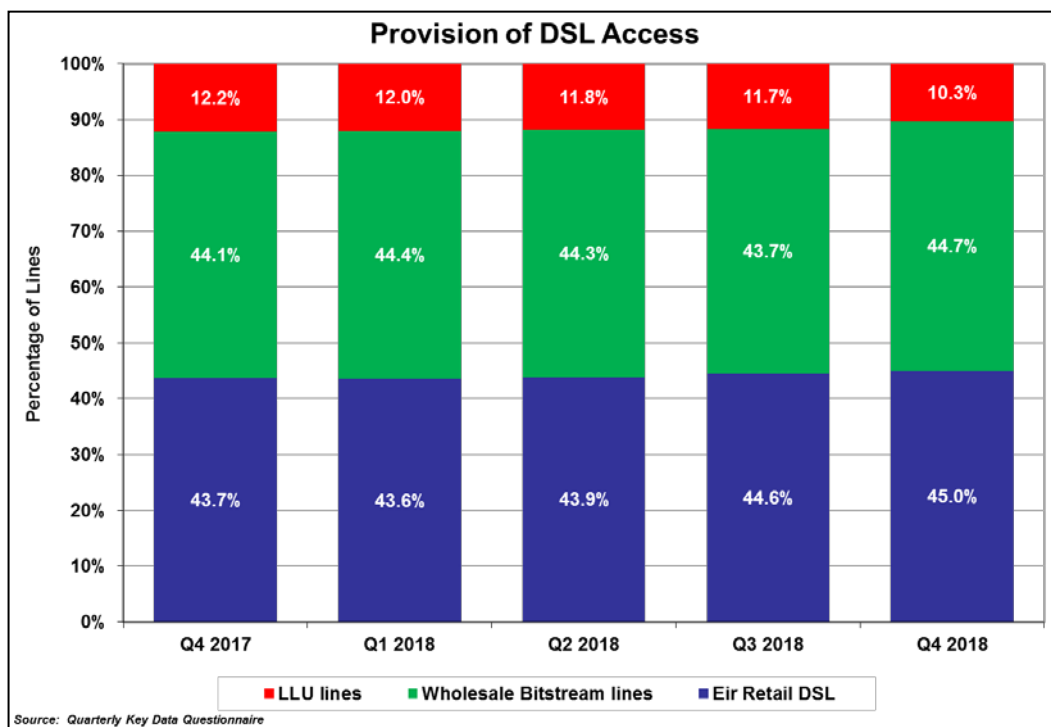
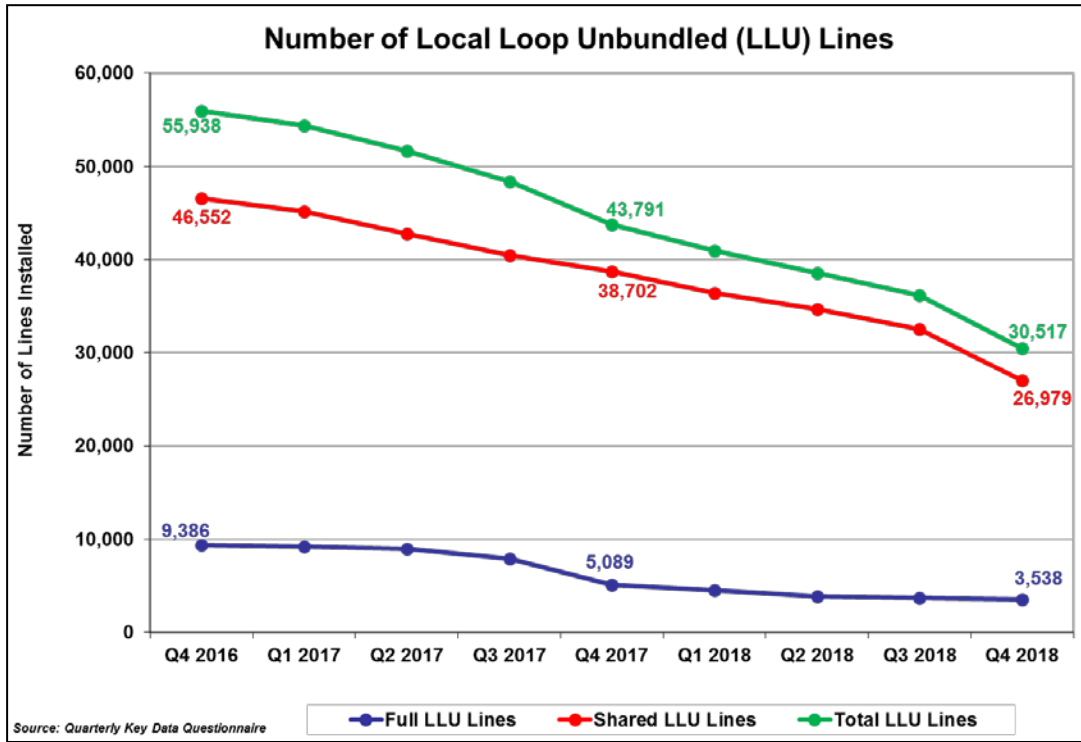


Figure 3.2.2 shows the number of unbundled lines according to their shared and full⁶⁰ unbundling status. Between Q4 2017 and Q4 2018 the total number of LLU lines

⁶⁰ Full LLU and shared LLU are two ways a copper loop may be unbundled. While full LLU assigns the entire copper loop to the leasing operator, shared LLU enables other operators and the incumbent to share the same line. With shared access consumers can acquire voice and data services from an operator or alternatively data services alone while retaining the voice services of the incumbent.

decreased by 30.3% and declined by 15.6% since Q3 2018. Full LLU lines decreased by 30.5% since Q4 2017 and declined by 2.7% since Q3 2018. Similarly shared LLU lines decreased by 30.3% since Q4 2017 and declined by 17.1% since Q3 2018.

Figure 3.2.2 – Number of Unbundled Local Loops

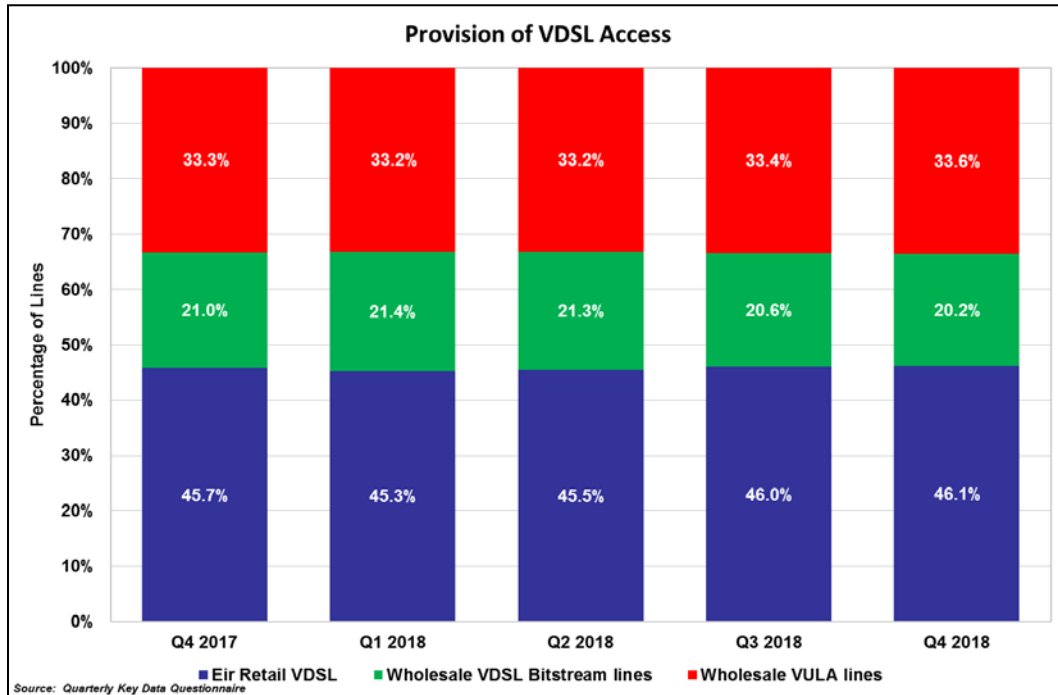


3.3 Provision of VDSL Access

VDSL broadband services are provided to consumers by operators using three alternative methods of access. VDSL may be provided directly to the consumer by Eir using direct access to its network; this accounted for 46.1% of all VDSL subscriptions in Q4 2018. Eir’s market share of retail VDSL lines has declined by 0.4 of a percentage point over the last year. Retail VDSL may also be provided by OAOs who use either wholesale bitstream, which enables OAOs to resell another operator’s VDSL service, or by offering VDSL-based broadband using virtual unbundled local access (VULA).

In Q4 2018, 20.2% of all VDSL lines were provided by OAOs using wholesale bitstream. In absolute terms there were 125,197 wholesale VDSL bitstream lines in Q4 2018, an increase of 3.7% since Q4 2017. The remaining 33.6% of VDSL lines were provided to subscribers by OAOs using VULA. In Q4 2018 there were 207,973 VULA lines, up from 190,936 in Q4 2017 (+8.9%) and up from 202,859 in Q3 2018 (+2.5%).

Figure 3.3.1 – Provision of VDSL Access



3.4 Usage of Broadband Services

Figure 3.4.1 shows data volumes generated by fixed and mobile broadband subscribers as well as subscribers to mobile voice and data services. Fixed broadband volumes alone reached 731,127 terabytes while mobile data volumes were over 112,902 terabytes⁶¹.

Figure 3.4.1 – Fixed Broadband and Mobile Data Volumes

	Q4 2018 (TBs)	Q3'18 – Q4'18 Growth	Q4'17 – Q4'18 Growth
Fixed broadband data volumes⁶²	731,127	+7.4%	+19.2%
Mobile data volumes	112,902	+6.4%	+43.5%
Total data volumes	844,029	+7.2%	+22.0%

Figure 3.4.2 illustrates average monthly data usage volumes by subscription type. In Q4 2018 an average fixed broadband subscriber used 170.4 GB of data per month. The majority of traffic is generated by residential subscribers with an average monthly data usage per residential subscriber reaching 180.6 GB in Q4 2018. An average business fixed broadband subscriber used 88.2 GB of data per month in Q4 2018. In comparison, average traffic per smartphone reached 6.4 GB of data while the average traffic per dedicated mobile broadband subscriber was 22.9 GB of data.

⁶¹ Mobile data volumes refer to traffic generated from mobile broadband plus mobile voice and data services.

⁶² This figure consists of aggregated data volumes from various subscription types. For Q3 2015 to Q2 2018 data generated via cable broadband is based on estimates.

Figure 3.4.2 – Monthly Traffic per Fixed Broadband Subscription by Type⁶³

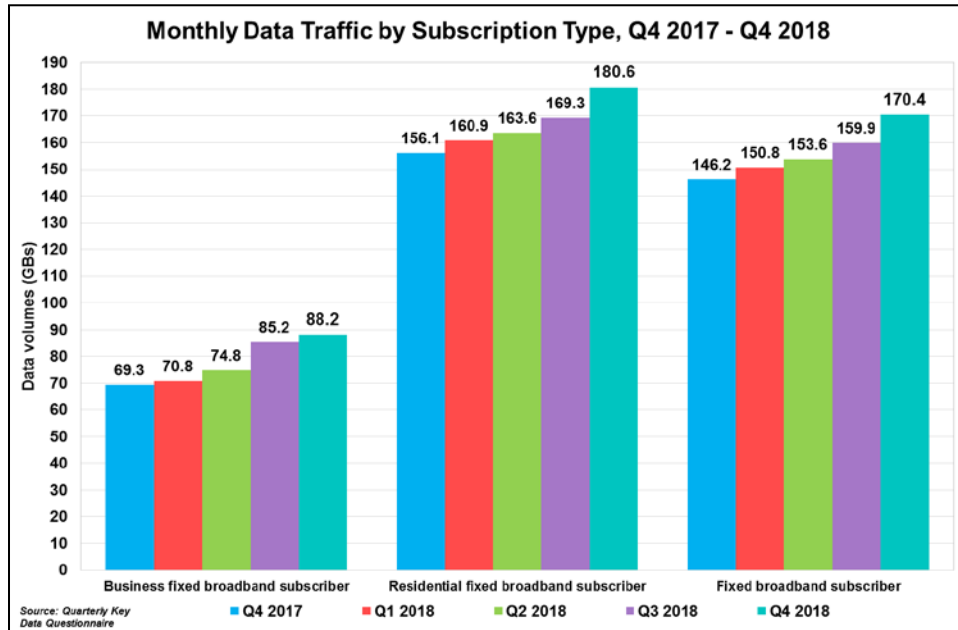
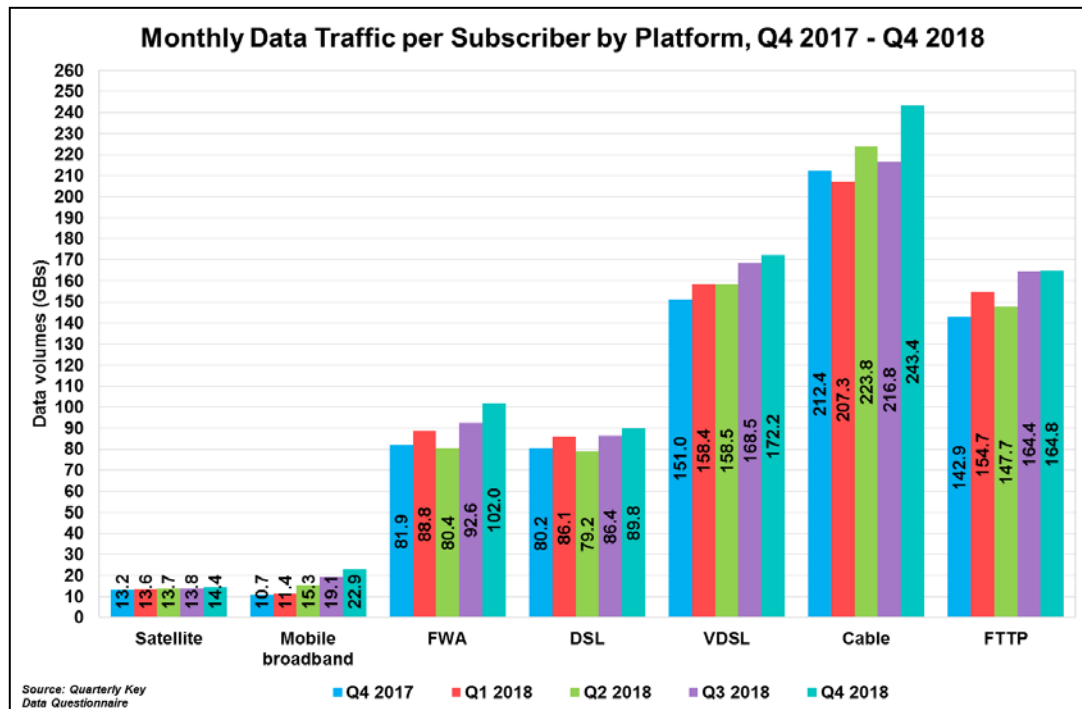


Figure 3.4.3 provides a breakdown of average monthly data usage volumes by broadband platform. In Q4 2018 the average cable broadband subscription generated 243.4 GB of data per month followed by VDSL (172.2 GB), FTTP (164.8 GB) and FWA (102.0 GB). It can be observed from Figure 3.4.3 that the average volume of data used increases with download speed as cable, VDSL and FTTP broadband platforms have the highest proportion of high speed broadband subscriptions as noted in Figure 3.1.8.

Figure 3.4.3 – Monthly Traffic per Broadband Subscription by Platform



⁶³ Monthly data traffic was impacted by revisions to broadband subscription data. See note 7 in the corrigendum.

3.5 Broadband Penetration

The total number of broadband subscriptions in Ireland for Q4 2018 was 1,728,579. Using fixed residential broadband only, 1,272,234 subscriptions (i.e. excluding business subscriptions and mobile broadband subscriptions), the estimated fixed broadband household penetration rate (there were 1,857,600 households in Ireland using the Central Statistics Office (CSO) Q4 2018 estimate) as of Q4 2018 was 68.5%.

Figure 3.5.1a shows fixed broadband penetration per household in Ireland by platform from Q4 2014 to Q4 2018. VDSL subscriptions had the greatest penetration rate at 29.3% in Q4 2018 followed by cable subscriptions at 19.2% and DSL subscriptions at 12.9%. FWA, satellite and FTTP subscriptions make up the remaining 7.0%.

Figure 3.5.1a – Fixed Broadband Subscriptions per Household

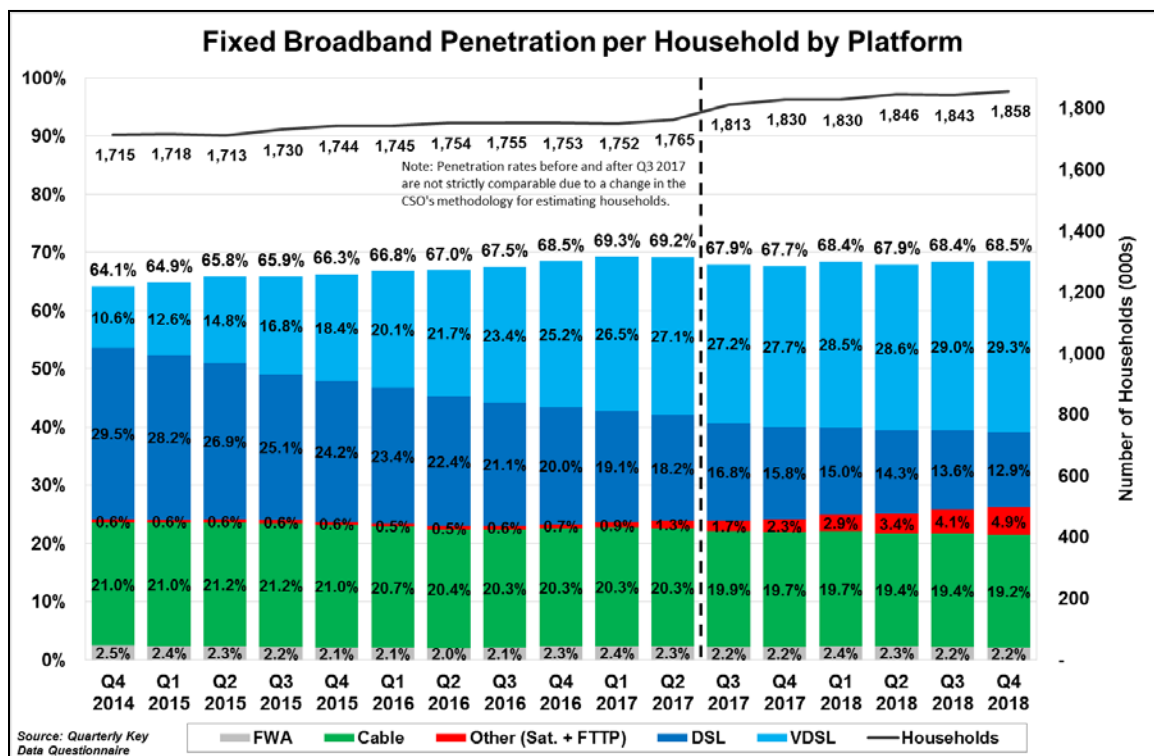


Figure 3.5.1b shows fixed and mobile broadband subscriptions per capita in Ireland from Q4 2014 to Q4 2018. The broadband per capita penetration rate (including mobile broadband) was 35.4% in Q4 2018. The penetration rate for fixed broadband subscriptions was 29.3% while for dedicated mobile broadband subscriptions it was 6.1%.⁶⁴ These figures are based on a population of 4,886,400 from the CSO Q4 2018 estimate.

