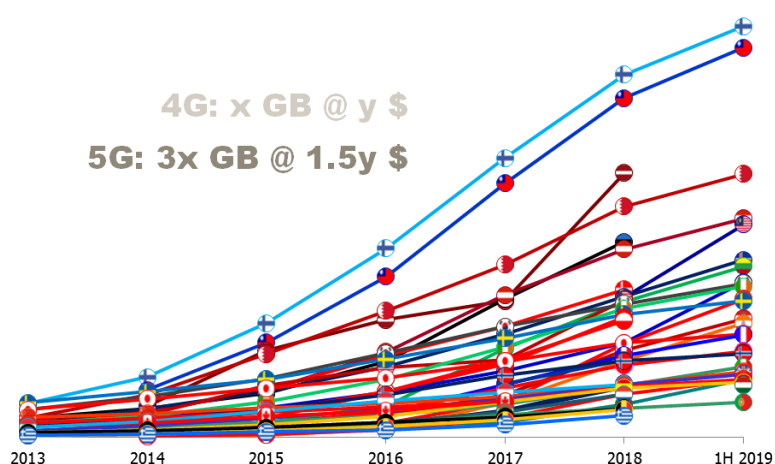


Industry analysis #4 2019

Mobile data – first half 2019

Usage up, but monetisation falters. 5G a chance to level up.



Tefficient's 25th public analysis of the development and drivers of mobile data compares 42 countries from all regions of the world.

Usage is growing in every single country, but few are able to turn this into ARPU growth.

Data-only is – thanks to FWA – making somewhat of a comeback in many markets as operators have let go of their

unlimited-phobia in this segment. The data-only base isn't growing, but the share of traffic is.

Finland and Taiwan continue to dominate the rest of the world in average data usage per subscription. Even though unlimited represents a dominant share of subscriptions here, growth rates are modest. It's instead in Mexico, China and Croatia that growth is the fastest. Japan, Sweden and Norway have the slowest growth.

Using mobile data has never been cheaper but the erosion in the revenue per gigabyte varies a lot between markets. China had the fastest erosion, 54%, and Spain the slowest, 13%.

In only a handful of markets, ARPU grew. The usage and revenue development in the world's most advanced 5G market, South Korea, is suggesting that 5G provides a chance for the industry to level up on monetisation.

Data usage is still growing in every single country

Figure 1 shows the development of mobile data usage for 42 countries¹ where regulators² report mobile data traffic. The usage is shown per SIM per month – and in Figure 1 we are including all³ SIMs, also M2M/IoT SIMs.

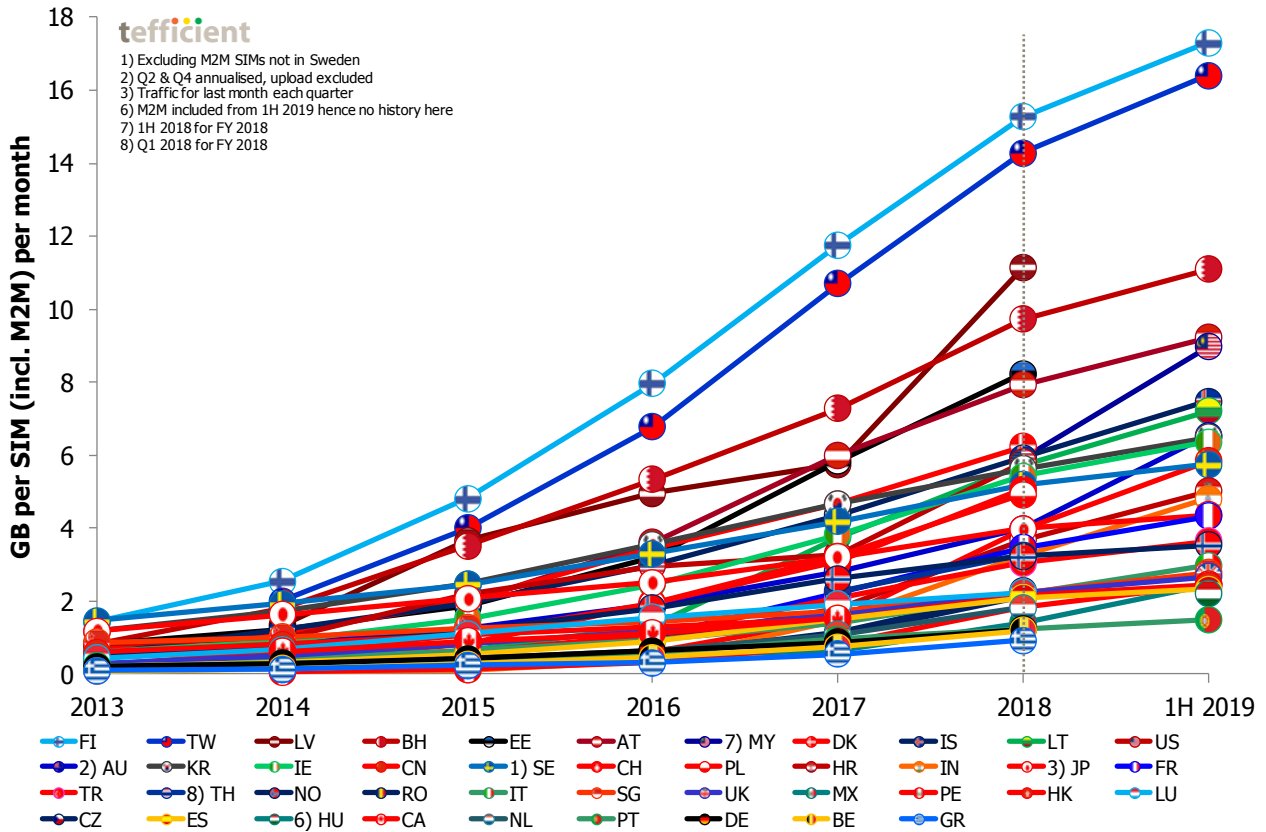


Figure 1. Development of mobile data usage per SIM (incl. M2M) per month – the legend shows the ranking

Starting from the top of the chart, **Finland** and **Taiwan** are defending the number one and two positions in the world when it comes to mobile data usage. The average Finnish SIM card carried 17.3 GB of data per month in the first half of 2019. **61%** of the Finnish SIMs (M2M included) had **unlimited data volume** in June 2019. If excluding M2M, 71%. If excluding also voice-only SIMs, 78%. No other country is as unlimited as Finland.

No other country is as unlimited as Finland

The average Taiwanese SIM carried 16.4 GB per month. Unlimited is behind **Taiwan's**

¹ Peru, Malaysia and Luxembourg have been added compared to our FY 2018 analysis: <https://tefficient.com/prepping-for-5g-monetisation-model-and-fwa-define-usage/>

² Exception: USA, where the data is from the industry body CTIA

³ All SIMs in a market included; even the SIMs that used no or little data. We think it provides a better comparison than usage per 'mobile broadband subscription' even if it lowers the average mobile data usage numbers somewhat.

usage development as well. The Taiwanese operators – there are five MNOs – have tried to cool off the market by attempting to move the unlimited price points upwards while discontinuing unlimited for customers that have run out of binding, but the discipline isn't there – the usage grew quicker than in Finland but ARPU is in fast decline.

Although **Latvia's** regulator isn't reporting half-year statistics, the country is likely still the bronze medallist. The country took a quantum leap in 2018 thanks to a 16% expansion in the number of **data-only** subscriptions. These most often come with an unlimited data volume.

Bahrain remains in fourth place whereas **Austria** fights **Estonia** (no half-year statistics) and **Malaysia**⁴ for the fifth place.

The M2M reporting dilemma

Regulators' reporting of M2M/IoT SIMs continues to create a challenge for the comparability between countries. A growing problem is international M2M SIMs that are registered in one country but used somewhere else. Sweden is a good example. The country regulator, PTS, reports 14.3 million M2M SIMs in Sweden – a figure that doubles the total SIM base if added to the regular SIMs base. We are therefore happy that PTS from 1H 2019 started to report the number M2M SIMs that are active in Sweden; 3.6 million, i.e. 25% of the total M2M base. This has allowed us to recalculate a more representative mobile data usage figure for Sweden when including M2M.

The same issue emerges in Austria where Deutsche Telekom group registers many of its international M2M SIMs. The number of 'Austrian' M2M SIMs as reported by RTR grew 59% between June 2018 and June 2019. Similar to how it was for Sweden previously, Austria's average mobile data usage per SIM thus looks lower when including M2M SIMs than what it realistically is. Luckily Austria's regulator is one of those breaking out M2M SIMs in its reporting allowing a like-for-like comparison of mobile data usage per non-M2M SIM, see Figure 2 and Figure 4.

Figure 2 is a variant of Figure 1 but with M2M SIMs *excluded*. As the M2M SIMs typically carry significantly less traffic than the regular SIMs, this makes the usage figures look higher.