⁶⁴ It should be noted that ComReg reports dedicated mobile broadband subscriptions (i.e. on the basis of mobile dongles/datacards) only. Subscriptions with Internet access over a handset are not included. Therefore, the total number of mobile broadband users (i.e. dedicated mobile broadband and handset subscriptions with internet access) will be higher than stated in this report. On the other hand, a broadband subscriber may have both a fixed and mobile broadband subscription and therefore, a broadband penetration rate based on both mobile and fixed subscriptions may overestimate the penetration rate.

Figure 3.5.1b – Fixed and Mobile Broadband Subscriptions per Capita

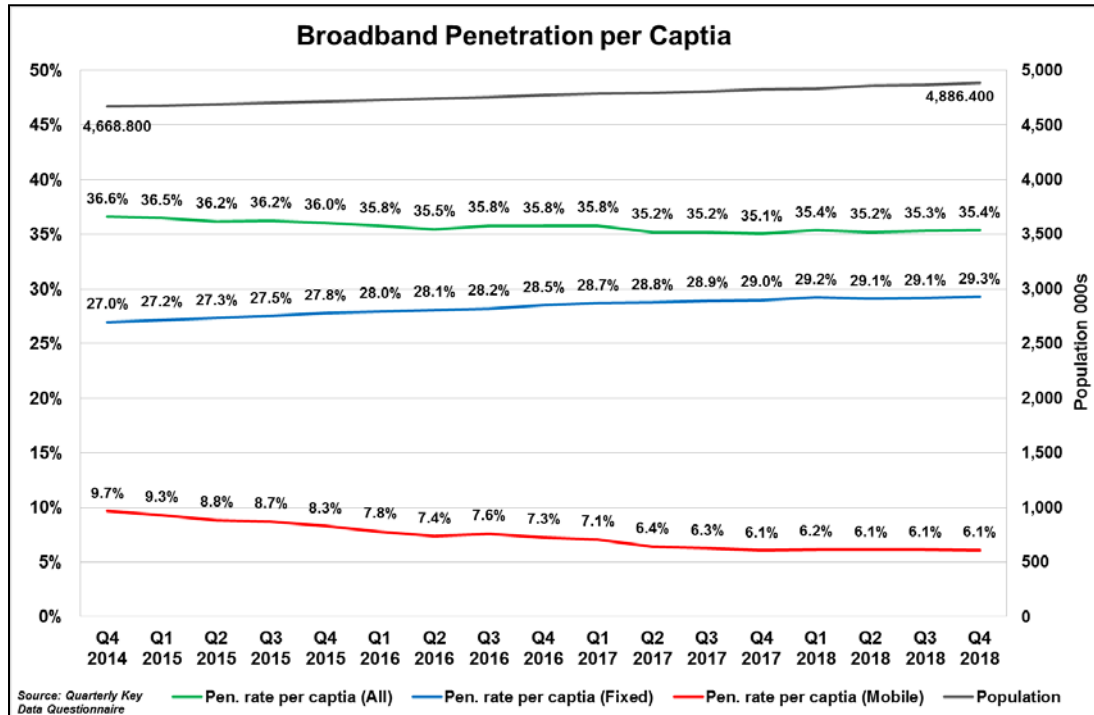


Figure 3.5.2 overleaf shows the proportion of households with broadband connections from 2014 to 2018.⁶⁵ Both fixed and mobile broadband⁶⁶ are included. Ireland’s household broadband penetration rate, at 88%, is higher than the EU28 average of 86%. Penetration has increased by 8 percentage points since 2014 while the EU28 penetration has increased by 9 percentage points. Figure 3.5.3 presents broadband penetration rates in Ireland and EU since 2007⁶⁷.

⁶⁵ Latest available whole-year data.

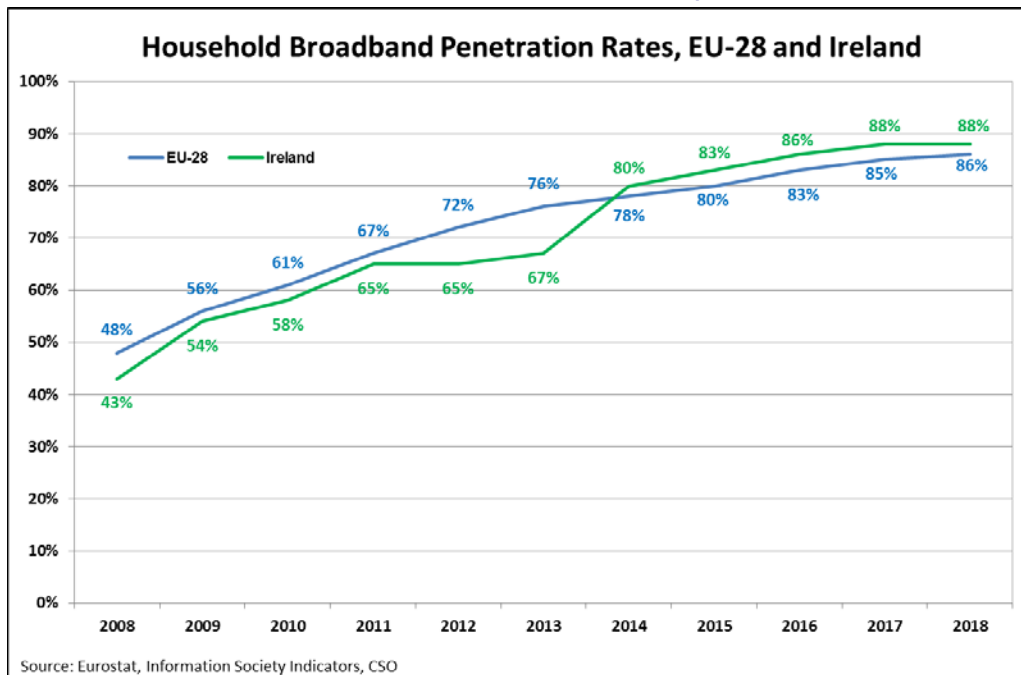
⁶⁶ Households with at least one member aged 16–74. Broadband connection includes: DSL, VDSL, wired fixed (cable, fibre, Ethernet, PLC), fixed wireless (satellite, Wi-Fi, WiMax) and mobile wireless (3G/4G).

⁶⁷ Source: Eurostat (online data code [isoc_ci_it_h](#)).

Figure 3.5.2 – Household Broadband Subscriptions, 2014 – 2018

	2014	2016	2018
Netherlands	94	95	97
UK	88	92	95
Luxembourg	93	97	93
Finland	89	91	93
Sweden	87	89	90
Denmark	85	92	90
Germany	87	90	90
Estonia	81	85	89
Ireland	80	86	88
Austria	79	85	88
Slovenia	75	78	87
EU-28	78	83	86
Spain	73	81	86
Czech Rep.	76	80	86
Cyprus	69	74	86
Malta	80	81	84
Belgium	81	82	84
Hungary	73	78	83
Italy	71	77	83
France	77	79	81
Croatia	68	77	81
Slovakia	76	78	79
Poland	71	76	79
Latvia	73	75	79
Romania	58	70	79
Lithuania	65	71	78
Portugal	63	73	77
Greece	65	68	76
Bulgaria	56	63	71

Figure 3.5.3 – Household Broadband Penetration, 2007 - 2017



3.6 Wi-Fi Broadband Access

While Wi-Fi originally emerged as an alternative to share broadband connectivity in the home and to provide access to nomadic laptop users in airports and other public places, it is now being used by a broader range of service providers with different business models and services which include in home connectivity, outdoor access for nomadic users, and off-loading and coverage alternatives for mobile operators.

ComReg presents data on the Wi-Fi market based on the number of public Wi-Fi hotspots and access points located nationally. Internet hotspots are typically public wireless access points where a laptop computer or other portable devices such as a smartphone or tablet can connect to the internet. A Wi-Fi hotspot can be made up of one or more Wi-Fi access points⁶⁸. Wi-Fi hotspots tend to be found in airports, hotel lobbies and cafés and restaurants. In many cases, the user pays for high-speed internet access at an access point, based either on a vouchered payment for a specific amount of time online or a recurring monthly subscription. There are a number of providers of these services in Ireland including Sky Ireland, BT Ireland and Virgin Media.

Comparing Q4 2017 to Q4 2018, the number of Wi-Fi hotspots increased by 9.3% and the number of access points increased by 19.3%. Wi-Fi minutes decreased by 12.0% over this period. A breakout of the data by operators' percentage shares in Q4 2018 is also provided below.

Figure 3.6.1 – Wi-Fi Hotspots, Access Points and Minutes of Use

	Q4 2018	Quarterly Change Q3'18 – Q4'18	Annual Change Q4'17 – Q4'18
Wi-Fi Hotspots	1,320	3.8%	9.3%
Wi-Fi Access Points	4,570	1.3%	19.3%
Wi-Fi Minutes of Use	504,845,697	-11.5%	-12.0%

	Virgin Media	BT	OAOs
Wi-Fi Hotspots	58.7%	15.2%	26.1%
Wi-Fi Access Points	83.5%	5.3%	11.2%
Wi-Fi Minutes of Use	65.7%	31.2%	3.1%

⁶⁸ Hotspots are typically public locations at which broadband internet access can be obtained. At these hotspots, users can wirelessly connect to the internet either for free or for a fee. Typical locations for such hotspots include cafes and restaurants, hotels and airports. In general terms, more than one access point can be found at a hotspot.

3.7 Fixed and Mobile Broadband Pricing Data

ComReg uses independently collated Strategy Analytics (Teligen) pricing data using OECD-approved methodologies to examine the relative prices of a number of specific fixed and mobile broadband usage baskets of national broadband services and broadband services in other selected countries for residential and business users. The pricing data used for international comparisons includes pricing information for selected countries, namely Germany, Denmark, Spain, Netherlands and the United Kingdom⁶⁹.

For national comparisons, the prices advertised by the largest operators (in terms of number of subscribers to fixed broadband services and separately number of subscribers to mobile broadband services) during Q4 2018 were analysed⁷⁰ for selected OECD usage baskets. In this QKDR, standalone and bundled fixed broadband service prices advertised by Eir, Virgin Media, Vodafone, Sky, Digiweb and Imagine were analysed. For mobile broadband services, prices advertised by the Three Group, Vodafone, Eir and Tesco Mobile were analysed. Thus, the broadband pricing analysis does not necessarily present the lowest prices available in the entire market, but rather the lowest prices offered by the operators having the largest number of subscribers. It should also be noted that some of the operators included in the analysis do not offer their services nationally⁷¹. In addition, some operators only offer broadband services bundled with another service (e.g. fixed voice services which can include line rental, sometimes also with an inclusive amount of call minutes). In these instances, the analysis is based on the cost of the bundle excluding any voice related usage patterns, i.e., only broadband usage related factors are taken into account in the analysis.

For international comparisons, prices advertised by the largest operators (in terms of the number of subscribers to fixed broadband services and separately number of subscribers to mobile broadband services) operators in each of the respective countries during Q4 2018 were analysed⁷² for selected usage baskets⁷³ (with an average per country price presented based on the average of lowest price tariffs advertised by three highest ranking operators in national pricing comparisons). In order to enable international comparisons, prices are presented in Euro Purchasing Power Parities (PPPs)

⁶⁹ In future QKDRs ComReg may expand the analysis and include more countries for international price comparisons.

⁷⁰ The subscribers of these operators account for 94% of all fixed broadband subscribers and 100% of all mobile broadband subscribers. For fixed broadband, tariffs based on broadband services via DSL, VDSL, FTTP, cable and FWA were analysed. For mobile broadband, tariffs on broadband services via 3G and 4G networks were analysed.

⁷¹ For example, Virgin Media offers fixed broadband services only in the areas where its cable network is available.

⁷² The subscribers of these operators jointly account for over 80% of all fixed broadband subscribers and 80% of all mobile broadband subscribers in each of the respective countries.

⁷³ The same basket was applied to each respective country in order to make the international comparison.

and exclude VAT charges. PPPs provide an indication of the cost of telecoms services in countries analysed in relation to the cost of all other products and services.

The presented analysis accounts for the fact that broadband services differ in terms of advertised download/upload speeds to ensure that a meaningful comparison can be made between packages in terms of contracted download speeds offered. Packages which limit usage through speed restrictions when usage exceeds inclusive allowances are excluded. The presented analysis also incorporates discounts offered by operators. Nonrecurring charges (e.g. charges for the installation of a service) are discounted/amortised over three years and other recurring fixed costs such as line rental (in case of fixed broadband) are included and any other additional broadband related charges are included in the baskets⁷⁴. Further information on the composition of the broadband basket can be found in the Explanatory Memorandum which accompanies this report.

The following baskets are presented in this report⁷⁵:

OECD Residential and business fixed and mobile broadband baskets

Type of basket	Basket
Fixed Broadband Residential	40GB basket (broadband speeds <= 100 Mbps)
Fixed Broadband Residential	120GB basket (broadband speeds >100 Mbps)
Fixed Broadband Business	60GB basket (broadband speeds >25 Mbps)
Mobile Broadband Residential	5GB basket
Mobile Broadband Business	10GB basket

These baskets were selected given their closeness to the national broadband usage patterns observed having regard to the data provided by fixed and mobile broadband operators to ComReg for the purpose of the QKDR (see Figures 3.4.2 and 3.4.3 above for fixed and mobile broadband data usage patterns). ComReg notes that these baskets reflect usage patterns of an average user and do not necessarily reflect prices of tariffs that are geared towards customers having different usage profiles.

⁷⁴ For the Q1 2018 QKDR the OECD price baskets were reviewed and revised in line with the 2017 OECD methodology. This methodology was retrospectively applied to the period Q4 2017. The criteria for the 2017 OECD methodology differs from the previous 2010 methodology and is therefore not strictly comparable.

⁷⁵ In future QKDRs ComReg may expand the analysis based on additional and/or different usage baskets.

ComReg notes that comparisons are based on the prices of advertised Q3 2018 tariffs only and the analysis does not take into consideration other important factors such as quality of the network, levels of customer care, additional units of consumption available after having accounted in the analysis for the units in the OECD usage basket, minimum contract term etc.

OECD Residential Fixed Broadband Service Basket

Figure 3.7.1 compares the cheapest residential tariffs advertised by fixed broadband providers (whether standalone broadband or broadband sold as part of a bundle) for residential customers based on an OECD 40GB and 120GB monthly data usage baskets. For fixed broadband where the advertised download speed of the broadband service does not exceed 100Mbps, Digiweb offers the cheapest tariff for this particular usage profile at €41.31 followed by Vodafone (€41.67) and Sky (€45.39). For fixed broadband where the advertised download speed of broadband service exceeds 100Mbps, Digiweb offers the cheapest tariff (€45.11), followed by Vodafone (€50.00) and Virgin Media (€50.83).

Figure 3.7.1 - Residential Fixed Broadband Basket (National)

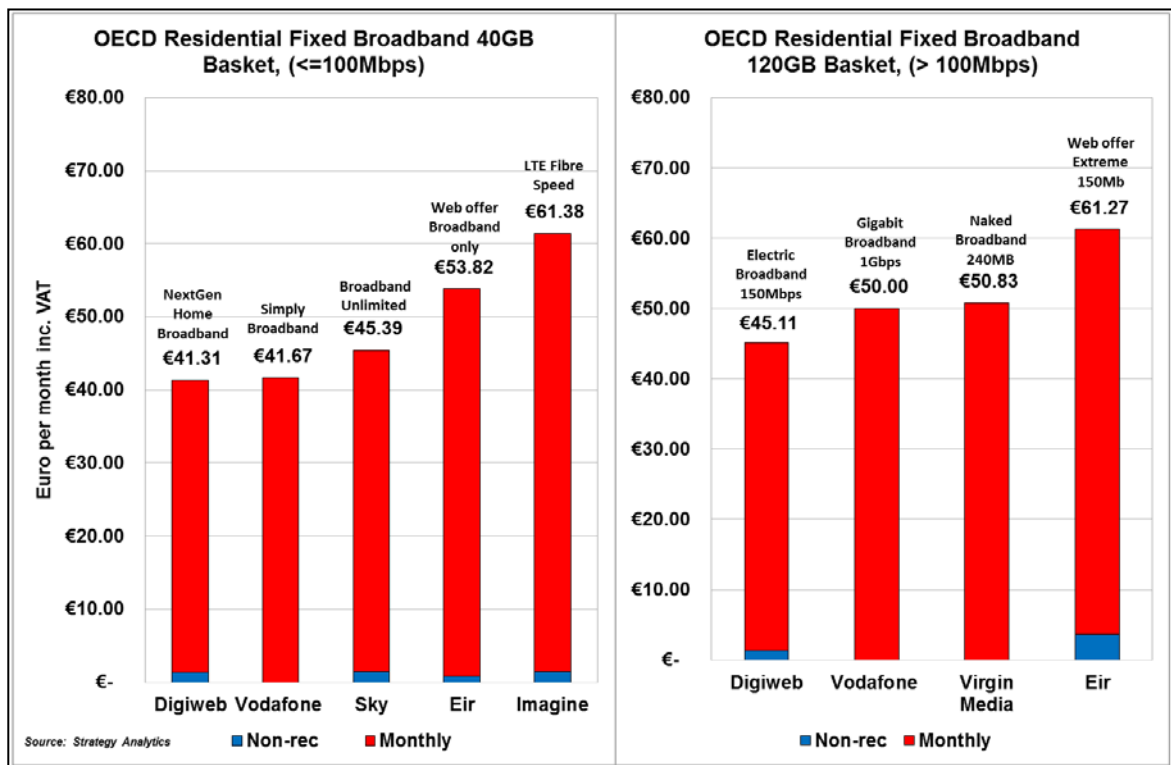
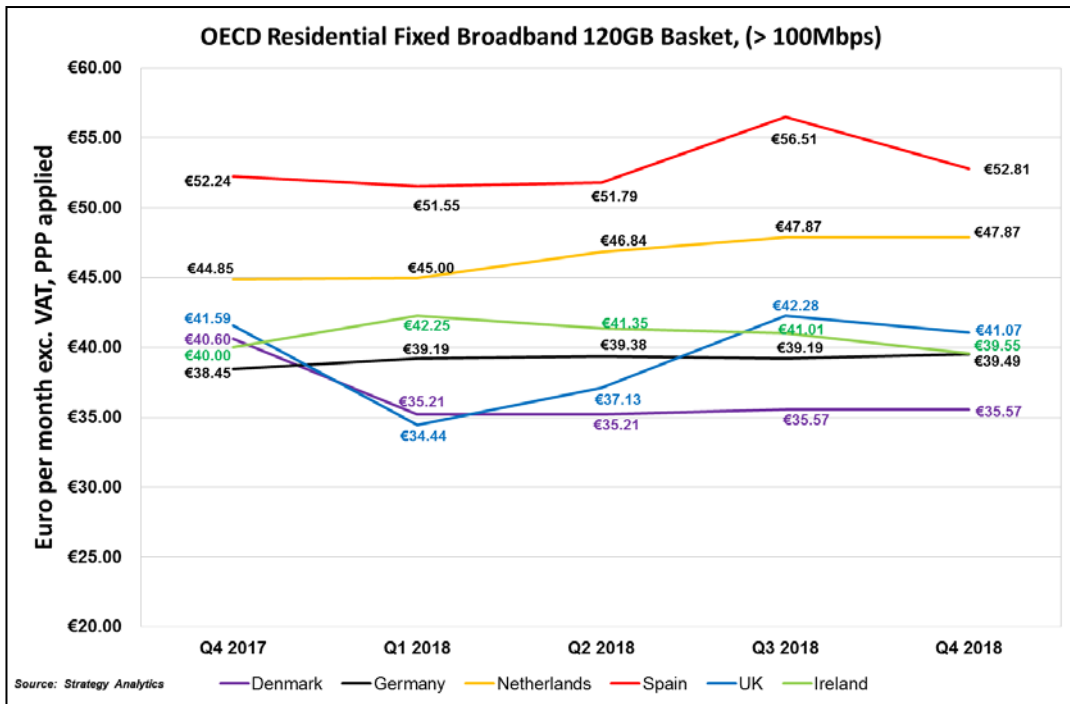


Figure 3.7.2 illustrates Ireland’s ranking alongside five other Western European countries. Ireland ranks in third place with an average price of €39.55 for this particular

residential basket. The average price in Ireland is 7.4% cheaper than the average price⁷⁶ for all of the countries included in the analysis.

Figure 3.7.2 - Residential Fixed Broadband Basket (International)



OECD Business Fixed Broadband Service Basket

Figure 3.7.3 compares business tariffs advertised by fixed broadband service providers (whether standalone broadband or broadband sold as part of a bundle) for business customers based on a 60GB monthly data usage basket. Presented prices exclude VAT charges. Vodafone offers the cheapest tariff (€40.00) followed by Eir (€40.48) and Virgin Media (€47.22).

⁷⁶ The average of prices presented in Figure 3.7.2.

Figure 3.7.3 - Business Fixed Broadband Basket (National)

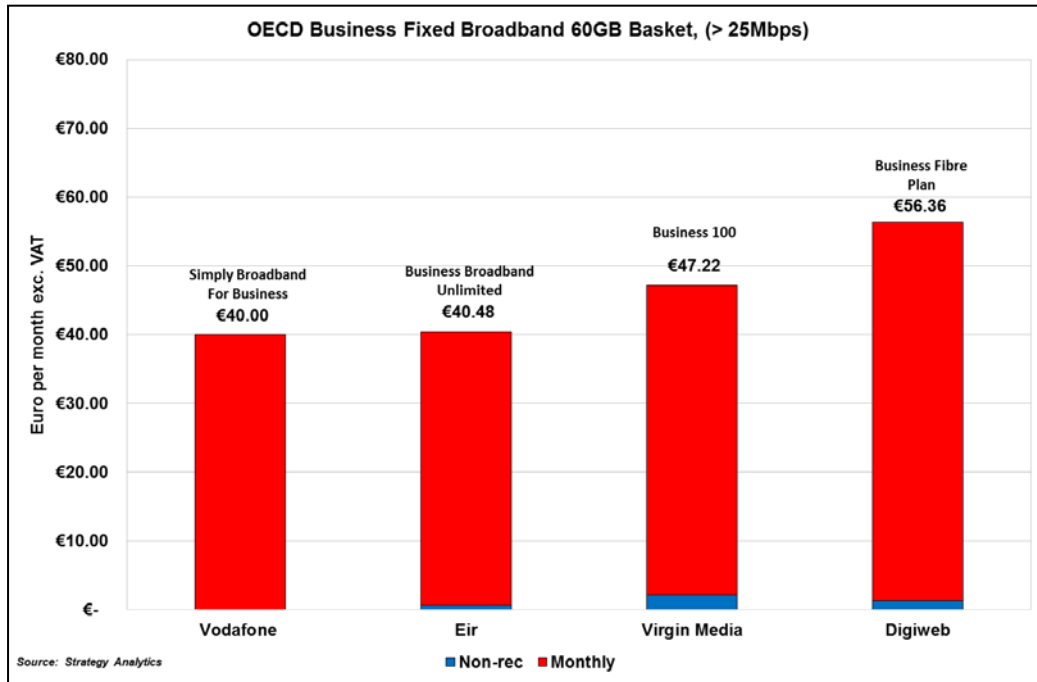
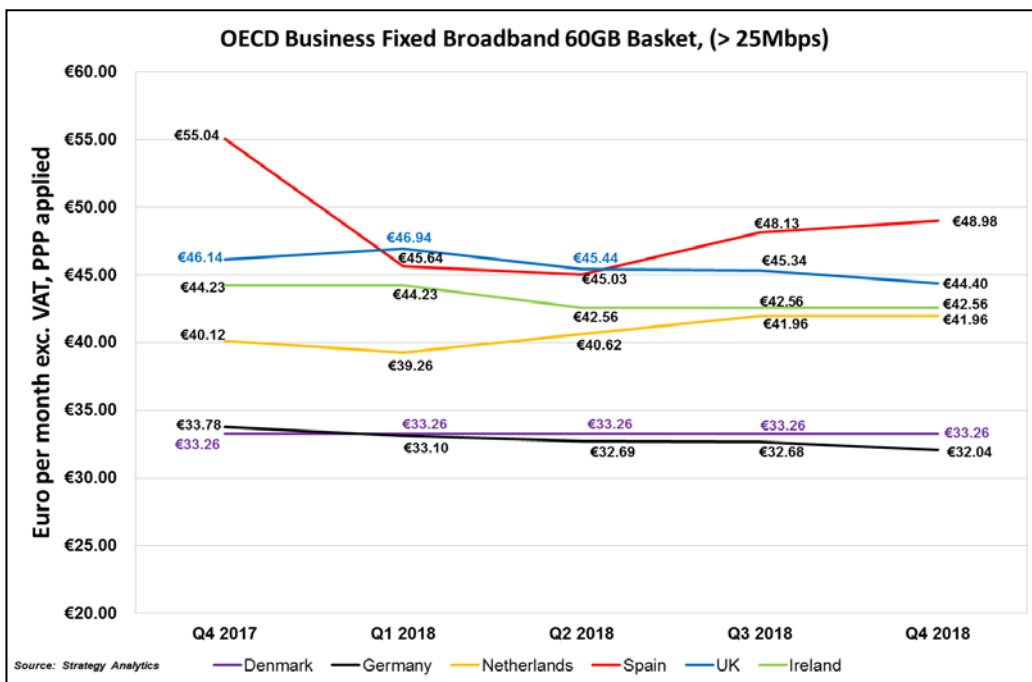


Figure 3.7.4 shows that in an international comparison context Ireland (€42.56⁷⁷) ranks in fourth place. The average price in Ireland is 5.0% more expensive than the average price⁷⁸ for all of the countries included in the analysis.

Figure 3.7.4 - Business Fixed Broadband Basket (International)



⁷⁷ As noted previously, average prices used for international comparisons exclude VAT charges.

⁷⁸ The average of prices presented in Figure 3.7.4.

OECD Residential Mobile Broadband Service Basket

Figure 3.7.5 compares pre-paid and post-paid tariffs advertised by mobile broadband service providers for residential customers based on an OECD 5GB monthly mobile data usage basket. Eir offers the cheapest tariff (€15.00) followed by Vodafone (€21.99) and Three (€29.99).

Figure 3.7.5 - Residential Mobile Broadband Basket (National)

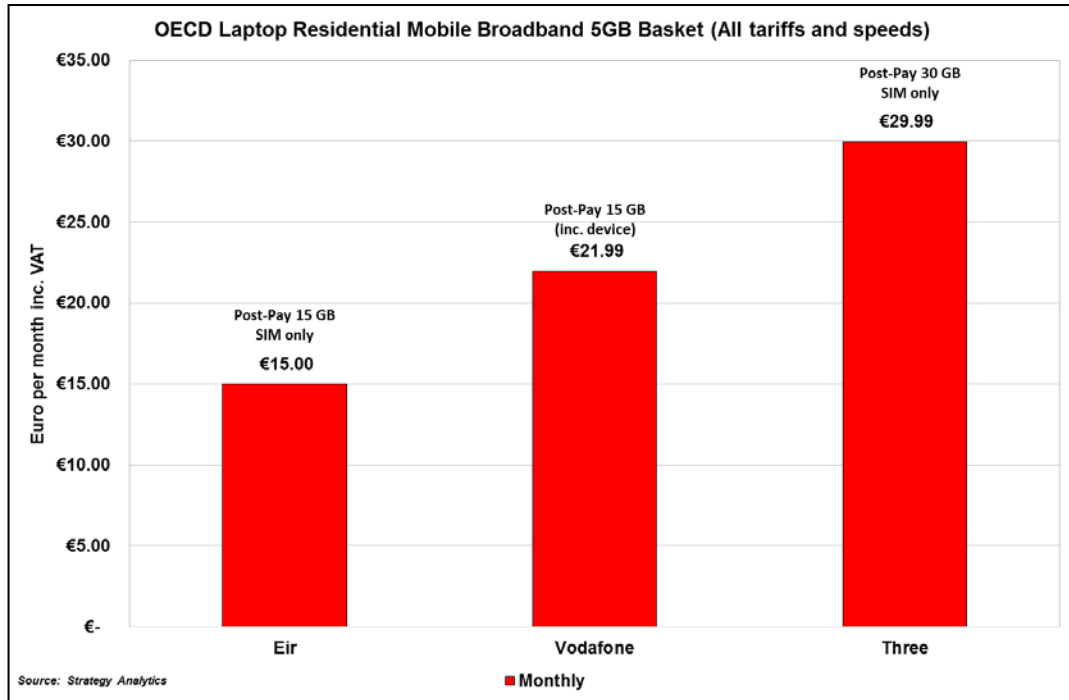
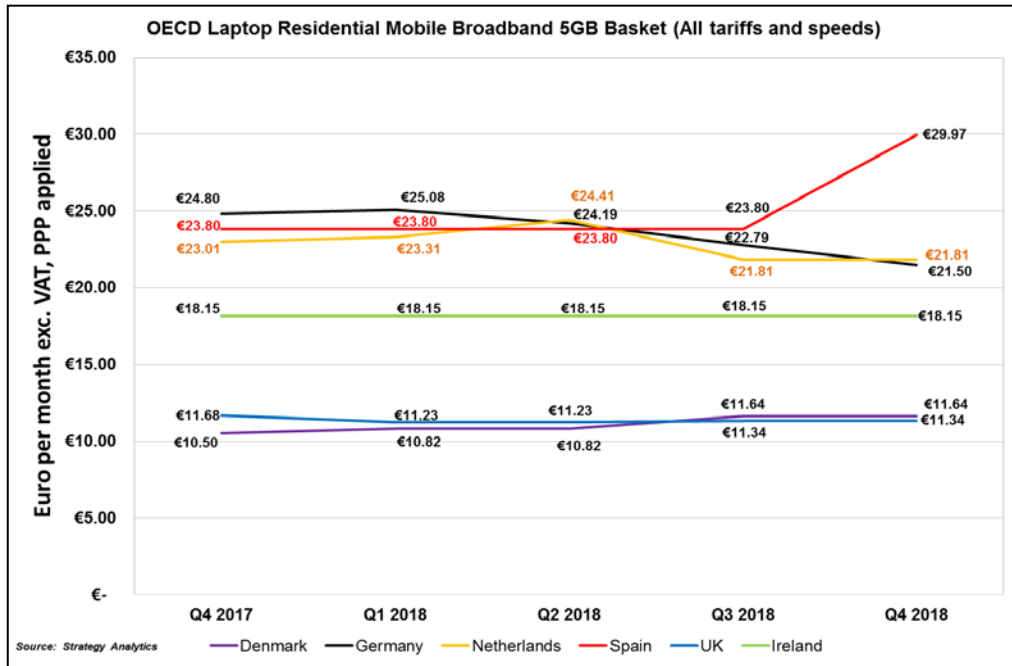


Figure 3.7.6 overleaf illustrates Ireland’s ranking alongside five other Western European countries. Ireland ranks in third place with an average price of €18.15⁷⁹ for this particular basket. The average price in Ireland is -4.8% cheaper than the average price⁸⁰ for all of the countries included in the analysis.

⁷⁹ As noted previously, average prices used for international comparisons exclude VAT charges.

⁸⁰ The average of prices presented in Figure 3.7.6.

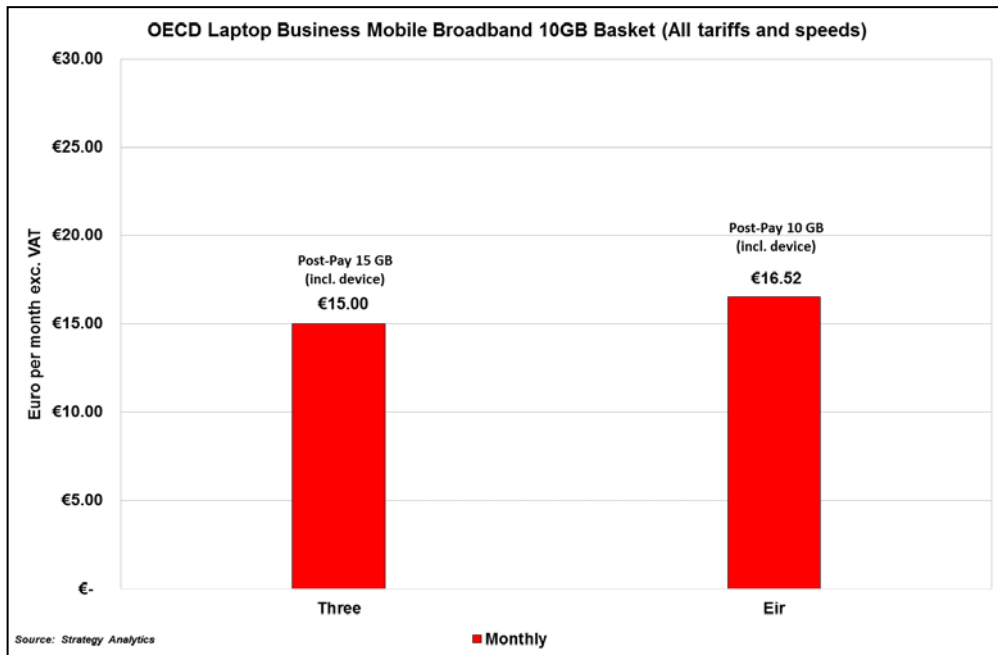
Figure 3.7.6 - Residential Mobile Broadband Basket (International)



OECD Business Mobile Broadband Service Basket

Figure 3.7.7 compares post-paid tariffs advertised by mobile broadband service providers⁸¹ for business customers based on an OECD 10GB monthly data usage basket. Presented prices exclude VAT charges. Three (€15.00) offers the cheapest tariff followed by Eir (€16.52).

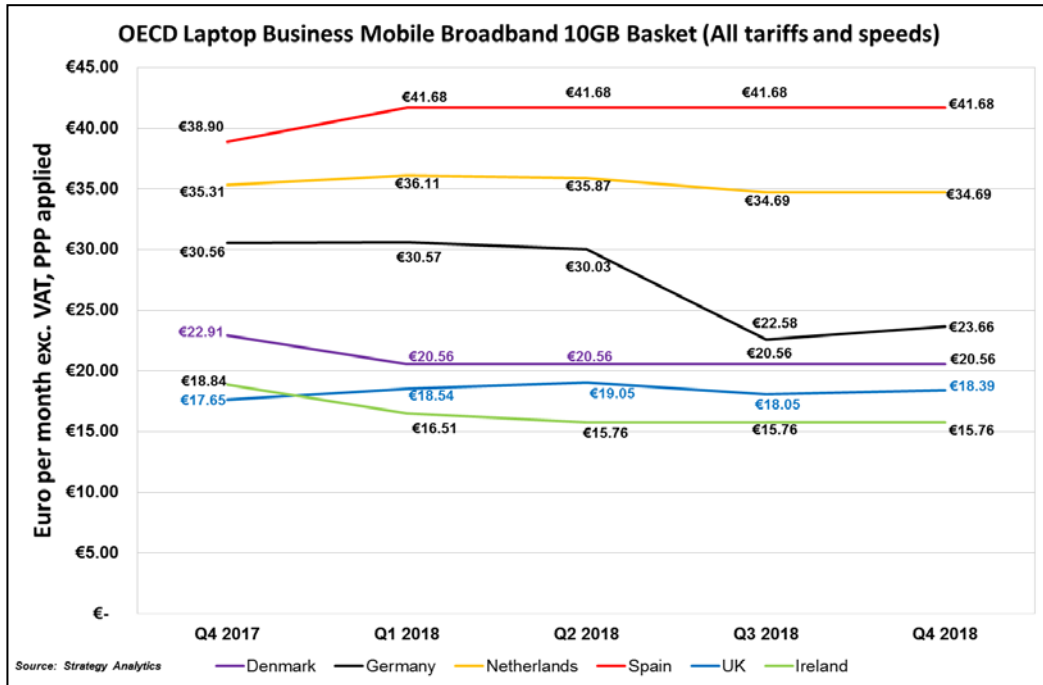
Figure 3.7.7 - Business Mobile Broadband Basket (National)



⁸¹ Only tariffs advertised by Vodafone, Three and Eir were analysed for business customers. Some operators do not offer mobile broadband service to business customers.

Figure 3.7.8 shows that, from an international comparison perspective, Ireland (€15.76⁸²) ranks in first place. The average price in Ireland is 38.9% cheaper than the average price⁸³ for all of the countries included in the analysis.

Figure 3.7.8 - Business Mobile Broadband Basket (International)



⁸² As noted previously, average prices used for international comparisons exclude VAT charges.

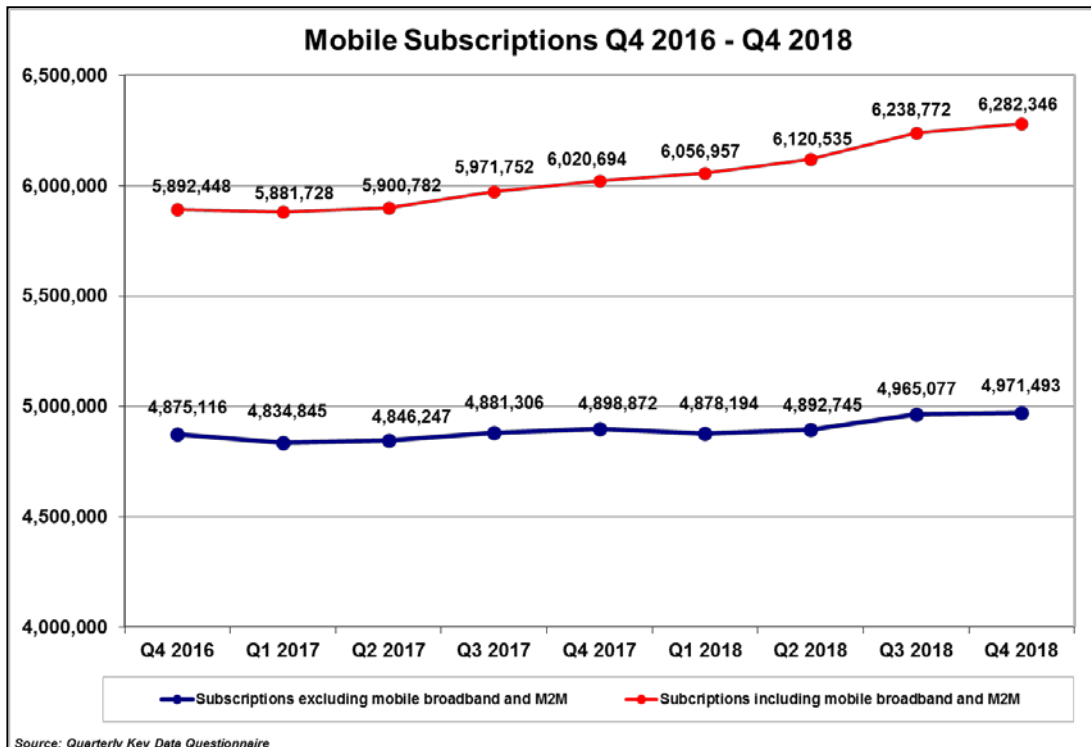
⁸³ The average of prices presented in Figure 3.7.8.

4. Mobile Market Data

4.1 Number of Subscriptions and Penetration Rate

At the end of Q4 2018 there were 6,282,346 mobile subscriptions in Ireland, including mobile broadband and Machine to Machine ('M2M') subscriptions. If mobile broadband subscriptions (298,419) and M2M subscriptions (1,012,434) are excluded, the total number of mobile subscriptions in Ireland was 4,971,493.

Figure 4.1.1 – Mobile Subscriptions



In Q4 2018 there were 4,701,150 mobile voice and data subscribers using 3G/4G networks in Ireland. This figure can be taken as an indication of the number of smartphone users accessing advanced data services such as web/internet content, online multiplayer gaming content, Video on Demand (VoD) or other equivalent advanced data services (excluding SMS and MMS). This represents approximately 94.6% of all mobile subscriptions (excluding dedicated mobile broadband and M2M).

Figure 4.1.2 below shows the breakdown of total active subscribers, total standard mobile voice and data subscribers using 3G/4G networks and dedicated mobile broadband subscribers.