⁴ Note that the 2018 position of Malaysia is 1H 2018 as no stats yet exist for FY 2018

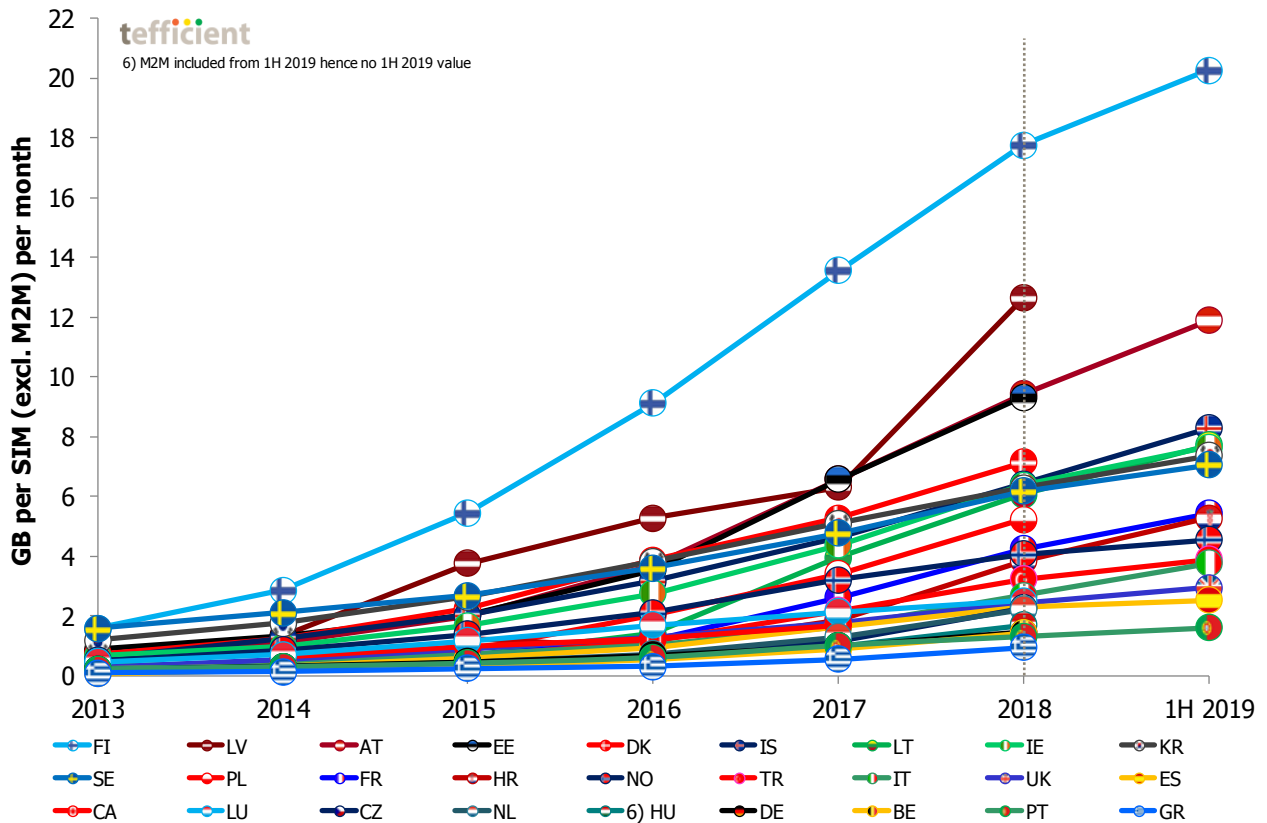


Figure 2. Development of mobile data usage per SIM (excl. M2M) per month – the legend shows the ranking⁵

Since only a fraction of the countries separate out the data traffic associated with M2M SIMs in their reporting (kudos to Norway, Sweden, Czech and Greece), the assumption for most of the countries in Figure 2 is that the M2M data usage is zero. This is of course not correct and as we expect M2M/IoT SIMs to carry significantly more traffic in future, we think that Figure 1 provides the most accurate comparison.

With **20.3 GB** per non-M2M SIM per month, **Finland** tops also Figure 2. Taiwan and Bahrain have disappeared from the top five as the M2M SIM number isn't broken out in these countries.

The legends of Figure 1 and Figure 2 show the ranking of the 42 studied countries. But since it's difficult to spot them all, Figure 3 and 4 offer an easier visualisation. First including M2M:

⁵ Countries for which the regulator doesn't break out the M2M SIMs have been excluded

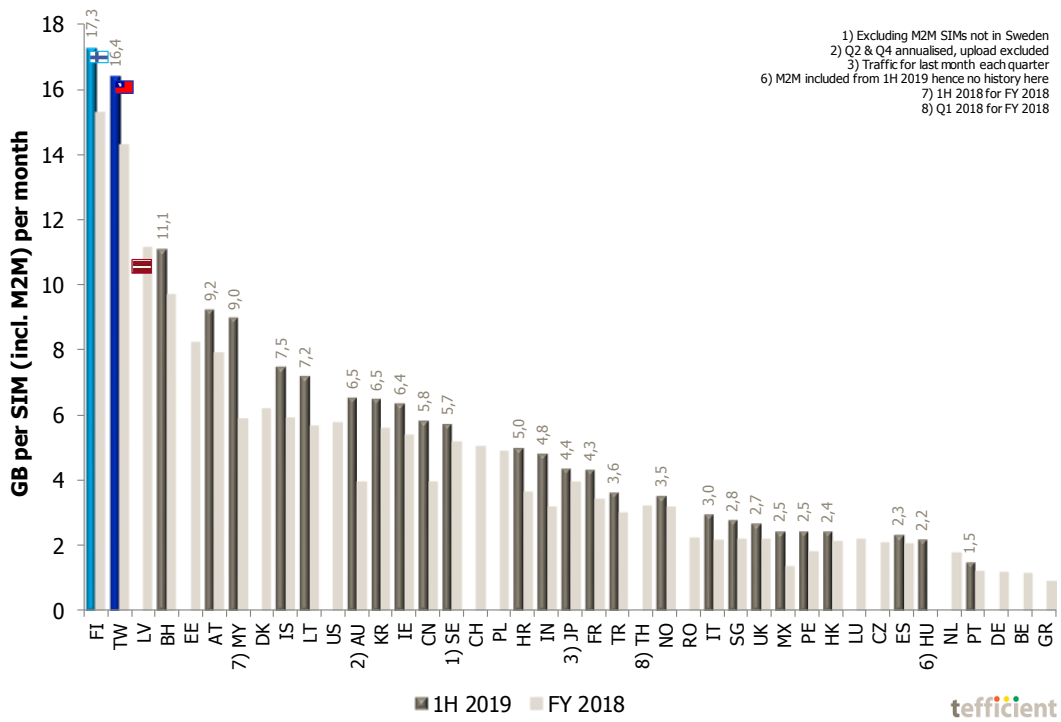


Figure 3. Mobile data usage per SIM (incl. M2M) per month, 1H 2019 and FY 2018

And in Figure 4 excluding M2M:

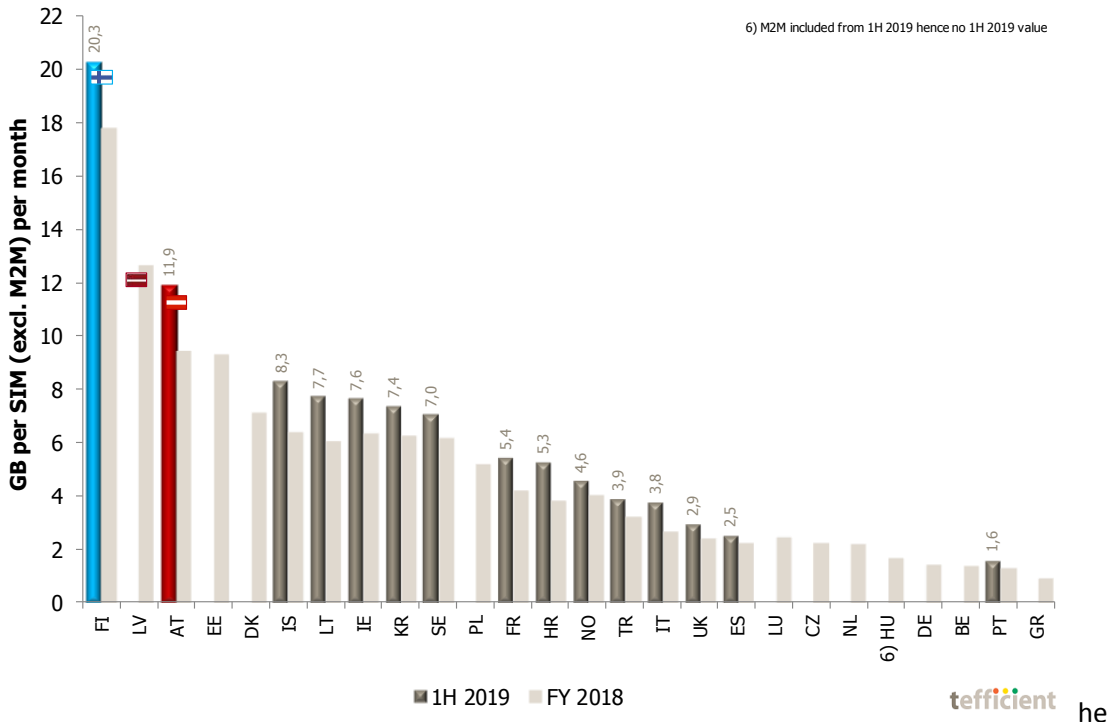


Figure 4. Mobile data usage per SIM (excl. M2M) per month, 1H 2019 and FY 2018

The countries with the lowest data usage in both Figure 3 and Figure 4 are **Greece, Belgium, Germany and Portugal**.

Figure 5 is a zoom-in on the lower end of Figure 1.

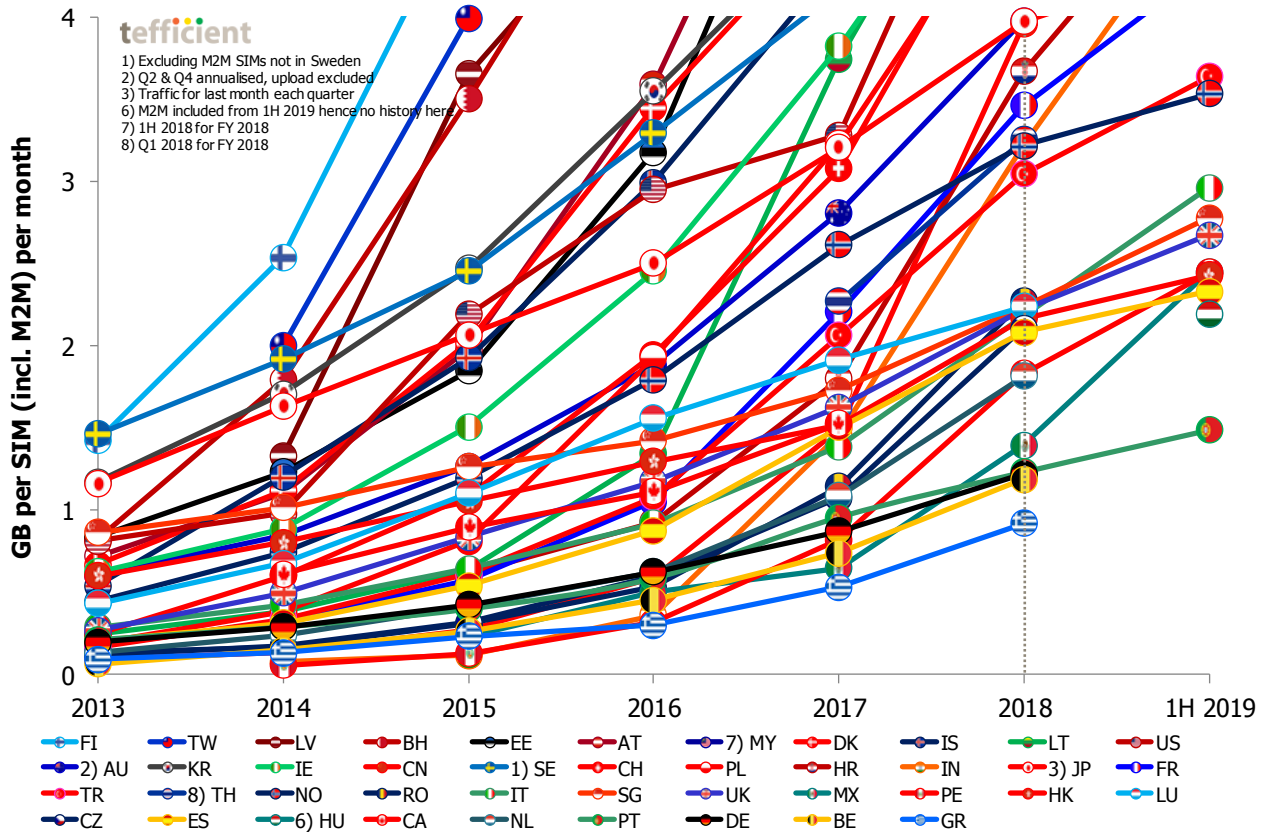
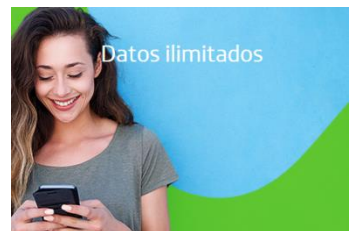


Figure 5. Development of mobile data usage per SIM (incl. M2M) per month [zoom-in on low end]

With almost 2.5 GB per SIM per month, **Mexico** overtook a couple of new mature markets – Spain and Hong Kong – in 1H 2019. Of the Mexican operators, Movistar (right) offers unlimited data options whereas Telcel and AT&T don't – but all three offer zero-rated social media on many of their plans. There are also plans with specific allowances – on top of the general bucket – for specific services such as YouTube or Netflix.



Greece remains the country with the lowest average data usage – the only remaining country (of our 42) that yet officially has to pass the 1 GB per SIM per month bar. The country regulator has not yet reported its 1H 2019 statistics⁶.

⁶ The other late reporters of 1H 2019 stats that didn't make it to this analysis are Denmark, the Netherlands and Romania. Switzerland's 2018 data is preliminary and not complete. But the worst laggard is Canada that didn't even report 2018 at the issuing of this analysis.

Data usage growth now fastest in Mexico

Figure 6 shows the growth in average usage per SIM (incl. M2M) between 1H 2018 and 1H 2019.

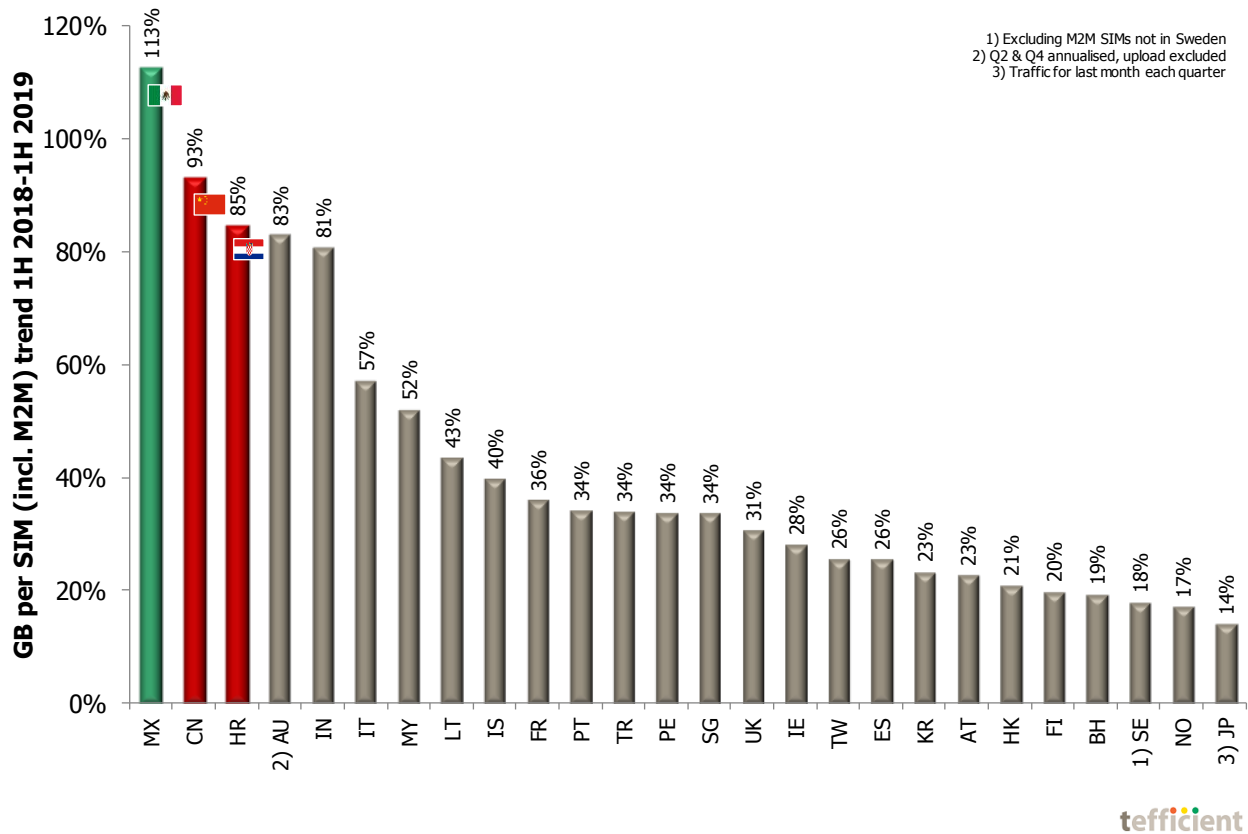


Figure 6. Development of mobile data usage per SIM 1H 2018-1H 2019

China doesn't have the fastest growth any longer. The number 1 position is taken over by **Mexico**. The average Mexican SIM used 113% more mobile data in 1H 2019 than what it did in 1H 2018. **China** follows with 93% – which is fast, but significantly slower than the 165% in 2018. The third fastest growth, 85%, was in **Croatia**, a market where unlimited subscriptions are common ware.