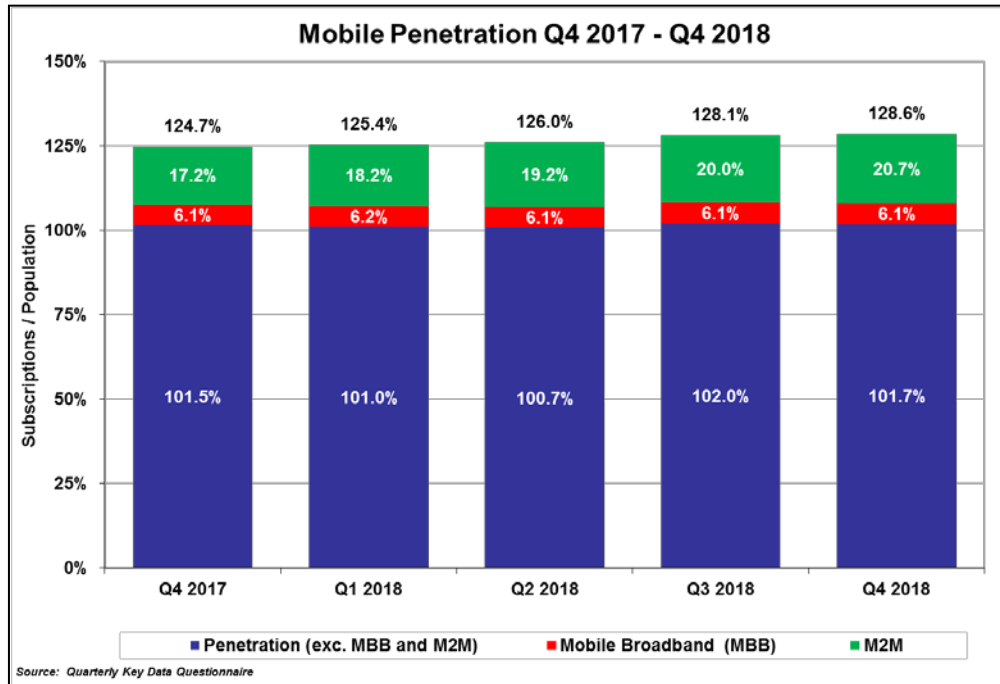
Figure 4.1.2 – Mobile Subscribers using Data Services over 3G/4G Networks

	Q4 2018	Q3 2018	Quarterly Change Q3 '18 – Q4 '18	Annual Change Q4 '17 – Q4 '18
Total active subscriptions	6,282,346	6,238,772	+0.7%	+4.3%
Mobile voice and data subscribers	4,701,150	4,683,955	+0.4%	+3.0%
Dedicated mobile broadband subscribers	298,419	298,976	-0.2%	+1.8%

Figure 4.1.3 charts mobile penetration since Q4 2017 and shows that at the end of Q4 2018, mobile penetration, based on a population of 4,886,400 (using the CSO Q4 2018 estimate), was 128.6% including mobile broadband and M2M and 101.7% excluding mobile broadband and M2M. Mobile penetration is recognised as the standard metric internationally to measure the adoption of mobile services, and is calculated based on the number of active SIM cards per 100 of the population.

Given that some mobile users may have used more than one active SIM card during the period, there is likely to be some over-estimation of actual individual mobile penetration using this metric. ComReg's calculation of mobile subscriptions includes active SIMs bundled with mobile broadband data cards and USB modems for internet access via laptops/PCs, SIMs that enable the flow of data between Machines as well as SIM cards used in mobile phones for voice and data services.

Figure 4.1.3 – Irish Mobile Penetration Rate



4.2 The Profile of Mobile Subscriptions in Ireland

Mobile users pay for their mobile service by either purchasing pre-paid credit, or by receiving a monthly bill from their mobile operator, described in this report as a post-paid payment option.

Figures 4.2.1 and 4.2.2 illustrate the mobile subscription base (including and excluding mobile broadband and M2M subscriptions) in Ireland classified by the proportion of pre-paid and post-paid subscriptions on 2G, 3G and 4G networks at the end of Q4 2018. Post-paid subscriptions are increasing, accounting for 58.4% of subscriptions in Q4 2018, up from 55.4% one year previously at the expense of a decline in pre-paid subscriptions. If mobile broadband and M2M subscriptions are excluded, post-paid subscriptions account for 47.9% of subscriptions, up from 45.9% in Q4 2017.

Figure 4.2.1 – Profile of Pre-Paid and Post-Paid Subscriptions

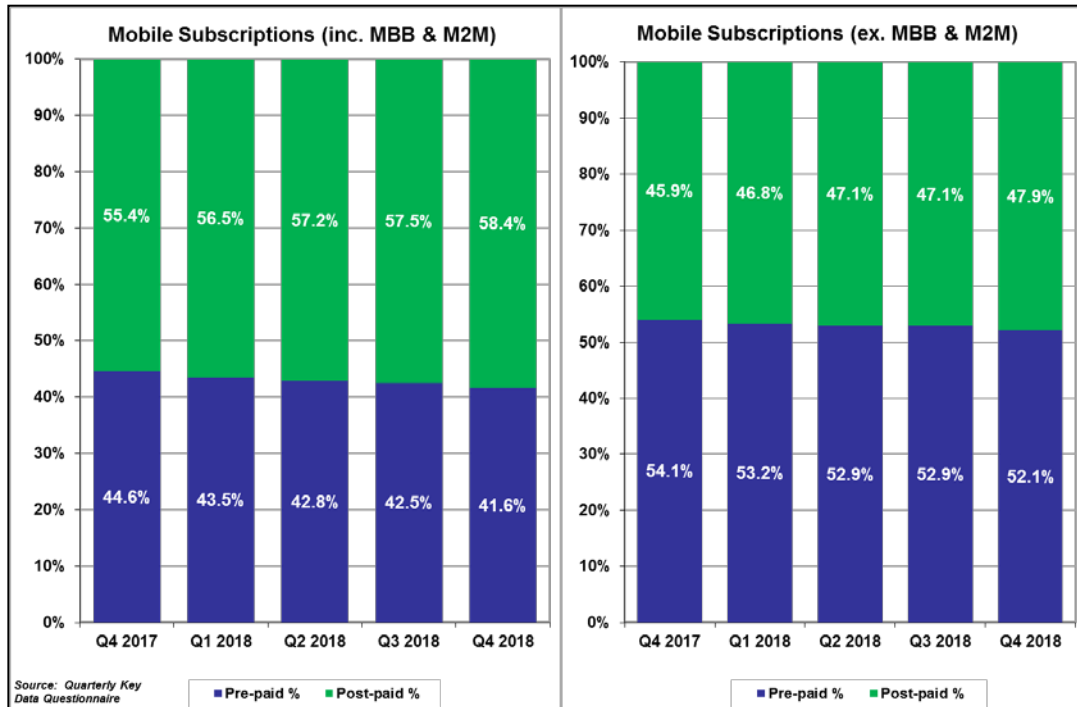


Figure 4.2.2 – Mobile Subscriptions by Pre-pay/Post-pay

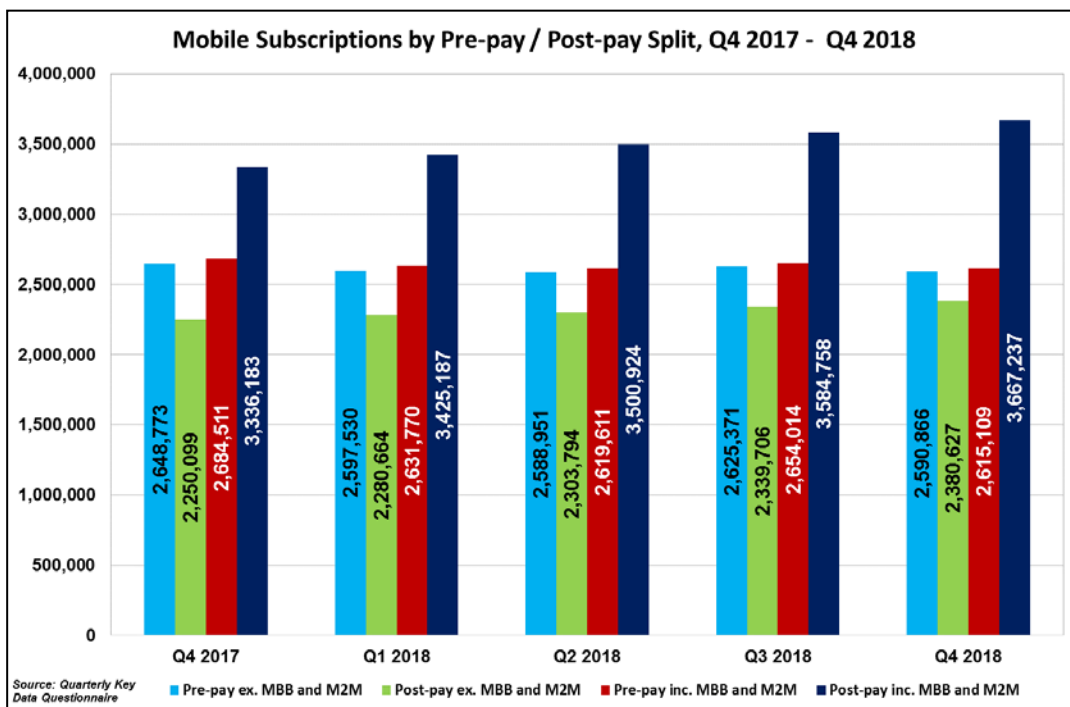


Figure 4.2.3 shows the pre-paid and post-paid subscription profile for each of the mobile operators in the Irish market. Mobile broadband and M2M subscriptions are included. As of Q4 2018, the mobile operator with the highest proportion of post-paid subscriptions was Vodafone (66.9%), followed by Three Group (60.3%), Eir (53.3%) and Tesco Mobile (16.4%). Post-paid subscriptions for OAOs were 44.1%.

Figure 4.2.3 – Profile of Pre-Paid and Post-Paid Subscriptions by Operator

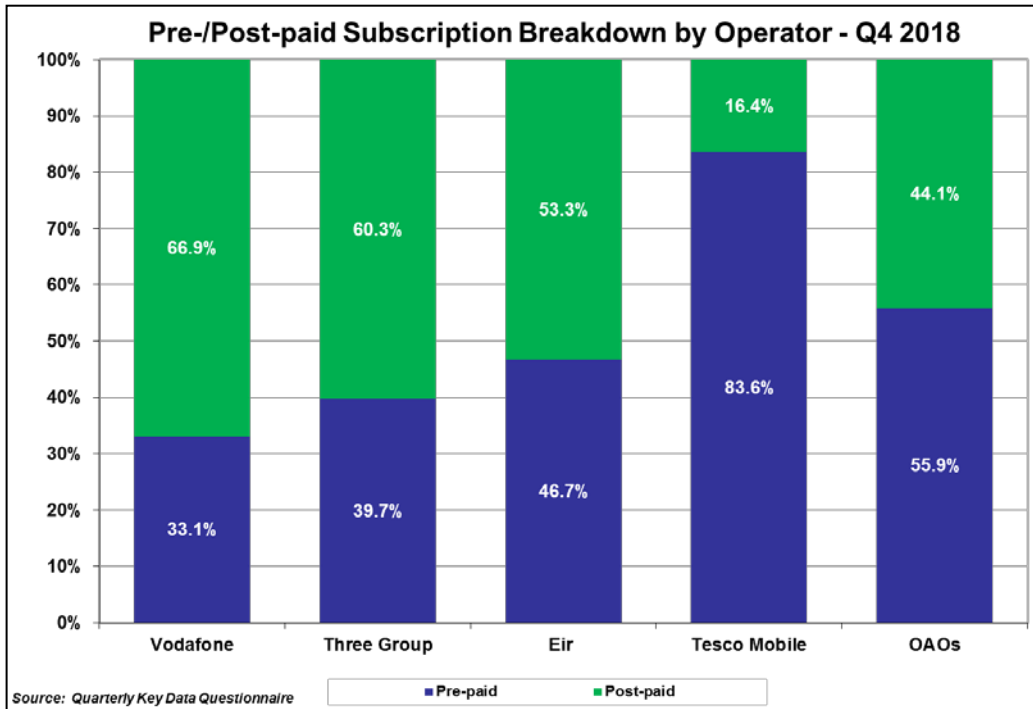


Figure 4.2.4 shows the split between pre-paid and post-paid mobile broadband subscriptions between Q4 2017 and Q4 2018. 91.9% of all mobile broadband subscriptions were post-paid at the end of Q4 2018, up from 87.8% one year previously.

Figure 4.2.4 – Profile of Pre and Post Paid Mobile Broadband Subscriptions

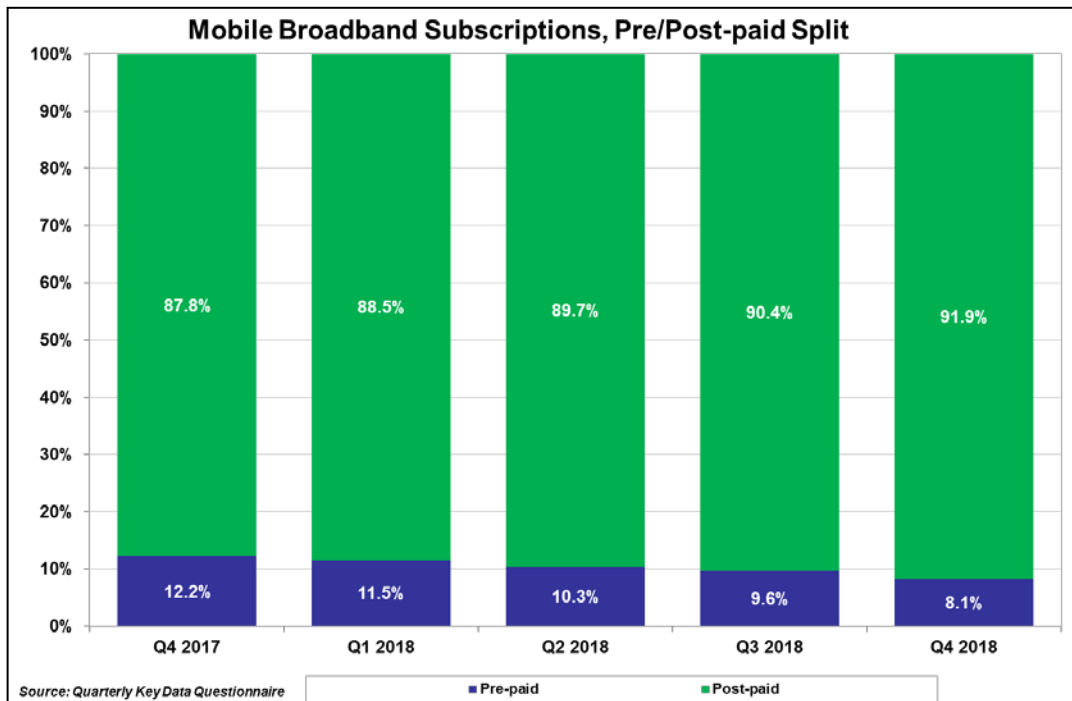


Figure 4.2.5 shows the split of post-paid business and non-business mobile subscriptions including and excluding mobile broadband (MBB) and M2M between Q4 2017 and Q4 2018. Approximately 53.5% of post-paid mobile subscriptions (including mobile broadband and M2M) and 34.0% of post-paid mobile subscriptions (excluding mobile broadband and M2M) were classed as business subscriptions in Q4 2018.

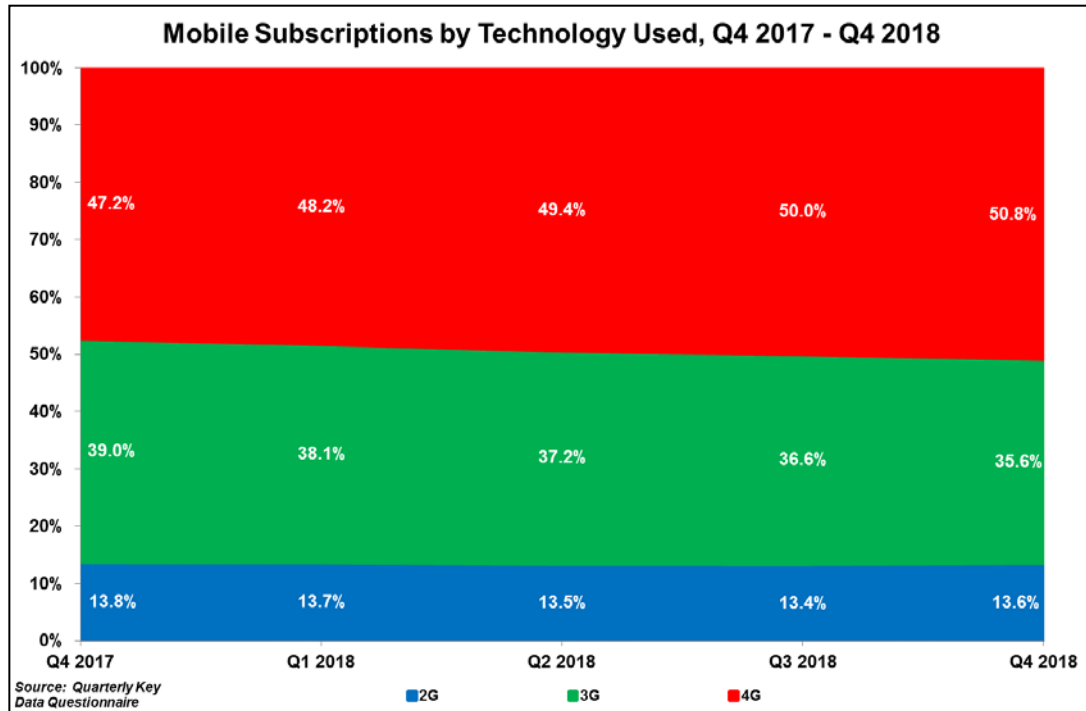
Figure 4.2.5 – Post-Paid Business and Residential Mobile Subscriptions

	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018
Residential subscriptions inc. MBB & M2M⁸⁴	1,614,084	1,636,052	1,651,111	1,675,761	1,704,949
Residential subscriptions ex. MBB & M2M	1,479,800	1,504,483	1,520,399	1,543,066	1,571,515
Business subscriptions inc. MBB & M2M	1,722,099	1,789,135	1,849,813	1,908,997	1,962,288
Business subscriptions ex. MBB & M2M	770,299	776,181	783,395	796,640	809,112

Figure 4.2.6 shows the split of mobile subscribers (including mobile broadband and M2M subscribers) broken down by mobile network technology used by these subscribers. For example, subscribers who purchase 4G plans and have generated traffic on a 4G network are categorised as 4G subscribers. Categories are mutually exclusive in that subscribers who have generated traffic on multiple networks (e.g. 2G and 3G) are categorised as users of the higher quality network (3G in this example). By the end of Q4 2018, 50.8% of mobile subscribers were categorised as 4G network users, 35.6% were using 3G networks with the remaining 13.6% of subscribers using 2G networks only.

⁸⁴ All M2M subscriptions are currently assumed to be business subscriptions.

Figure 4.2.6 – Mobile Subscriptions by Network Used



4.3 Mobile Volumes

Figure 4.3.1a illustrates the change in voice minutes, SMS, and MMS (Multimedia Messaging Service) messages and 'other data'⁸⁵ volumes (internet uploads and downloads) sent between Q4 2015 and Q4 2018. Total retail mobile voice traffic was 3.171 billion minutes in Q4 2018, up by 1.0% on Q4 2017.

The total number of SMS messages sent by Irish mobile users was over 1.034 billion in Q4 2018, down 15.0% on Q4 2017 and down by 4.9% since Q3 2018. The number of multimedia messages (MMS) sent was down by 21.3% in the year to Q4 2018. Data usage volumes continue to rise, increasing by 43.5% in the year to Q4 2018 to reach 112,902 terabytes.