Let us comment to the high growth position of **Australia** (fourth ranked). The Australian Competition & Consumer Commission (ACCC) took over the responsibility to report the internet statistics from the Australian Bureau of Statistics in 2018. Originally it continued to report it in the same way, but has in its June 2019 report changed the way data is collected. For mobile services, only the three MNOs (and no longer the MVNOs) are providing the input data. The ACCC says that the data "is not directly comparable" to the previous report even though the MNO data now is said to include also the MVNOs. Even though it sounds as if the differences would be small, we cannot rule out that the high growth in Australian data usage shown in Figure 6 is an effect of the changes done in data collection. It is a pity that the ACCC chose not to update the historical data.

Fifth-ranked **India** continues to have high usage growth (81%) – but similar to China, the growth rate has slowed.

The growth laggards are **Japan** (14%), **Norway** (17%) and **Sweden** (18%) – three mature markets where fixed broadband speeds are high, fuelled by high **fibre** penetration. One could expect **fibre-fed Wi-Fi** to play an important role here.

Although, as said, 61% of **Finland's** SIMs (incl. M2M) are on unlimited volume plans, the usage growth rate there was just slightly higher, 20%. Does the interest for *more* mobile data reduce the more unexceptional unlimited data is?

Does the interest
for *more* mobile
data reduce the
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unlimited data is?

Data-only rarely more than 20% of base, but defines usage

We just said Wi-Fi and fibre rollout could affect mobile data usage. But mobile operators could also address the home market with **fixed-line substitution** offers. The take-up can be significant if these offers are reasonably charged and come without caps. It also helps if the fixed broadband offering is weak with much DSL is the mix.

This pretty much described the situation in **Austria**, a country that has emerged as one of Europe's mobile data leaders. Since Q4 2017, the Austrian regulator RTR publishes the fixed data traffic of Austria. If we compare it to the mobile data traffic, it's obvious how important the mobile networks have become for the overall internet in Austria: In the second quarter of 2019, the mobile data traffic was **53%** of the fixed data traffic.

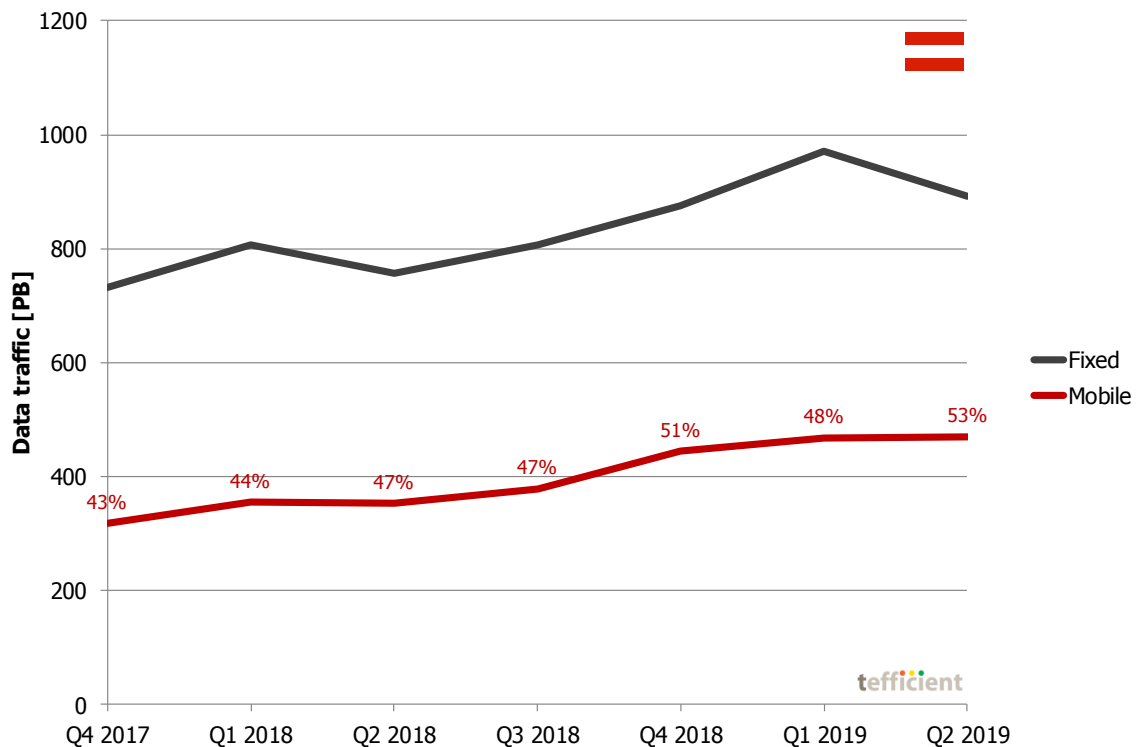


Figure 7. Development of fixed and mobile data traffic in Austria

This takes us to Figure 8. It plots the average data usage per SIM vs. the data-only share of a country's SIM base.

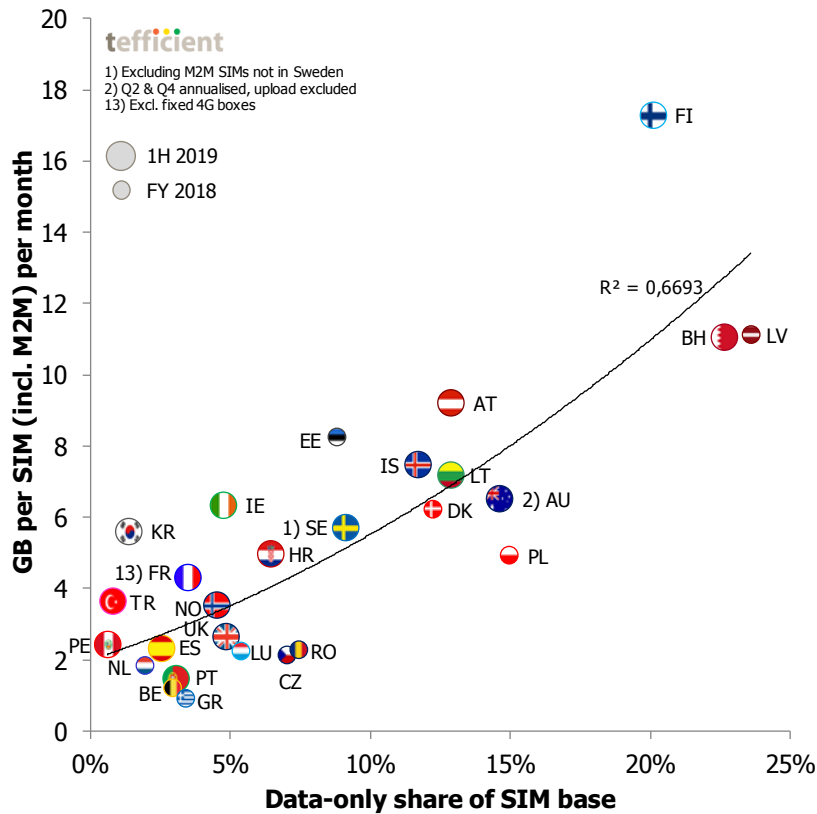


Figure 8. Mobile data usage vs. data-only share

In December 2018, close to **24%** of the SIM base in Latvia was data-only. This makes **Latvia** the leader in data-only share of base – and the average mobile data usage is also high. In **Bahrain** data-only represented 23% of the base in June 2019 and usage is as high as in Latvia. It's yet higher in **Finland** in spite of a lower data-only share – 20% in June 2019. There are six countries forming a central cluster between 12% and 15%: Austria, Iceland, Lithuania, Australia, Denmark and Poland.

The adherence to the regression line is strong. As in all previous reports we therefore conclude that **data-only penetration is a significant driver of the average mobile data usage.**

The easiest way for low-usage countries to grow data usage and expand the mobile market would be to **start addressing and monetising the data-only segment.** This seems to be effective particularly in markets where fast fixed broadband networks (FTTH, FTTB or HFC) aren't already available to a substantial share of the households. The US wireless market leader **Verizon** launched its first **5G** branded service last year to support a fixed wireless access (FWA) use case. More operators such as Optus in Australia (right), 3 in the UK, Sunrise in Switzerland and DNA in Finland have announced that they intend to follow Verizon into **5G-based FWA.** Figure 8 shows that even a relatively low share of such data-only subscriptions could lift the average data consumption significantly.



Some of the countries in Figure 8 are also reporting the data-only traffic. For these countries, we can compare the data-only penetration of the SIM base to its share of the total mobile data traffic, see Figure 9.

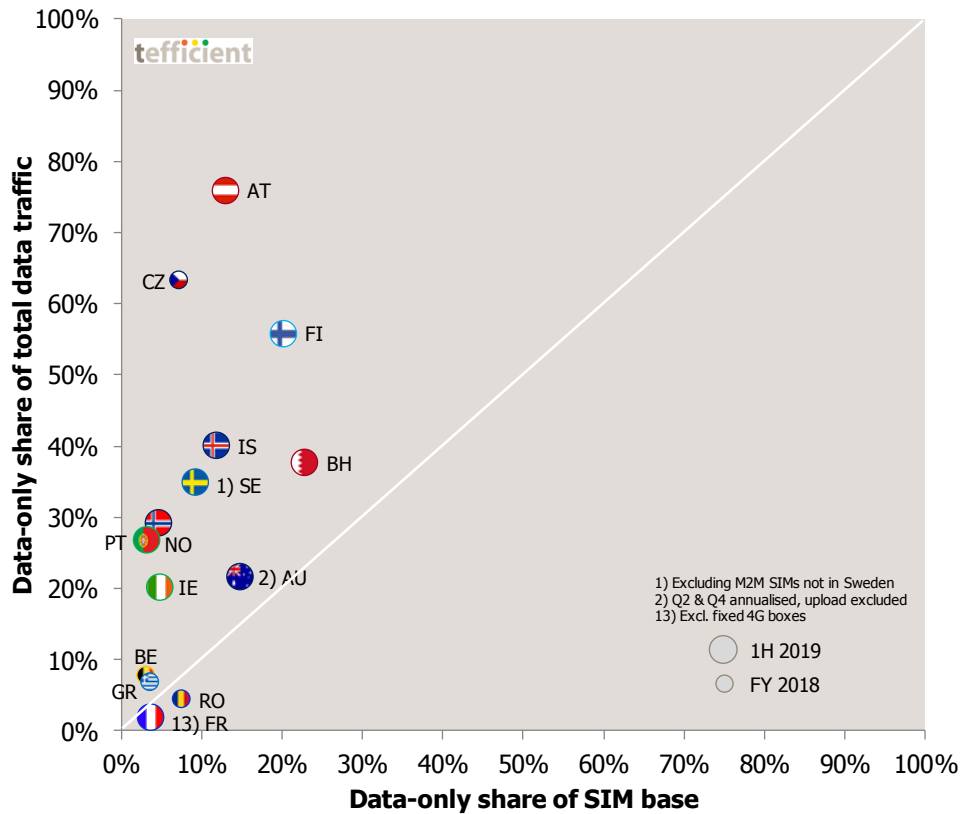


Figure 9. Data-only share of total traffic vs. data-only share of SIM base

With the exception of France and Romania, data-only SIMs are carrying a disproportionately high share of the data traffic:

- Czech Republic **9.1x** higher traffic per data-only SIM vs. any SIM
- Portugal **8.9x**
- Norway **6.5x**
- Austria **5.9x**
- Ireland **4.3x**
- Sweden **3.9x**
- Iceland **3.4x**
- Finland **2.8x**
- Belgium **2.6x**
- Greece **2.0x**
- Bahrain **1.7x**
- Australia **1.5x**

- Romania **0.6x**
- France (excl. fixed 4G boxes) **0.6x**

For the countries that are reporting both data-only traffic and the number of data-only subscriptions, we can compare the average usage per *data-only* subscription, see Figure 10.

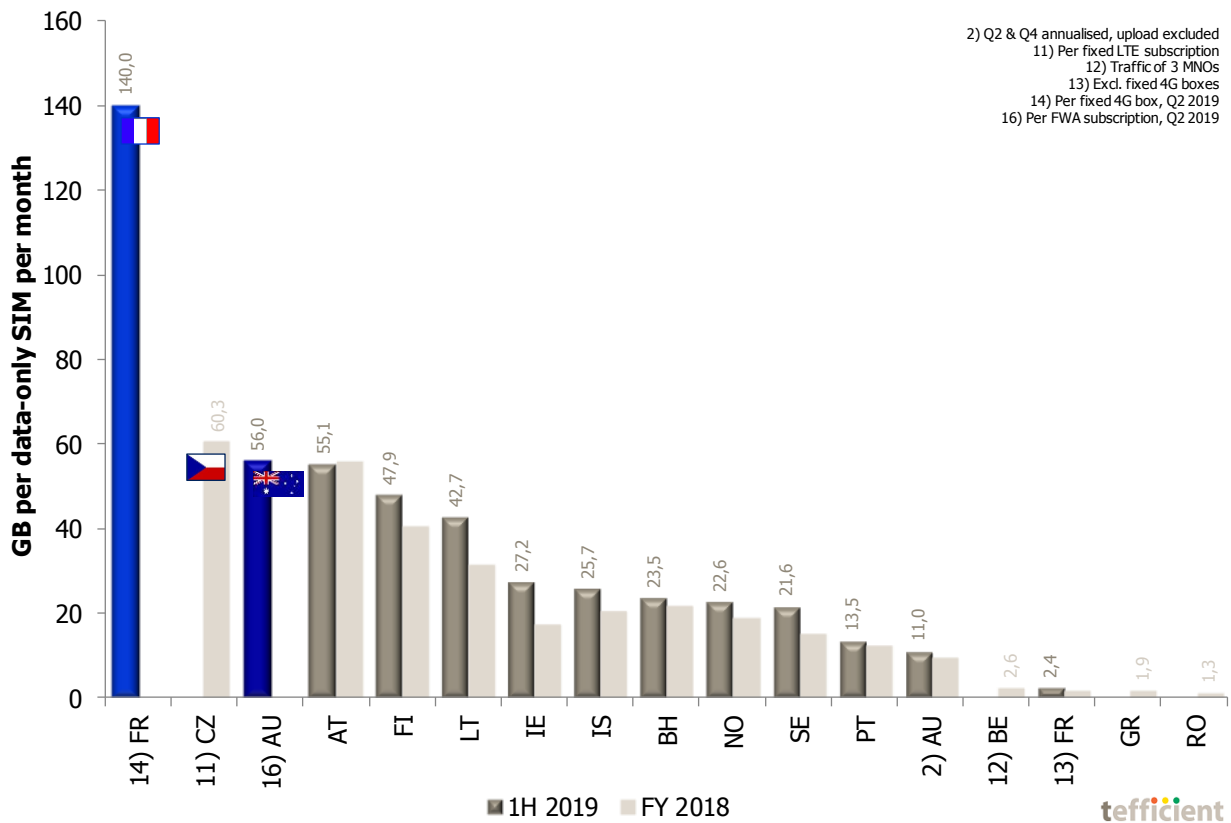


Figure 10. Mobile data usage per data-only SIM per month, 1H 2019 and FY 2018

For the first time, the French regulator ARCEP reported the average usage for a segment within data-only in Q2 2019: The '4G boxes' that French operators supply customers with who live outside of the areas where fibre broadband is available. And as you might imagine, the usage is high: **140 GB** per month. It's in stark contrast to the rest of the French data-only market (also shown in Figure 10): 2.4 GB.

The average French '4G box' consumed 140 GB in Q2 2019

Czech Republic follows with **60.3 GB** per 'fixed LTE' subscription in 2018. Also for **Australia** we have two entries in Figure 10: The 56 GB per month value is per FWA subscription in Q2 2019 whereas the 11 GB value is for the total data-only market including FWA. Austria follows with **55.1 GB** per data-only subscription per month – a value that actually didn't increase compared to 2018. **Finland** is fifth with **47.9 GB**.

If **5G** really should become the fibre-over-radio solution that e.g. Verizon and others suggest, the data-only FWA usage figures of France, Czech and Australia give a taste of the usage that the solution must at least manage. Fixed broadband usage is yet higher – often around 200 GB per month.

The appetite that operators show for FWA seems to make them let go of their **unlimited-phobia** within the data-only segment. Figure 11 shows something quite interesting.