⁸⁵ Other data volumes means mobile traffic for which customers do and do not have to pay per MB charges and refers to both uploads and downloads. Retail international roaming data downloaded from network subscribers roaming on foreign networks (including EU-28) is also included.

Figure 4.3.1a – Total Voice, SMS, MMS and Data Volumes

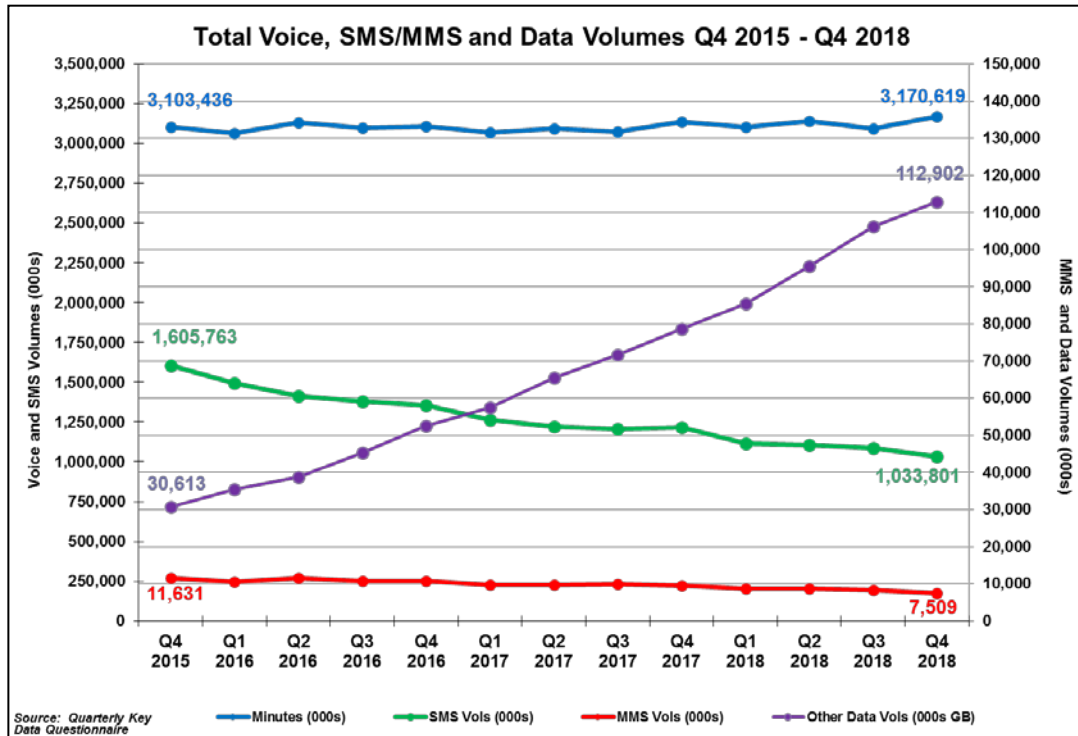


Figure 4.3.1b focuses specifically on total roaming (use of mobile services from Irish subscribers abroad) volumes for voice minutes, SMS and MMS messages (combined) and other data volumes (internet uploads and downloads) between Q4 2015 and Q4 2018.

Seasonal effects of mobile volumes for all three metrics are clearly visible with Q3 of each year showing peak use, likely corresponding with summer holiday periods. The EU ‘Roam Like At Home’ roaming regulations came into effect on 15 June 2017,⁸⁶ this is likely to have contributed to the increases in roaming traffic.

Total retail roaming mobile voice traffic was over 73 million minutes in Q4 2018, up by 16.1% on Q4 2017. Total combined SMS and MMS roaming messages sent by Irish mobile users was over 24 million in Q4 2018, down 0.4% on Q4 2017. Data usage volumes for Q4 2018 were 2,077 TB, up 68.9% on Q4 2017.

⁸⁶ Under the EU Roam Like At Home (‘RLAH’) regulations, when roaming within the EEA, subscribers are charged the domestic retail price for calls, texts and data, subject to certain exceptions. Please see [ComReg document 17/55r](#) for further details.

Figure 4.3.1b – Roaming Voice, SMS, MMS and Data Volumes

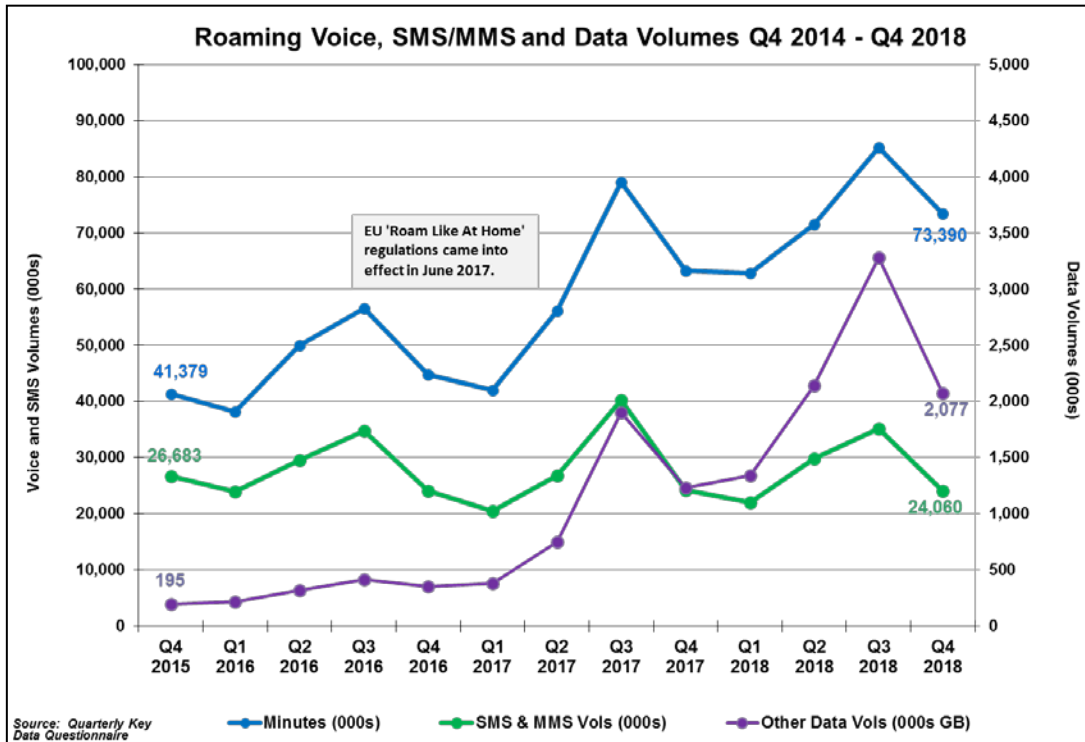


Figure 4.3.2 illustrates the share of types of mobile voice call minutes. As of Q4 2018, 76.2% of all mobile voice minutes were classified as mobile-to-mobile (on-net and off-net), 12.3% of mobile voice minutes were to fixed line phones, 8.0% were classified as international and roaming minutes and the remaining 3.5% were advanced voice minutes which include calls to premium rate services.

Figure 4.3.2 – Voice Call Minute Volumes by Type

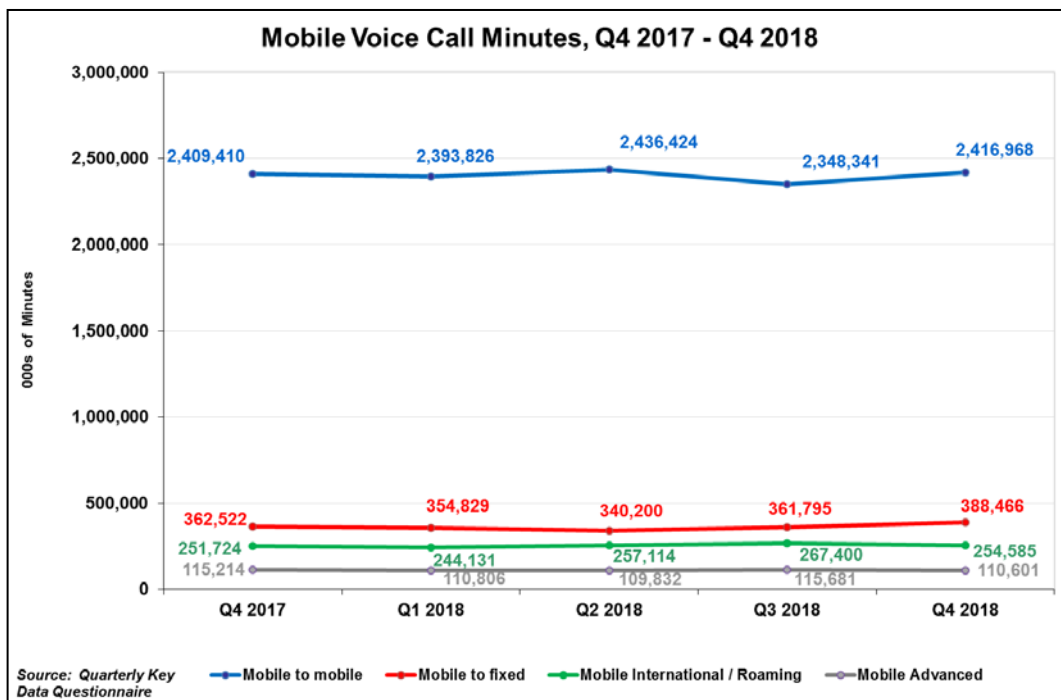


Figure 4.3.3 shows the change in the on-net and off-net mobile to mobile voice call minutes since Q4 2017. During Q4 2018, 55.0% of all mobile to mobile voice minutes were classified as on-net, down from 55.7% in Q4 2017.

Figure 4.3.3 – Mobile to Mobile Voice Call Minute Volumes by Type

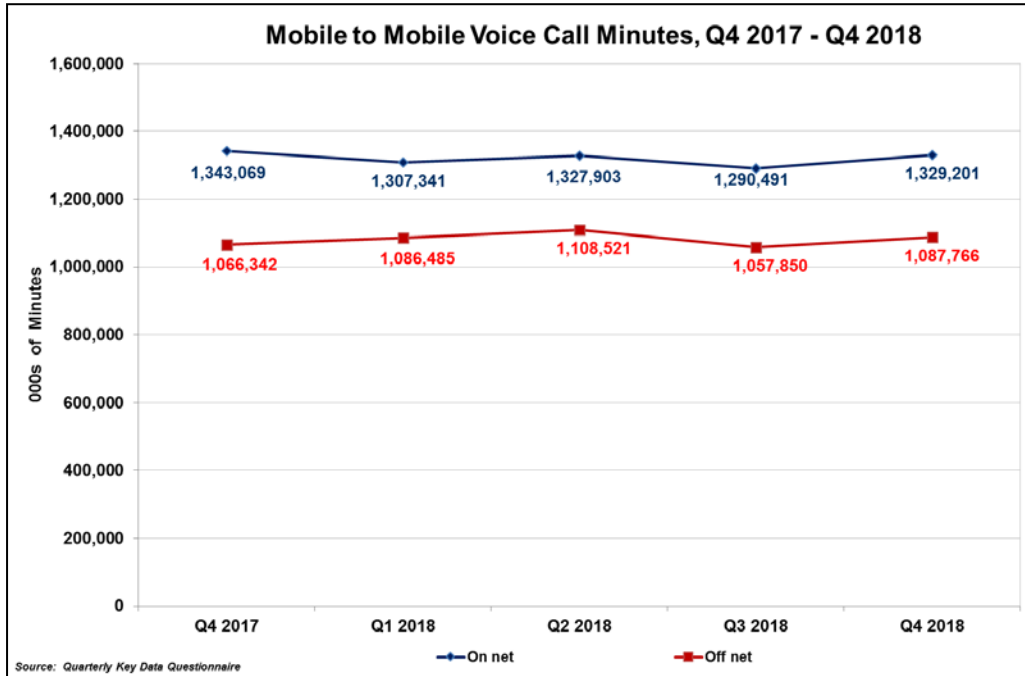


Figure 4.3.4 shows changes in monthly mobile voice call minutes per subscription. In Q4 2018 the average usage was 212.6 minutes (down 0.5% on Q4 2017).

Figure 4.3.4 – Monthly Mobile Voice Call Minutes per Subscription by Type

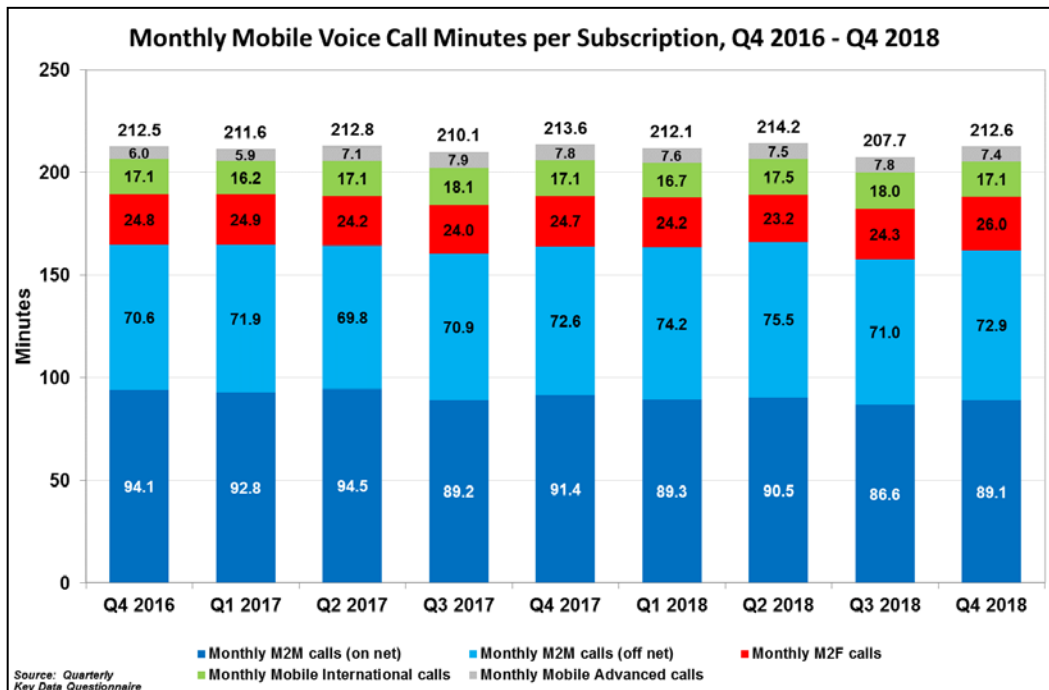


Figure 4.3.5 shows the change in the monthly mobile data volumes per subscription. In Q4 2018 the average monthly number of SMS/MMS sent was 70 and the average traffic per smartphone⁸⁷ reached 6.4 GB of data, while the average traffic per dedicated mobile broadband subscriber was 22.9 GB of data⁸⁸.

Figure 4.3.5 – Monthly Mobile Messaging and Data Volumes per Subscription

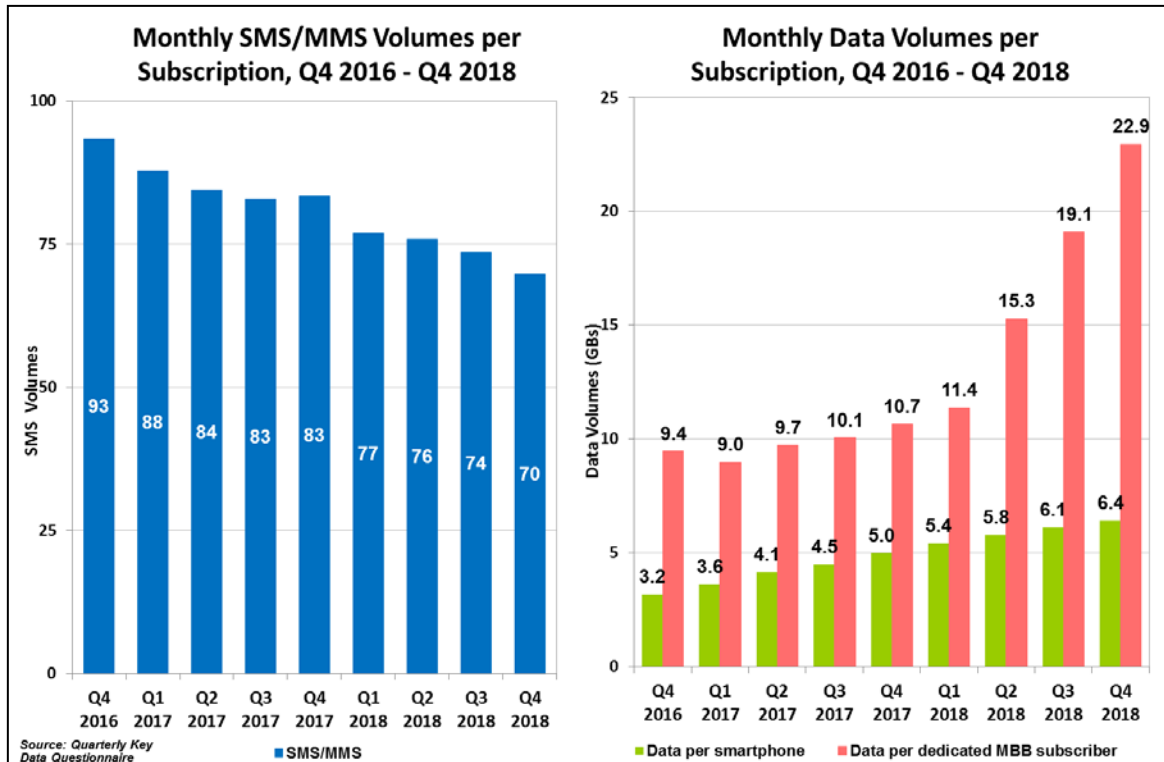
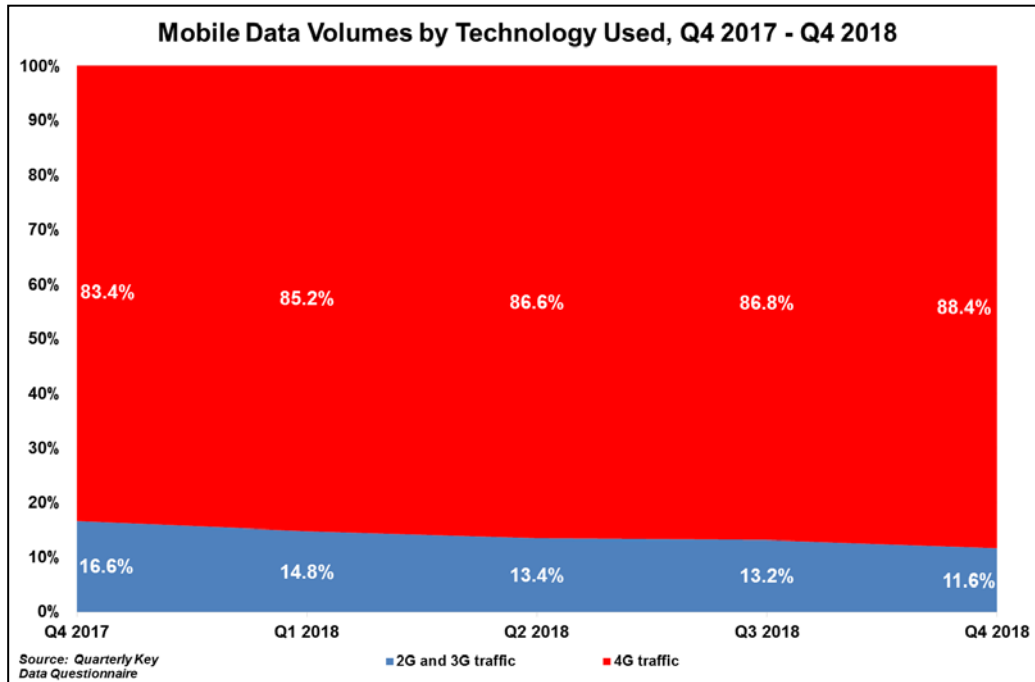


Figure 4.3.6 provides the breakdown of mobile data volumes by mobile network technology. Of all mobile data from Q4 2018 99,768 terabytes or 88.4% was generated by 4G network users, up from 83.4% in Q4 2017.