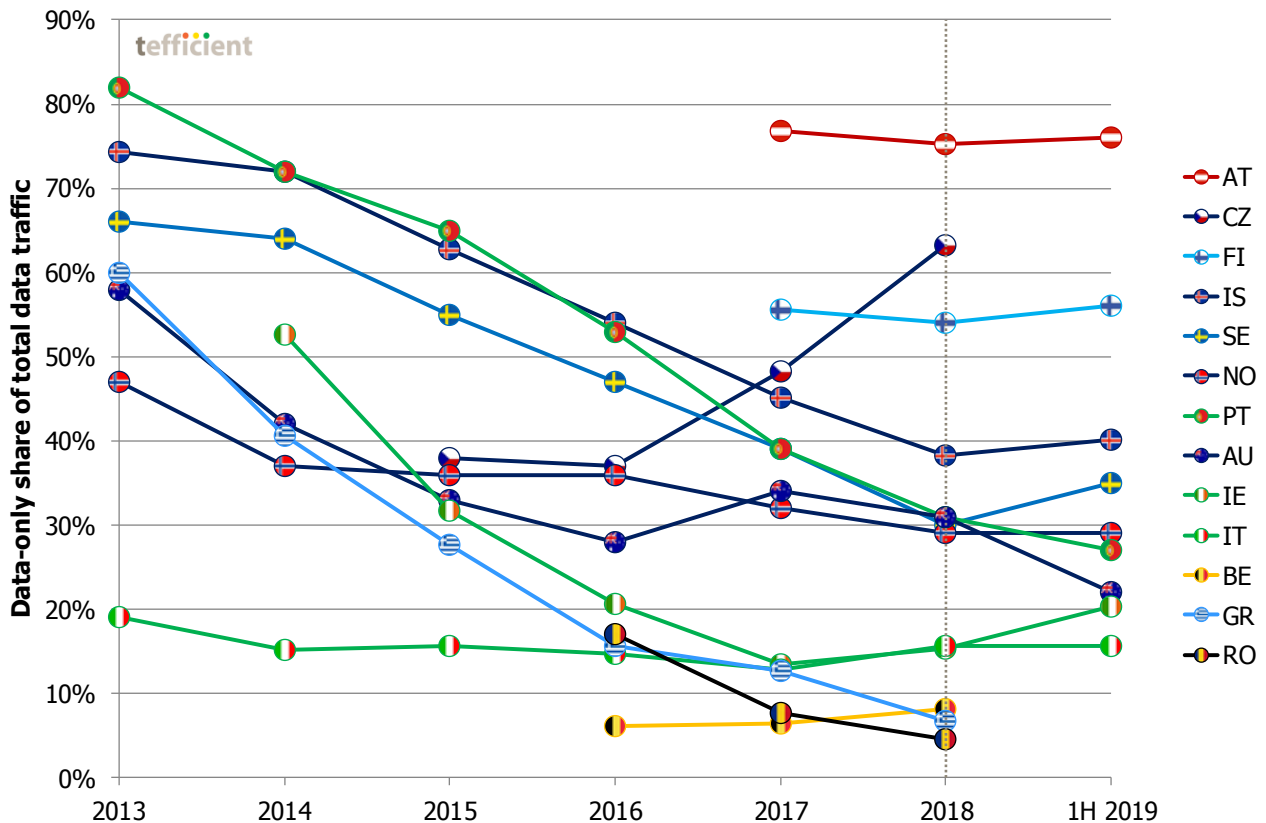


Figure 11. Development in the data-only share of total mobile data traffic – for all reporting countries

For as long as we have followed mobile data traffic, data-only's *share* of traffic has decreased. It's not necessarily that the absolute data-only traffic decreased, but the growth of the smartphone traffic has been much quicker. Until now.

For a number of markets – Austria, Czech, Finland, Iceland, Sweden, Ireland and Belgium⁷ – **data-only traffic gained market share** starting in 2018 or 1H 2019. We regard this as a trend shift and we attribute it to FWA and the wider adoption of unlimited within operators' data-only propositions.

Data-only's share of total traffic started to grow again in several markets

⁷ But not for the other countries in Figure 11

4G adoption a weakening driver of data usage – 5G a different story

If data-only defines the overall data usage, the same can't really be said for 4G.

Figure 12 plots the average data usage per SIM vs. the 4G/5G share of the country SIM base. **Taiwan** leads with 100% followed by **Korea** with 85% (Korea's figure include 5G). The adherence to the regression line is weaker than in the previous data-only section.

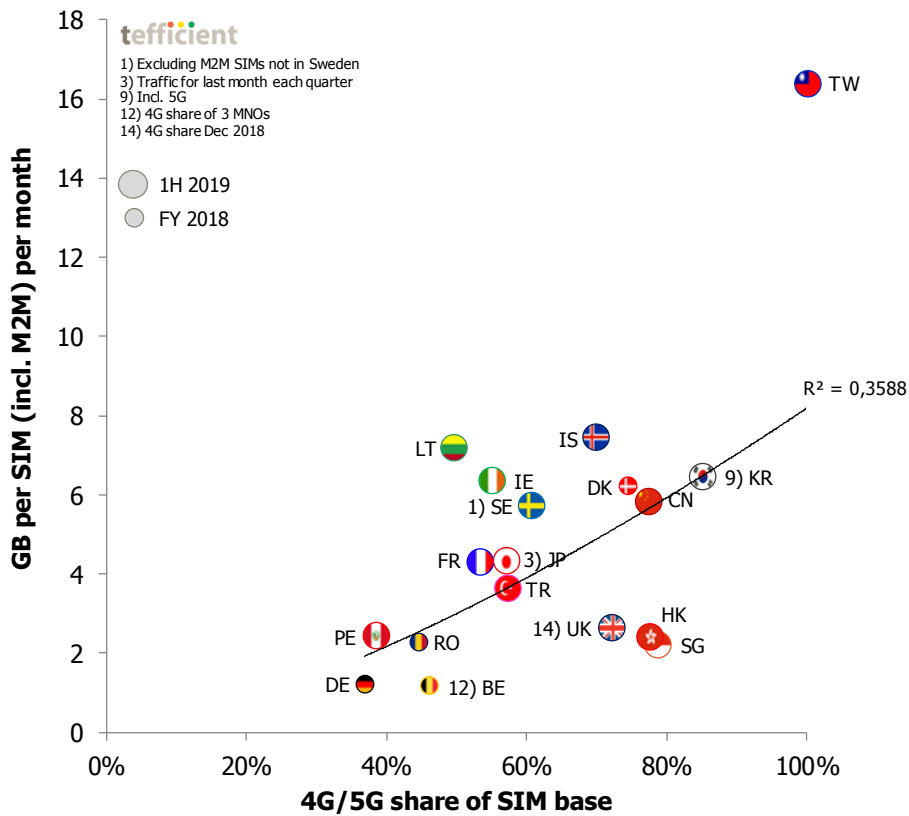


Figure 12. Mobile data usage vs. 4G/5G share

While operators in countries with very low 4G penetration (such as Germany) still report that 4G drives data usage, Figure 13 shows that 4G in itself is a much weaker driver of traffic than data-only (compare with Figure 9).

Taiwan has 100% of mobile data traffic (and 100% of subscriptions) on 4G. **Korea** has 99.8% of the traffic on 4G or 5G but only 85% of the subscriptions.

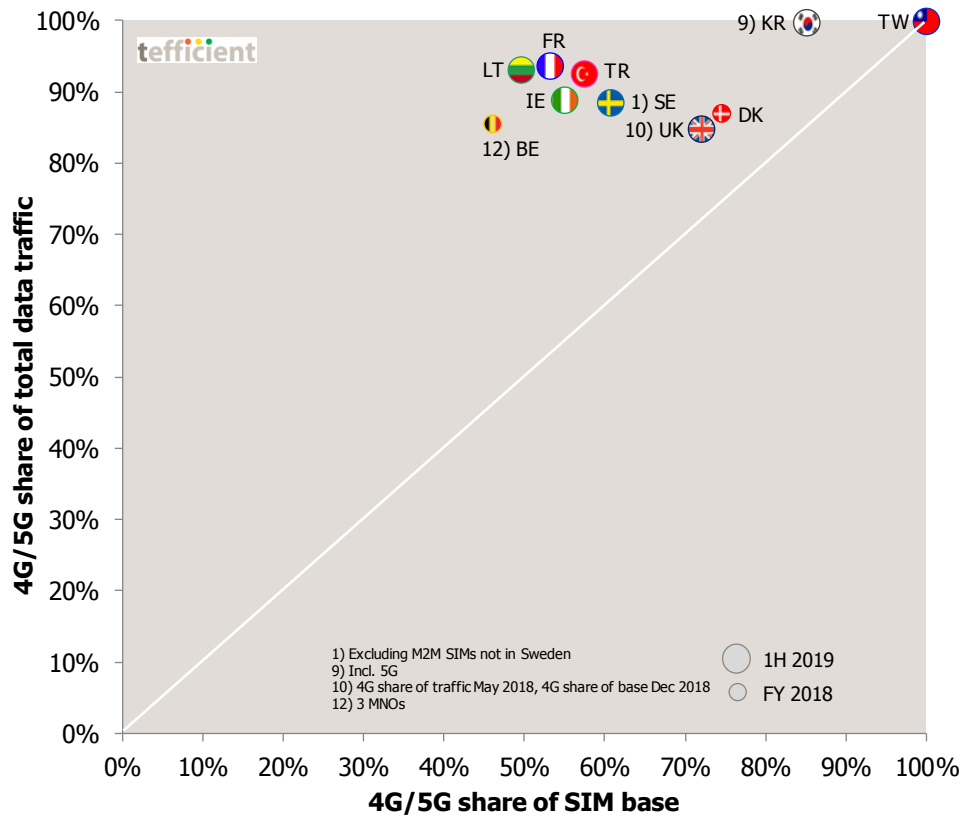


Figure 13. 4G/5G share of total traffic vs. 4G/5G share of SIM base

Without exceptions, 4G users are carrying a disproportionately high share of the data traffic – but in comparison to data-only, the multipliers are much lower:

- Lithuania **1.9x** higher traffic per 4G user vs. any SIM
- Belgium **1.9x**
- France **1.8x**
- Ireland **1.6x**
- Turkey **1.6x**
- Sweden **1.5x**
- UK **1.2x**
- Korea **1.2x** (includes 5G)
- Denmark **1.2x**
- Taiwan **1.0x**

If comparing with Figure 13 it is clear that the 4G multiplier drops with an increasing 4G adoption. It is, in other words, when 4G still has a relatively low adoption that it makes a difference for the overall data usage. Once 4G has become more common, the effect of the early adopters is watered out and the delta between a 4G user and any SIM becomes smaller.

Over time, the 4G penetration will grow – simply because new terminals will, almost by default, have 4G – but it will no longer have any strong impact on the average data usage.

It's a totally different story with **5G**, though. Our example will have to come from **Korea** as that is the only launched 5G market for where there are any numbers reported⁸. Figure 14 shows how the Korean 5G share of traffic has developed month by month when compared to the 5G share of base.

There are small variations between the months, but the 5G multiplier has generally been close to **3x**: A 5G subscription consumed three times the traffic of a general subscription. Is this an 'early adopter' thing? Not really. After seven months, Korea has **four million** 5G subscriptions and the 5G multiplier hasn't lowered during these months:

- April **3.2x**
- May **2.5x**
- June **3.1x**
- July **3.0x**
- August **3.0x**
- September **3.1x**
- October **3.1x**

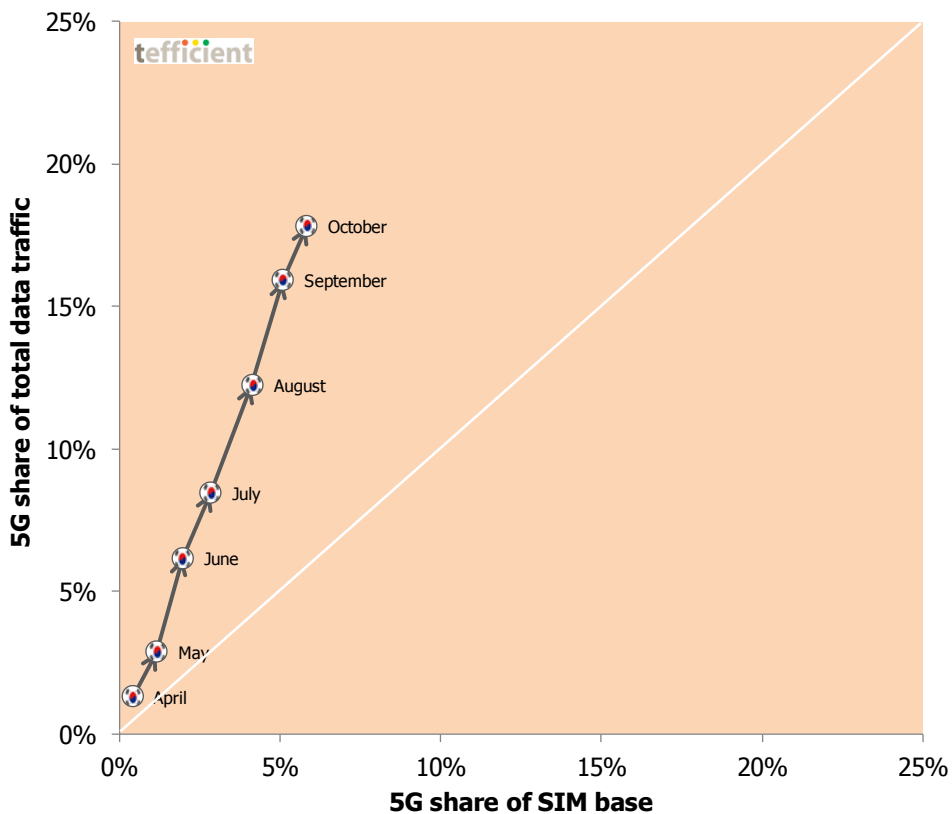


Figure 14. 5G share of total traffic vs. 5G share of SIM base – Korea per month since 5G launch

⁸ The imbalance between the level of 5G marketing and the level of 5G reporting is striking outside of Korea

If we prolong the trend, we should expect Korea to be close to 8% 5G penetration in December 2019 – with 25% of the total mobile data traffic carried by the 5G networks. The development in Korea is very impressive and bodes well for the industry⁹.

4G adoption is a weakening driver of mobile data usage – but 5G is a different story

⁹ We have analysed the Korean 5G market closely and on-site, but it goes outside of the scope of this public analysis. For more information, see: <https://tefficient.com/how-south-koreas-operators-drive-demand-for-5g/>

A gigabyte has never been cheaper – but it doesn't mean it's cheap everywhere

Most mobile operators in mature markets aren't attempting to monetise voice and SMS based on usage any longer; they have instead made these allowances unlimited and included them in a flat fee. This means that the last price-defining parameter for most mobile users is **data volume**. Even though more and more operators introduce unlimited propositions, these are often the last step in a tiered data plan¹⁰ – which means that price still, essentially, is about data volume.

Figure 15 plots the *total* mobile service revenue per consumed gigabyte¹¹ against the average mobile data usage per SIM and month.

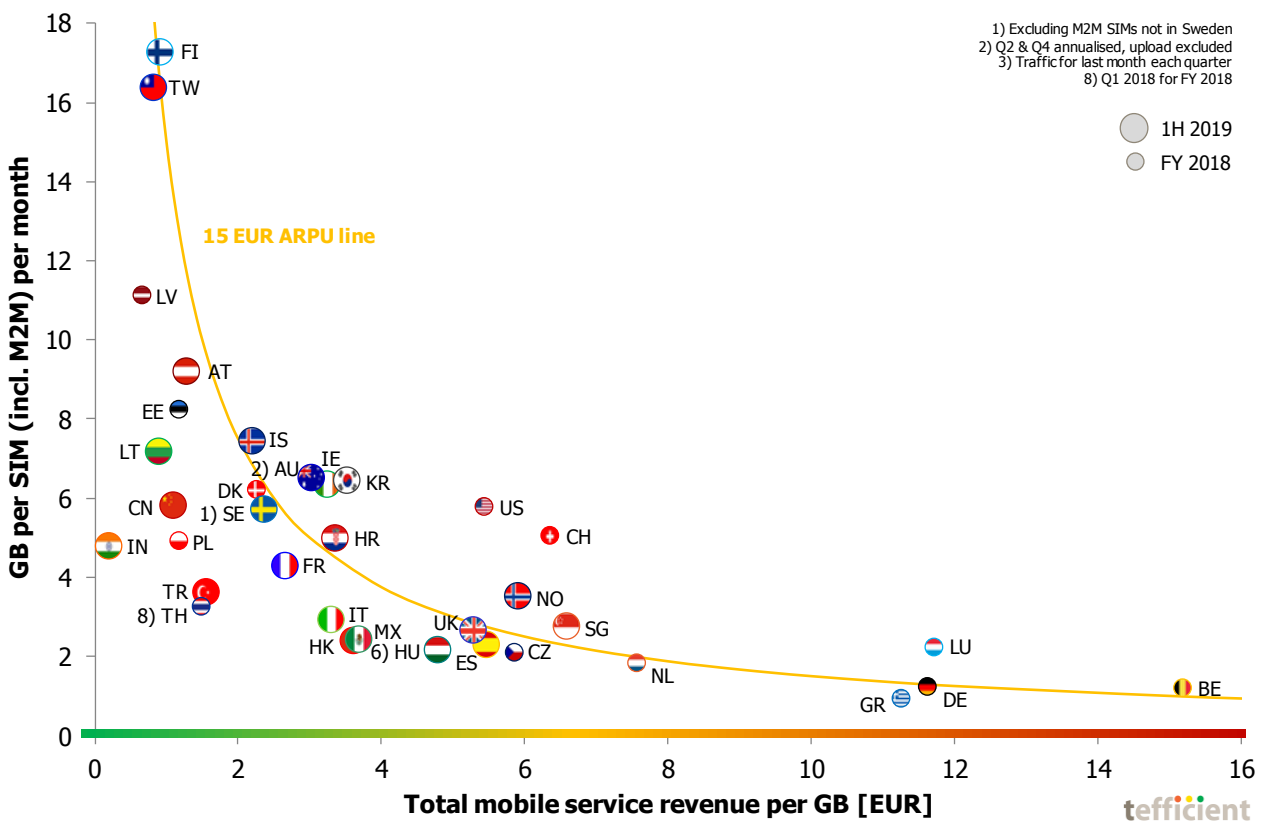


Figure 15. Mobile data usage vs. total mobile service revenue per consumed GB

The amber line shows where **15 EUR of ARPU** is earned. Countries below it had an ARPU lower than 15 EUR; countries above an ARPU higher than 15 EUR.

¹⁰ There are exceptions to this, e.g. Finnish operators, Swisscom and now Vodafone in Spain, the UK and five other Vodafone markets, where the price-defining parameter instead is data throughput. There are also operators mixing several parameters such as volume, throughput, policy, zero-rating, video resolution, service bundling etc.