⁸⁷ Based on the number of standard mobile voice and data subscribers using 3G and 4G networks. Data usage volumes were revised for Q4 2017 affecting both smartphone and dedicated mobile broadband data volumes. See note 7 in the corrigendum.

⁸⁸ Data traffic refers to both uploads and downloads.

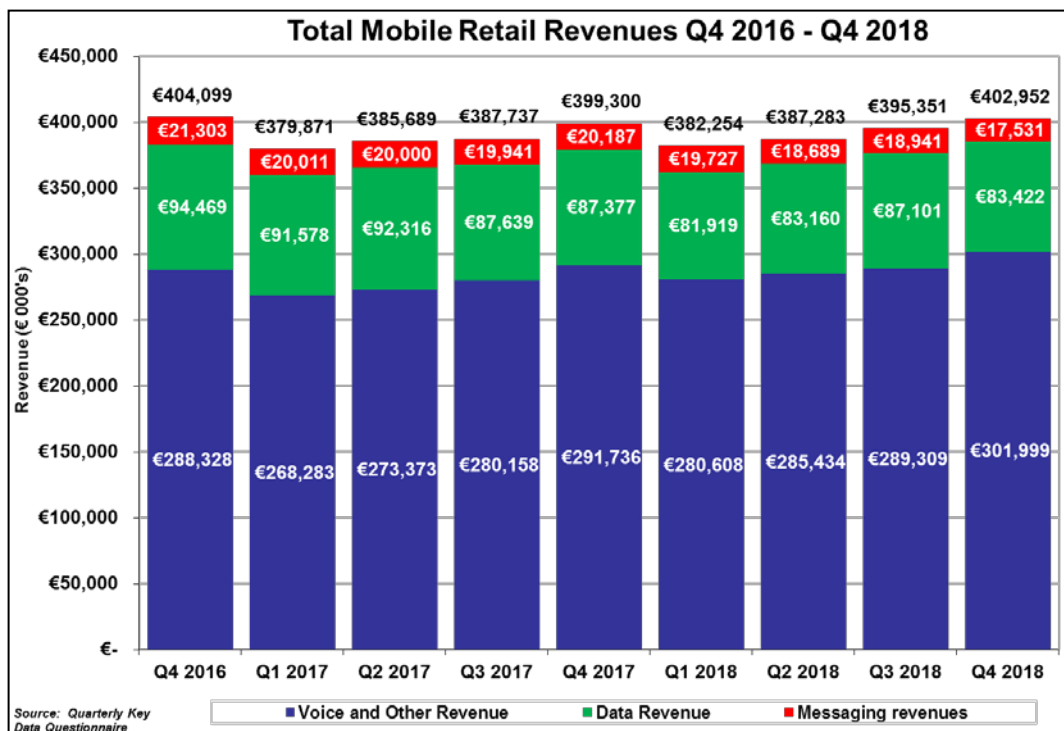
Figure 4.3.6 – Mobile Data Volumes by Technology



4.4 Mobile Revenues

Figure 4.4.1 shows that mobile retail revenues for Q4 2018 were over €402 million. Messaging revenues decreased by 7.4% this quarter, data revenues decreased by 4.2% while voice and other revenues increased by 4.4% since Q3 2018.

Figure 4.4.1 – Total Mobile Retail Revenues



Wholesale mobile revenues were over €45 million in Q4 2018 (a decrease of 3.5% since Q3 2018), the vast majority accounted for by terminating traffic, followed by roaming⁸⁹ and access⁹⁰ revenues.

4.5 Average Monthly Revenue per User

Mobile ARPU is a function of both the price of mobile services and the level of usage of mobile services⁹¹. Figure 4.5.1a below shows quarterly change while figure 4.5.1b overleaf illustrates monthly ARPU for mobile phone services⁹², mobile broadband and machine-to machine broken down by prepaid and post-paid subscribers.

In Q4 2018 mobile ARPU for prepaid mobile phone subscribers was €14.22 per month while mobile ARPU for post-paid mobile phone subscribers was €37.11 per month. For the same period mobile ARPU for prepaid mobile broadband subscribers was €14.73 per month while mobile ARPU for post-paid mobile broadband subscribers was €19.78 per month. ARPU for combined or 'blended' prepaid and post-paid mobile phone subscribers was €25.32 in Q4 2018 and €19.31 for mobile broadband subscribers. ARPU for machine-to-machine subscriptions, which are all post-paid, was €1.53 for Q4 2018.

Figure 4.5.1a – Monthly Average Revenue per User by Mobile Service

All operators	Q3 2018	Q4 2018	Q3'18 – Q4'18 Change
Mobile Phone Services - Prepaid	€14.52	€14.22	-2.0%
Mobile Phone Services - Postpaid	€37.24	€37.11	-0.3%
Mobile Phone Services - Blended	€25.14	€25.32	+0.7%
Mobile Broadband - Prepaid	€15.96	€14.73	-7.7%
Mobile Broadband - Postpaid	€19.70	€19.78	+0.4%
Mobile Broadband - Blended	€19.30	€19.31	+0.1%
Machine-to-Machine	€1.56	€1.53	-2.2%

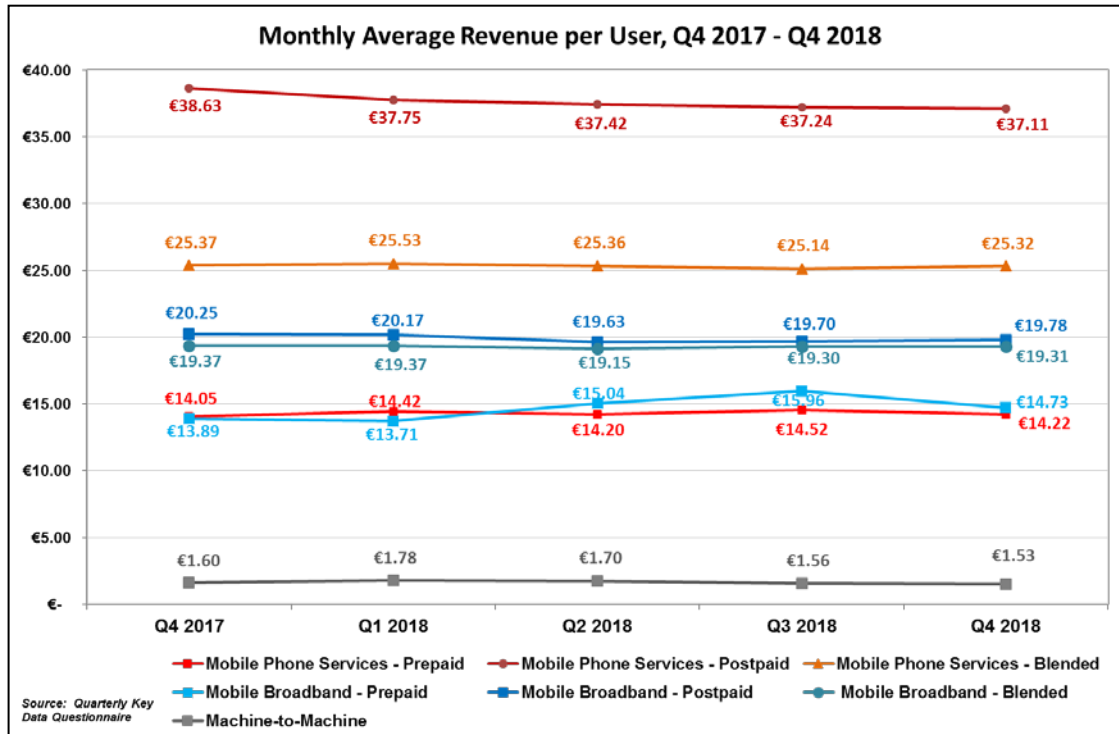
⁸⁹ Revenues from the provision of wholesale roaming (inbound) services (voice/text/data services). Excludes revenues from the provision of wholesale roaming (outbound) services to hosted MVNOs.

⁹⁰ Includes revenues from the wholesale provision of voice, messaging and data services to MVNOs and access revenues not related to traffic. Includes revenues from the provision of wholesale roaming (outbound) services (voice/text/data services) to hosted MVNOs. Includes revenues from wholesale provision of voice, messaging and data services based on national roaming agreements.

⁹¹ From Q2 2017 mobile ARPU is split into three mobile services (phone services, mobile broadband and M2M).

⁹² Mobile phone services include voice calls, SMS/MMS messaging, and data use.

Figure 4.5.1b – Monthly Average Revenue per User by Mobile Service



4.6 Machine to Machine Subscriptions

Machine to Machine (M2M) refers to technologies that involve data communication between devices or systems in which, at least in principle, human intervention does not occur. These technologies may encompass either wireless or wired communications, or both. M2M communication is already widely deployed in Ireland and its usage is set to grow rapidly, driven in no small part by the expansion of next generation telecommunications technology and a decline in the cost of the embedded wireless modules and sensors that enable M2M services. This continued improvement in the infrastructural environment around M2M has led to a rapid growth of applications and services that meet users’ business and lifestyle needs. M2M technologies transfer data on the condition of physical assets and devices to a central location (which is distantly located the devices) for effective monitoring and control. M2M has a multitude of uses, with current deployments in the healthcare, energy, home automation and transportation sectors. Specific examples of M2M applications include smart metering, vehicle and consignment tracking and alarm monitoring systems of various kinds, ATM machines signalling the need for cash replacement, smart grid monitoring of real time electricity demand, smart home applications such as switching on and off lights, heating and other appliances.

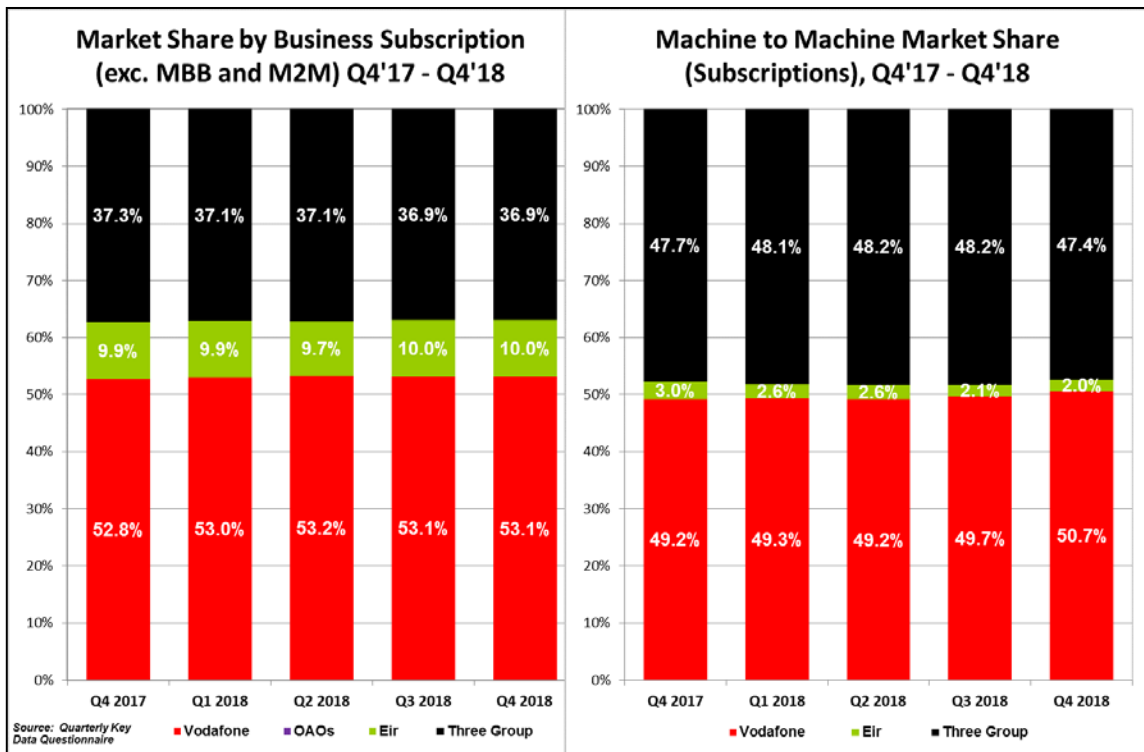
Different networking technologies can be used to connect M2M devices, depending on the amount of mobility needed, quality required, data rate, the degree of dispersion of devices over an area, and so on. Gathering data on dedicated M2M mobile connections assists ComReg in assessing future regulatory needs for M2M, e.g. for numbering resources. The additional data also allows for more accurate assessment of mobile telephony and broadband connections.

There were 1,012,434 M2M subscriptions at the end of Q4 2018. This is an increase of 22.2% since Q4 2017 and represents 16.1% of all mobile subscriptions. Figure 4.6.1 outlines market shares based on active M2M subscriptions as well as market shares in terms of business subscribers (including mobile broadband and M2M subscriptions).

In Q4 2018 Vodafone Group had the largest market share of M2M subscriptions at 50.7% followed by Three Group with 47.4% of market share. Eir had the remaining 2.0% of M2M subscriptions.

In Q4 2018, similar to Q3 2018, Vodafone had the largest market share in terms of mobile voice business subscriptions (53.1%) followed by Three Group (36.9%) and Eir (10.0%).

Figure 4.6.1 – Market Share – Business and M2M Subscriptions



4.7 Competition in the Mobile Market

Figures 4.7.1 and 4.7.2 outline mobile market shares based on the number of active subscriptions reported by each operator.

Figure 4.7.1 includes mobile broadband and M2M while figure 4.7.2 excludes mobile broadband and M2M. Vodafone had the highest market share including and excluding mobile broadband and M2M (38.9% and 36.1%), followed by Three Group (35.1% and 32.2%), Eir (16.6% and 19.8%) and Tesco Mobile (6.5% and 8.1%). OAOs had market shares of 2.9% and 3.7% respectively.

Figure 4.7.1 – Market Share – Number of Subscriptions (inc. mobile broadband and M2M)

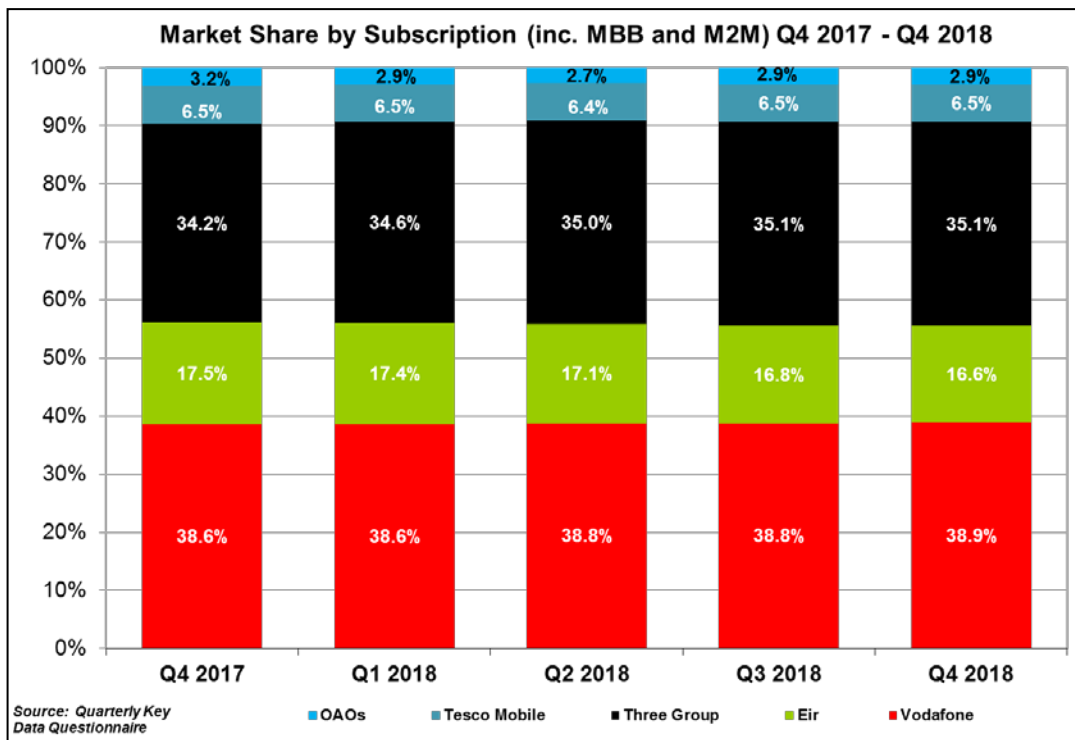


Figure 4.7.2 – Market Share – Number of Subscriptions (ex. mobile broadband and M2M)

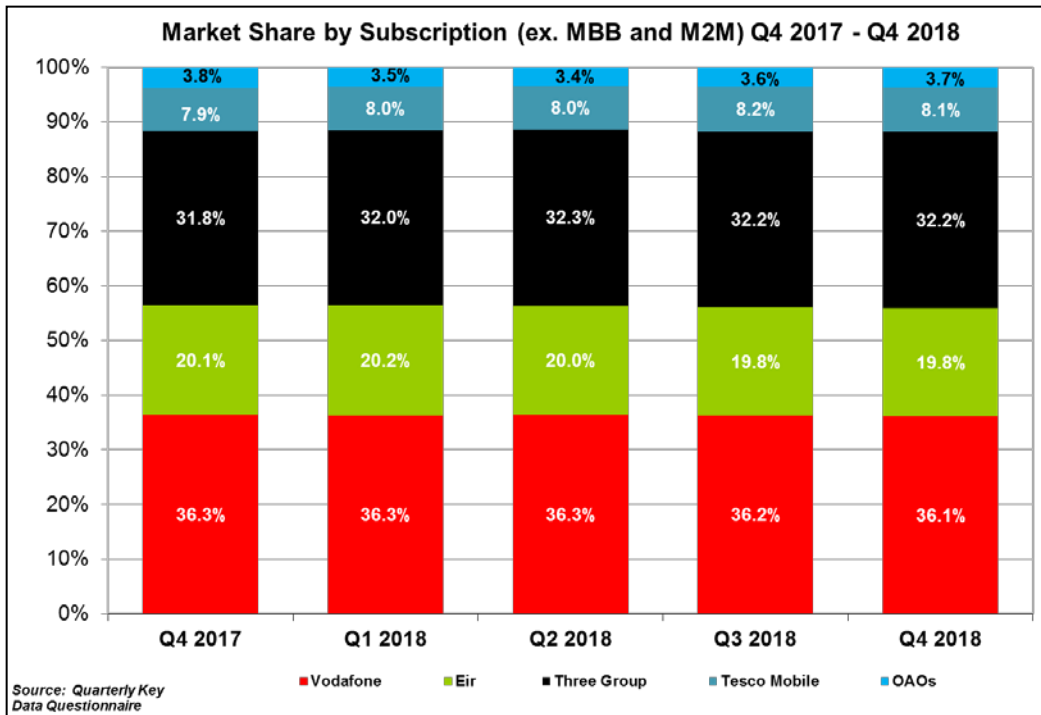
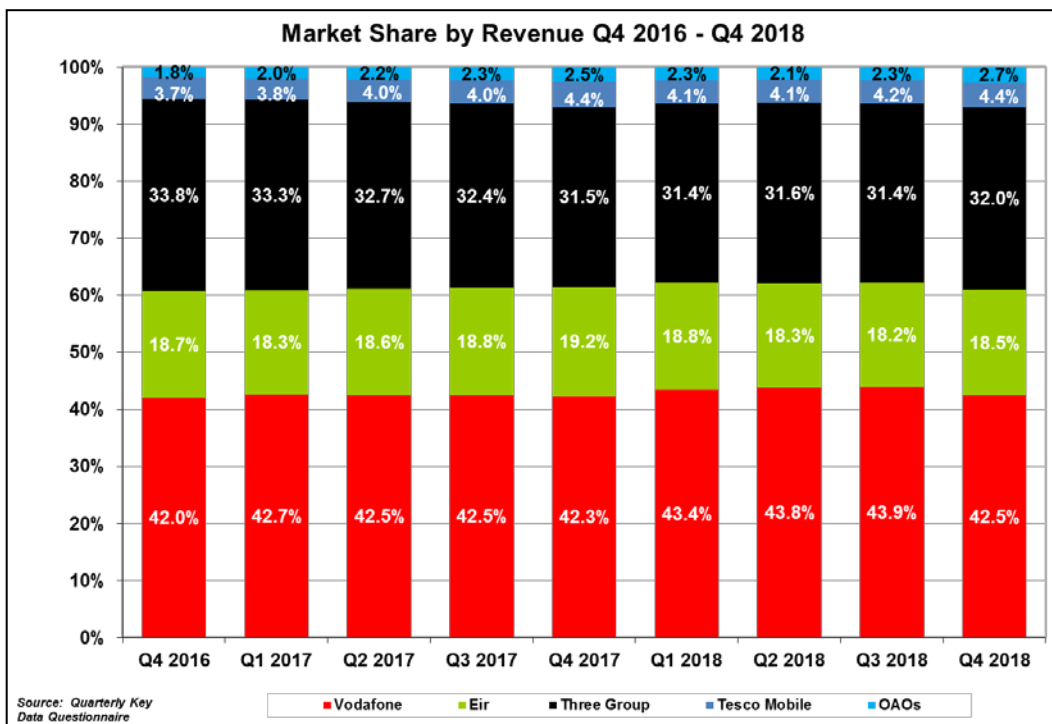


Figure 4.7.3 shows market shares by total retail revenues for mobile operators. Vodafone’s market share remains highest at 42.5% followed by Three Group at 32.0%. Eir’s market share is the next largest at 18.5% followed by Tesco Mobile and OAOs at 4.4% and 2.7% respectively.

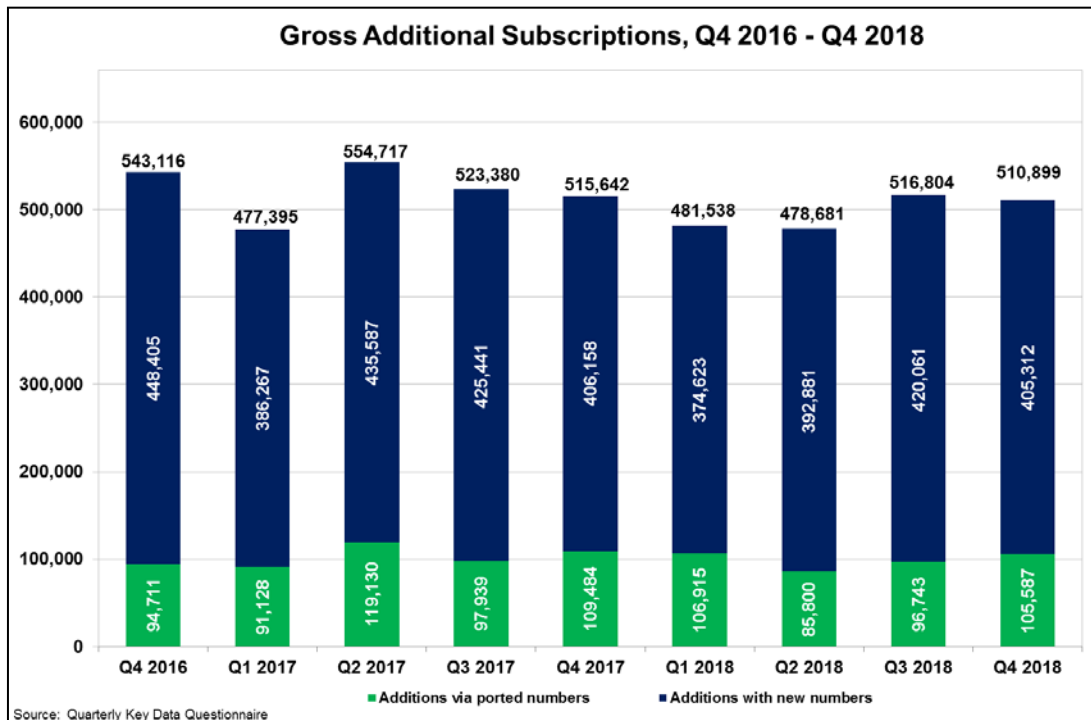
Figure 4.7.3 – Market Share by Revenue



4.8 Switching in the Mobile Market

Figure 4.8.1 illustrates the number of subscribers who port their numbers as a proportion of total gross additions⁹³. There were 510,899 gross additional subscriptions in Q4 2018. In Q4 2018, 105,587 numbers were ported between mobile operators with a total of 395,045 numbers having been ported over a twelve month period. Gross additions via ported numbers accounted for 20.7% of total gross additions in Q4 2018.

Figure 4.8.1 – Gross Subscription Additions and Numbers Ported



4.9 Mobile Pricing Data

ComReg uses independently collated Strategy Analytics (Teligen) pricing data using OECD-approved methodologies to examine the relative prices of a number of specific mobile phone usage baskets of national and international telecoms services for both residential and business users. The pricing data used for international comparisons includes pricing information for selected countries, namely Germany, Denmark, Spain, Netherlands and the United Kingdom⁹⁴.

For national comparisons, the prices advertised by the largest operators (in terms of the number of subscribers to mobile voice services) during Q4 2018 were analysed⁹⁵ for selected usage baskets. In this QKDR prices advertised by Three, Vodafone, Eir, Tesco,

⁹³ Gross additions include consumers who avail of multiple SIMs and thus, slightly overstate the switching intensity.

⁹⁴ In future QKDRs ComReg may expand the analysis and include more countries for price comparisons.

⁹⁵ The subscribers of these operators jointly account for over 99% of all mobile voice subscribers. 4G tariffs were included in the analysis.

Lycamobile, Virgin Media and 48 were analysed. Thus, the analysis does not necessarily present the cheapest tariffs available in the whole market, but rather the lowest cost tariffs offered by the largest operators.

For international comparisons, the prices advertised by largest operators (in terms of the number of subscribers to mobile voice services) in each of the respective countries during Q3 2018 were analysed⁹⁶ for selected OECD mobile phone usage baskets⁹⁷ (with an average per country price presented based on the average of lowest price tariffs advertised by three highest ranking operators in national pricing comparisons). In order to enable international comparisons, prices are presented in Euro Purchasing Power Parities (PPPs) and exclude VAT charges. PPPs provide an indication of the cost of telecoms services in countries analysed in relation to the cost of all other products and services. The presented analysis incorporates discounts offered by operators. Nonrecurring charges (e.g. charges for the activation of a service) are discounted/amortised over three years. Calls to mobile (on-net and off-net) and fixed phones are included in the baskets⁹⁸. Further information on the composition of the broadband basket can be found in the Explanatory Memorandum which accompanies this report.

The following baskets are presented in this report⁹⁹:

Residential and business mobile phone usage baskets

Type of basket	Basket
Prepaid Residential	100 calls (188 minutes), 20 SMS, 2GB data
Postpaid Residential	300 calls (577 minutes), 40 SMS and 5GB data
Business	900 calls (1,795 minutes), 40 SMS and 2GB data

These baskets were selected given they most closely related to the mobile voice usage patterns presented in figures 4.3.4 and 4.3.5 above. ComReg notes that these baskets reflect usage patterns of an average user and do not necessarily reflect prices of tariffs that are geared towards customers having different usage profiles.

⁹⁶ The subscribers of these operators jointly account for over 80% of all mobile voice subscribers in each of the respective countries.

⁹⁷ The same basket was applied to each respective country in order to make the international comparison.

⁹⁸ For the Q1 2018 QKDR the OECD price baskets were reviewed and revised in line with the 2017 OECD methodology. This methodology was retrospectively applied to the period Q4 2017. The criteria for the 2017 OECD methodology differs from the previous 2010 methodology and is therefore not strictly comparable.

⁹⁹ In the future QKDRs ComReg may expand the analysis based on additional and/or different usage baskets.

ComReg notes that comparisons are based on the prices of advertised tariffs only and the analysis does not take into consideration other important factors such as quality of the network, levels of customer care, additional units of consumption available after having accounted in the analysis for the units in the OECD usage basket, minimum contract term etc.

OECD Pre-Paid Residential Mobile Basket¹⁰⁰

Figure 4.9.1 compares pre-paid tariffs advertised by mobile phone services providers for residential customers based on a basket of 100 calls (188 minutes), 20 SMS and 2GB data usage. 48 (€10.00) offers the cheapest tariff for this particular OECD basket, followed by Lycamobile (€12.00) and Tesco at €15.00.

Figure 4.9.1 – Residential Pre-paid Mobile Phone Services Basket (National)

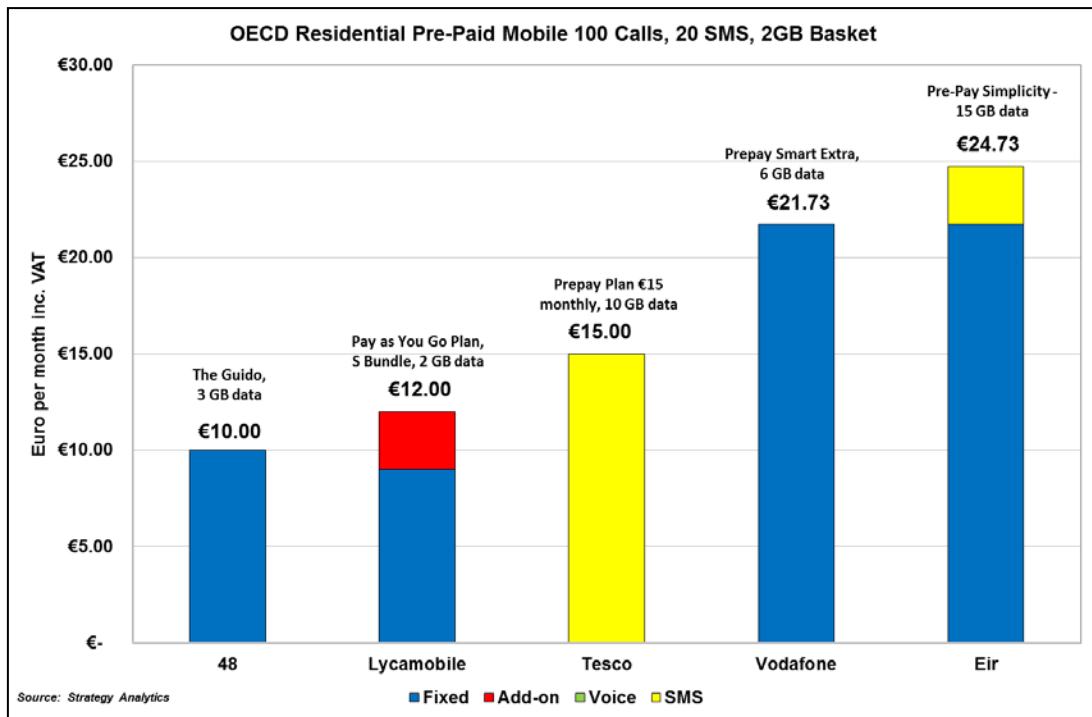


Figure 4.9.2 illustrates Ireland’s ranking alongside five other Western European countries¹⁰¹. Ireland ranks in second place with an average price of €10.03¹⁰² for this particular basket. The average price in Ireland is 56.0% cheaper than the average price¹⁰³ for all of the countries included in the analysis.

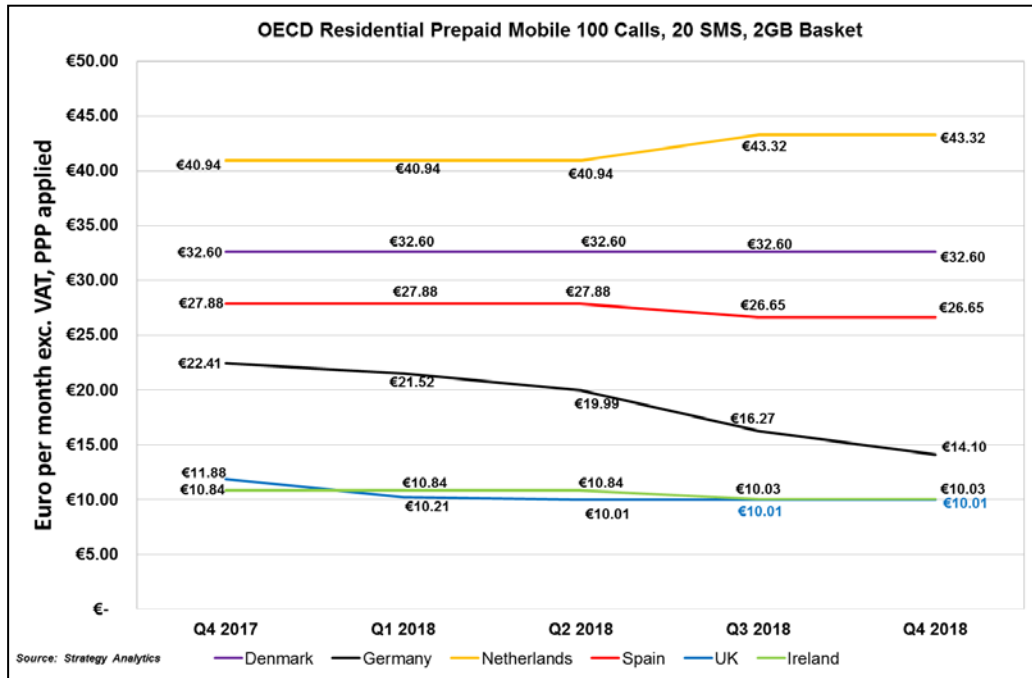
¹⁰⁰ ComReg notes that for pre-paid tariffs requiring periodic mandatory top ups (e.g. mandatory monthly (30 day) top ups), the full cost of the top up would be taken into consideration when estimating the total cost of these tariffs.

¹⁰¹ Note that historical data for Denmark has been revised by Strategy Analytics resulting in decreases to prepaid pricing.

¹⁰² As noted previously, average prices used for international comparisons exclude VAT charges.

¹⁰³ The average of prices presented in Figure 4.9.2.

Figure 4.9.2 – Residential Pre-paid Mobile Phone Services Basket (Int'l)



OECD Post-Paid Residential Mobile Basket

Figure 4.9.3 compares post-paid tariffs advertised by mobile phone service providers for residential customers based on a basket of 300 calls (577 minutes), 40 SMS and 5GB data usage. Tesco Mobile offers the cheapest tariffs for this particular basket at €20.00 followed by Virgin Media (€25.00) and Eir (€27.49).

Figure 4.9.3 – Residential Post-paid Mobile Phone Services Basket (National)

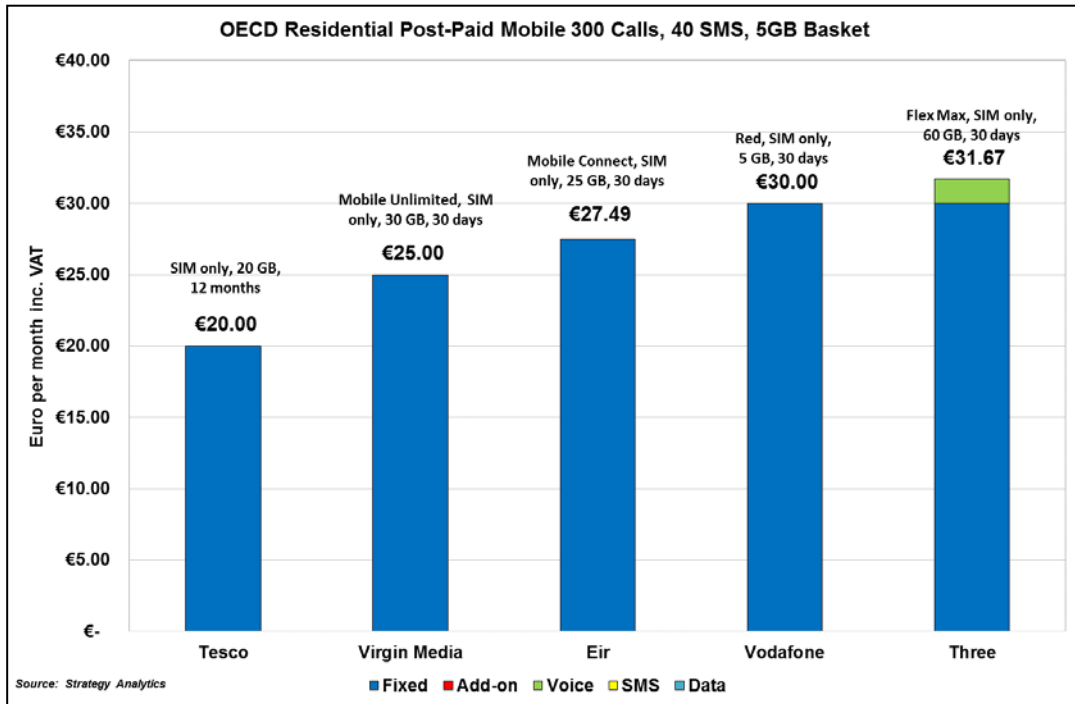
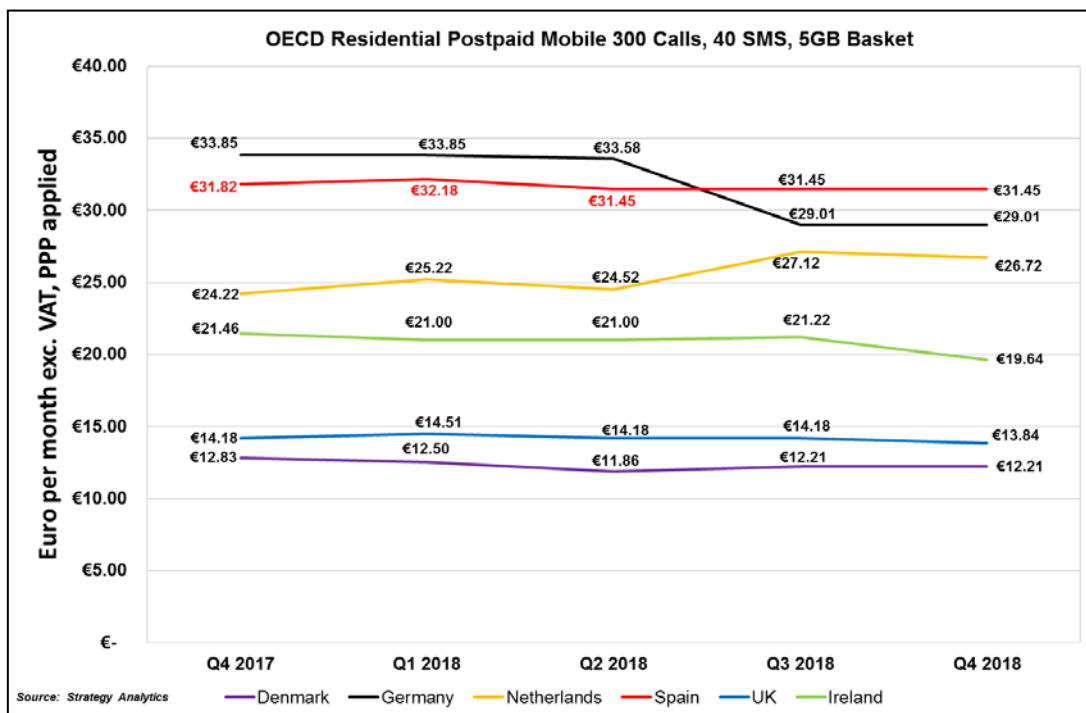


Figure 4.9.4 shows that Ireland (€19.64¹⁰⁴), in an international comparison context, ranks in third place. The average price in Ireland is 11.3% cheaper than the average price¹⁰⁵ for all of the countries included in the analysis.

Figure 4.9.4 – Residential Post-paid Mobile Phone Services Basket (Int'l)



¹⁰⁴ As noted previously, average prices used for international comparisons exclude VAT charges.

¹⁰⁵ The average of prices presented in Figure 4.9.4.

OECD Post-Paid Business Mobile Basket

Figure 4.9.5 compares post-paid tariffs advertised by mobile phone service providers¹⁰⁶ for business customers based on an OECD basket of 900 calls (1,795 minutes), 40 SMS and 2 GB data usage. Presented prices exclude VAT charges. Eir offers the cheapest tariff for this particular basket at €24.99, followed by Three (€25.00) and Vodafone (€40.00).

Figure 4.9.5 – Business Post-paid Mobile Phone Services Basket (National)

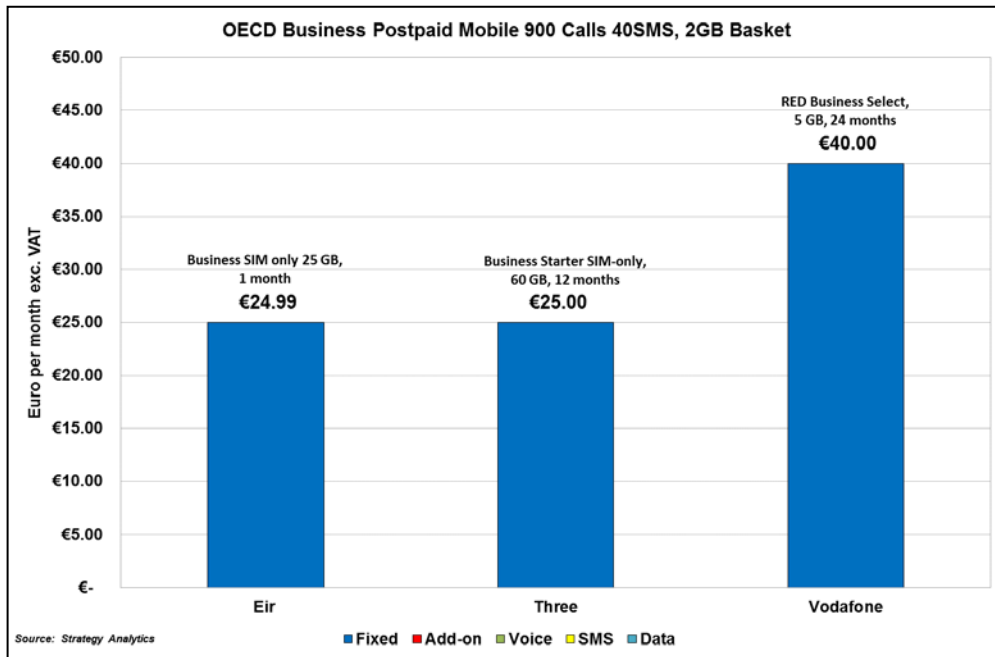


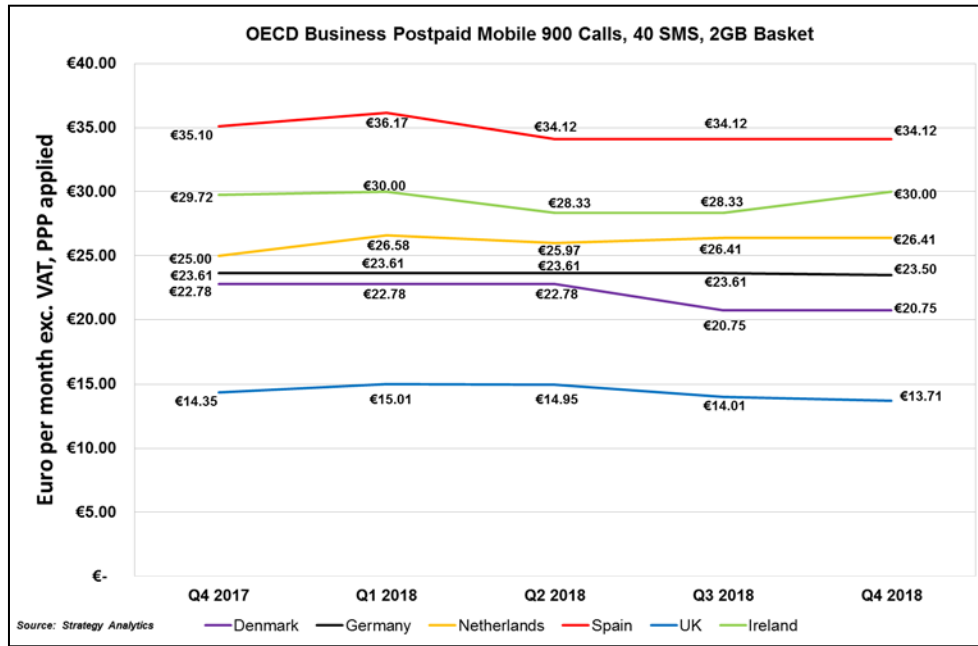
Figure 4.9.6 illustrates Ireland’s ranking alongside five other Western European countries. Ireland ranks in fifth place with an average price of €30.00¹⁰⁷ for this particular basket. The average price in Ireland is 21.2% more expensive than the average price¹⁰⁸ for all of the countries included in the analysis.

¹⁰⁶ Only tariffs advertised by Eir, Vodafone and Three were analysed for business customers. Some operators do not offer services to business customers.

¹⁰⁷ As noted previously, average prices used for international comparisons exclude VAT charges.

¹⁰⁸ The average of prices presented in Figure 4.9.6.

Figure 4.9.6 – Business Post-paid Mobile Phone Services Basket (Int'l)



5. Broadcasting

5.1 Overall Broadcasting Market

This broadcasting data is sourced from the Nielsen TV Audience Measurement (TAM) Establishment Survey.¹⁰⁹ The Survey indicated that there were 1,653,000 TV homes in Ireland in January 2019.¹¹⁰ Figure 5.1.1 shows the estimated number of TV homes by reception type in January 2019 and January 2018 on the basis of the reception method through which the highest number of TV channels is received. Irish terrestrial DTT-only homes represented 11.5% of all TV homes (although 42% of TV homes receive Irish DTT) as of January 2019. Cable, satellite as well as IPTV platforms represented the remaining 88.5% of all TV homes in Ireland.

Figure 5.1.1 – TV Homes by Reception Type¹¹¹

Reception	January 2019 (000s)	January 2018 (000s)	Jan. 2019 as % of Total TV Homes	% Change Jan. '18 – Jan. '19
Irish Terrestrial	190	188	11.5%	+1.1%
Multi Total	1,463	1,391	88.5%	+5.2%
Cable/Satellite	1,374	1,310	83.1%	+4.9%
IPTV	89	81	5.4%	+9.9%
Total TV Homes	1,653	1,579	N/A	+4.7%
RECEPTION: Reception type categories are hierarchically defined and mutually exclusive. A home is classified once within reception type and this is based upon the highest form of reception available within the home.				
Multi Total: Made up of UK DTT / FTA Satellite, IPTV, Cable, and Sky homes.				
Irish Terrestrial refers to homes which only receive the TV channels RTÉ 1 and 2, TG4, Virgin Media 1, 2 and 3 via an aerial and a set-top box or an aerial and an integrated digital TV or via Saorsat.				
Cable/Satellite: Includes UK DTT / FTA Satellite, Cable and Sky homes. Sky homes based on the possession of Sky boxes, not on being SKY subscribers.				

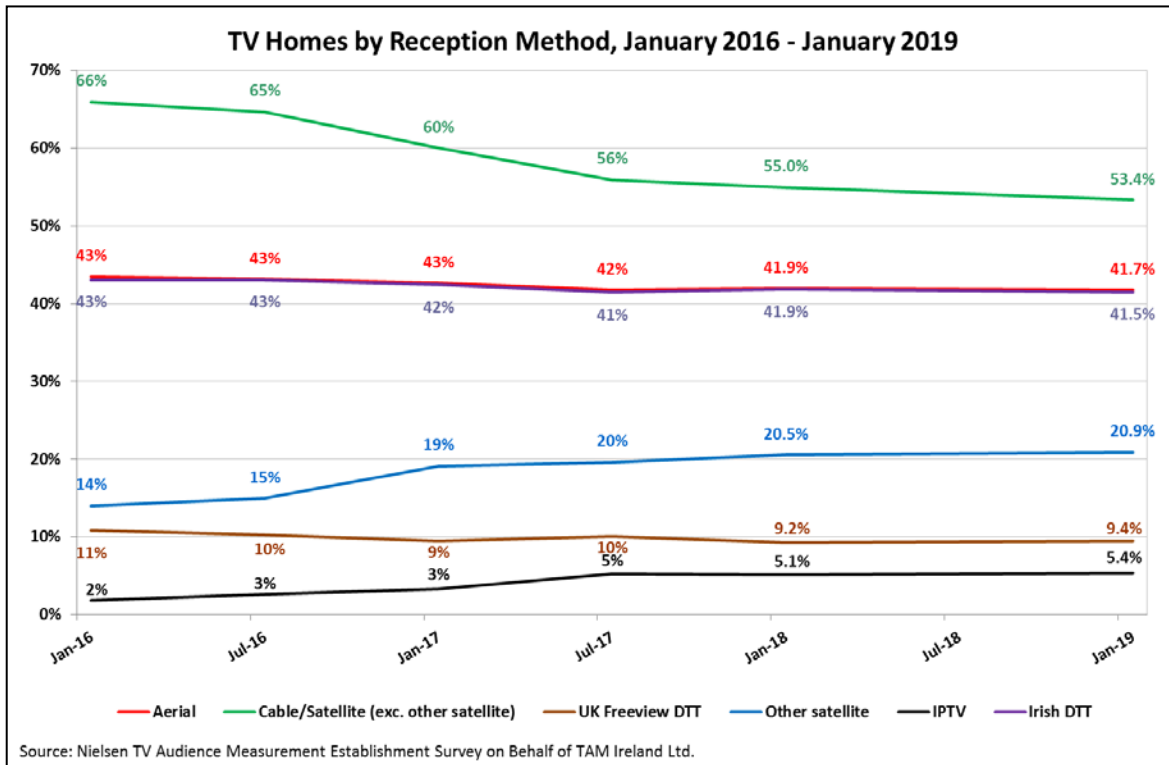
¹⁰⁹ The Establishment Survey is a survey produced by Nielsen TV Audience Measurement (fieldwork is carried out by Behaviours and Attitudes) on behalf of Television Audience Measurement Ireland Ltd (a TV ratings body). The Establishment Survey covers areas such as ownership of TV related equipment, method of TV reception and demographics of TV household individuals such as age etc.

¹¹⁰ From Q2 2016 TAM data is based on biannual surveys (January and July) rather than three times a year. Therefore Q2 and Q3 will contain the same data as will Q4 and Q1 of the following year.

¹¹¹ Source: Nielsen TV Audience Measurement Establishment Survey on behalf of TAM Ireland.

Figure 5.1.2 shows TV homes by reception method¹¹² from January 2016 to January 2019. The percentage of cable/satellite TV homes (this does not include other satellite i.e. respondents who said 'don't know' and satellites that receive foreign language stations including freesat) has declined from 66% to 53% over the last three years.¹¹³ Television homes that receive other satellite services (i.e. on a non-subscription basis) beside Sky represented 21% of TV homes in January 2019. Reception by IPTV method is relatively low (5.4% of TV homes). Approximately 42% of TV homes have Irish DTT.

Figure 5.1.2 – TV Homes by Reception Method¹¹⁴



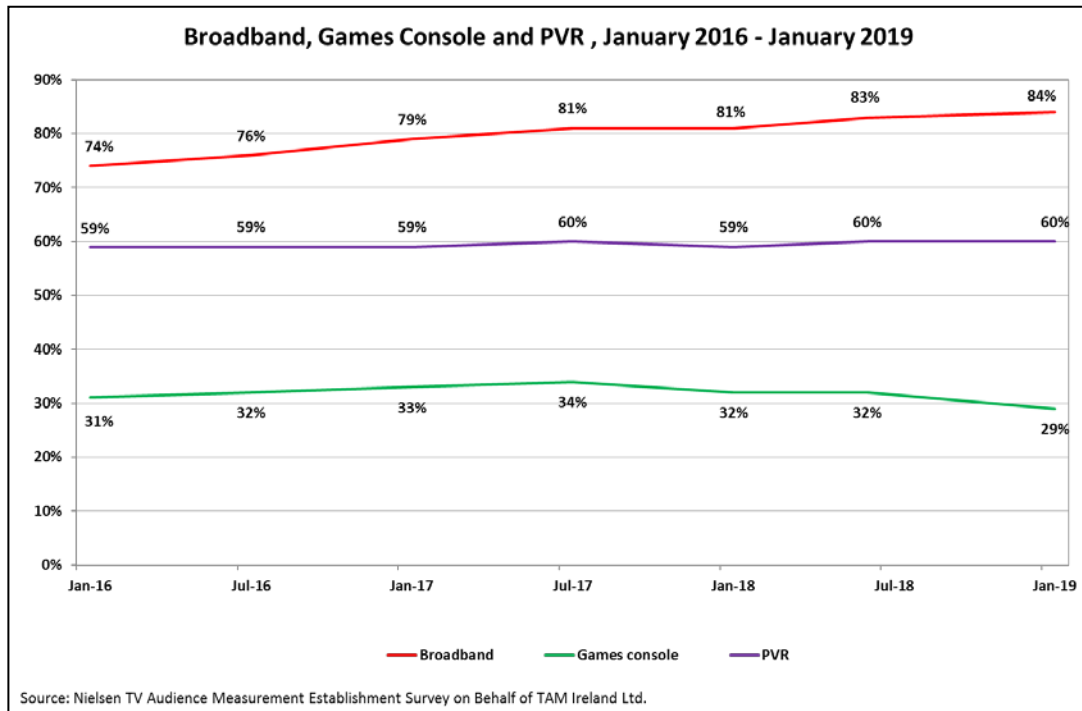
¹¹² This is determined by the method by which homes with a TV receive their channels. Each home can have more than one method of reception e.g. aerial and cable or digital satellite, digital satellite and cable, etc. The question is asked for their main and up to 9 TV sets. For this reason, the total for the reception methods adds up to more than 100%.

¹¹³ It should be noted that from December 2011 the reporting of the cable/satellite figure has changed. This is because up to December 2011 cable/satellite reception method included homes that had both cable and satellite twice (i.e. (1) cable, (1) satellite). Nielsen now publish homes with cable and satellite as one reception method - as cable or satellite (i.e. cable or satellite (1)). IPTV is not included in the category.

¹¹⁴ As of November 2012 'Aerial' includes Saorsat homes. Irish DTT includes Saorsat. Cable/satellite includes IPTV, excludes UK DTT, Irish DTT and Saorsat.

Figure 5.1.4 shows TV homes by broadband ¹¹⁵ access, game console and PVR ¹¹⁶ ownership between January 2016 and January 2019. Broadband access was present in circa 84% of homes with a television in January 2019. The number of homes with games consoles has changed over the last three years from 31% in January 2016 to 29% in January 2019. PVR ownership was 60% in January 2019 and 59% in January 2016.

Figure 5.1.4 – Broadband, Games Console and PVR Trends

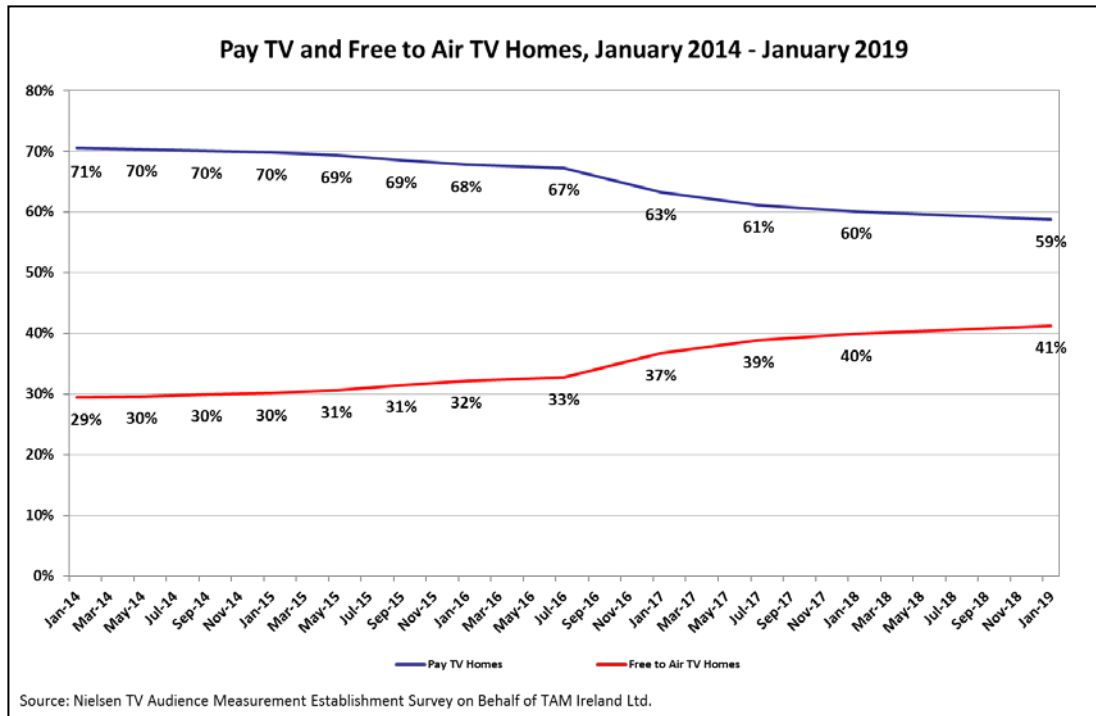


¹¹⁵ Both fixed and mobile broadband.

¹¹⁶ A PVR is an electronic device used to record media digitally. The PVR is also known as a digital video recorder or DVR. A PVR records and plays back television programmes, but, unlike the VCR, it stores the programs in digital rather than analogue format, for example, SKY+Box, or Virgin Media Digital Video Recorder.

Figure 5.1.5 shows the level of household penetration of pay TV services and free to air TV services in Ireland based on reception method. This chart has been derived by ComReg using Nielsen data and is not a classification used by Nielsen or a classification used as part of the survey itself. Homes with a pay TV (cable, satellite and IPTV homes) ¹¹⁷ service were generally stable from January 2014 to July 2016 at 69% average of all TV homes. However, we have seen a decrease since the latter half of 2016 with the figure at 59% in January 2019.

Figure 5.1.5 – Pay TV vs Free to Air TV Homes, 2013 - 2018



¹¹⁷ IPTV is included from December 2011.

The following table lists Respondents who submitted data which was used to produce the Q4 2018 Quarterly Key Data Report.

Table A1: List of Respondents

Respondent Name (N=45)
AirSpeed Telecom
AT&T Global Network Services Ireland Limited
Blueface Limited
BT Communications Ireland Limited
Colt Technology Services Limited
Crossan CableComm Limited
Digitalforge
Digiweb Limited
Edge Telecommunications Limited
Eircom Limited
E-Net
Equant operations in Ireland (EGN BV and ENS Limited)
ESB Telecoms
EU Networks Ireland Private Fiber Limited
Europasat Satellite (Ireland) Limited
Fastcom Broadband Limited
Fulnett Limited t/a Strencom
Goldfish Telecom Limited
Hibernia Atlantic Cable Systems Limited
Host Ireland Business Broadband
IFA Telecom
Imagine Group
Intellicom Ireland Limited
Ivertec Limited
Level 3 Communications (Ireland) Limited
Lycamobile Ireland Limited
Magnet Networks Limited
Modeva Networks
Nova Networks Limited
Permanet Limited
Postmobile
Pure Telecom Limited
Rapid Broadband Limited
Ripplecom Limited
Siro Limited
Sky Ireland Limited
SprintLink Ireland Limited
Tesco Mobile Ireland Limited
Three Ireland (Hutchison) Limited
Transaction Network Services (Ireland) Limited
Verizon Ireland Limited
Virgin Media Business Limited
Virgin Media Ireland Limited
Vodafone Ireland Limited
Welltel (Ireland) Limited