¹¹ Attributing zero value to voice and messaging

There are a few countries where operators enjoy very high total revenue per consumed gigabyte: **Belgium, Luxembourg, Germany and Greece**. The observation is based on the latest available data – FY 2018 or 1H 2019. Based on previous reports, we should expect Canada to have high revenue per GB as well. But as there is no data even for 2018 available yet, Canada can't be in the graph.

It's important to point out that our analysis looks at what the mobile operator industry *de facto* makes on end-users, not what the best offer on the market currently is. In reality, most users are on old price plans because they are still locked in by a contract – or because they have not bothered to find the best deal.

In the other end of the scale we find the countries where operators earn the lowest revenue per consumed gigabyte: **India, Latvia, Taiwan, Lithuania, Finland and China**.

Looking at Figure 15 we can conclude – as in all our previous analyses on this topic – that the key explanation to high mobile data usage is low effective revenue per gigabyte: **Bigger data buckets lead to lower revenue per GB – which, on the other hand, increases usage**. At least when customers can use those big buckets also on data-only devices; see Figure 8.

Indian operators have the lowest total revenue per GB – operators in Belgium the highest

But we also said that a gigabyte has never been cheaper. More correctly put is that operators never had lower total service revenue per gigabyte than what they currently have. Figure 16 shows the revenue erosion from 1H 2018 to 1H 2019.

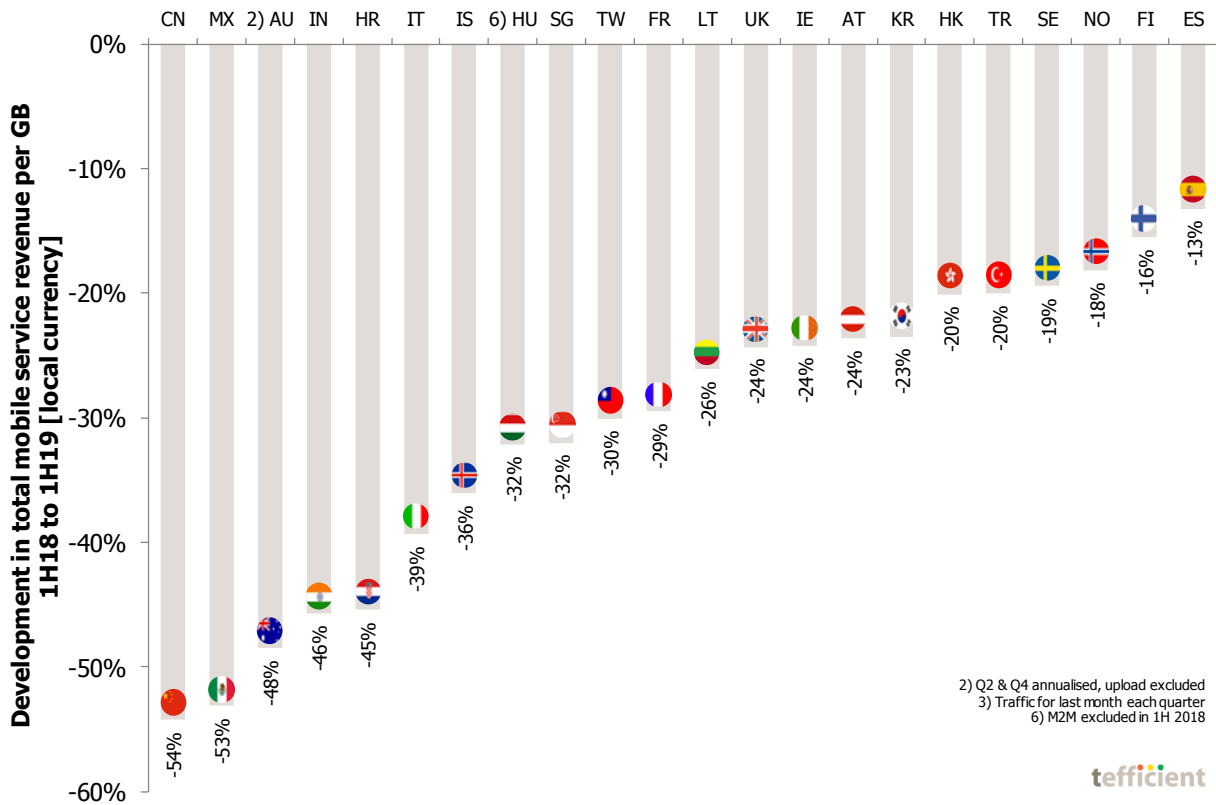


Figure 16. Erosion in total mobile service revenue per consumed GB – 1H 2018 to 1H 2019

The prerequisite to be in Figure 16 is of course that the statistics have been reported both for 1H 2018 and for 1H 2019. Of these markets, **China** had the fastest revenue erosion, 54%. **Mexico** is just behind with 53%. **Australia** follows with 48%, but remember the possible data comparability issue between 2018 and 2019 that we described earlier. Also in **India** and **Croatia** erosion is fast. Of the more mature European markets, **Italy** stands out. This is because of the disruptive entry of Iliad¹² which led to a combination of much more data in mobile plans *and* much lower prices.

Spain has had the slowest revenue erosion, just 13%. The three Nordic countries **Finland, Norway** and **Sweden** have also had relatively slow erosion. Finland's position is interesting as we will soon see that the country once again is a positive outlier since ARPU grows there.

¹² Iliad launched 29 May 2018

No correlation between data usage and ARPU

But first to Figure 17, a variant of the revenue per GB chart – it plots the usage against the average revenue per SIM, i.e. the ARPU.

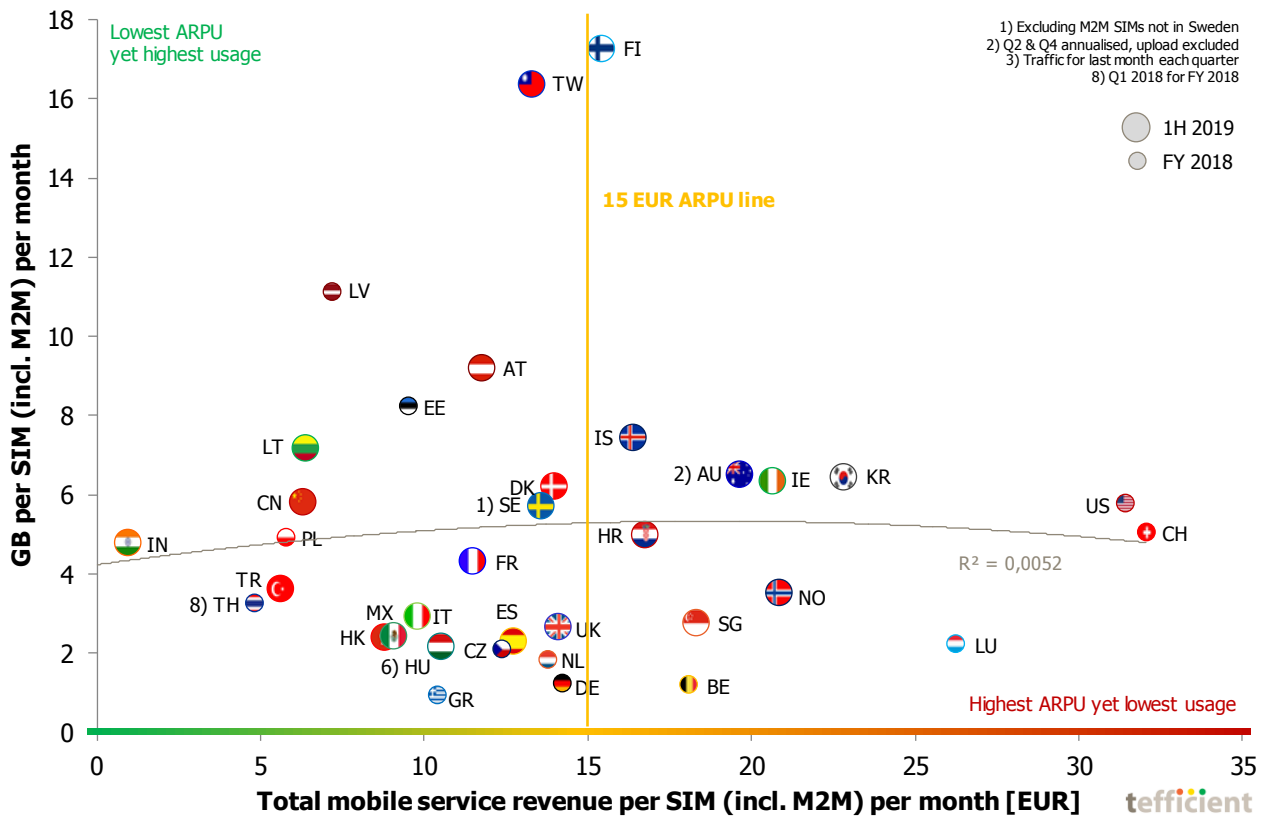


Figure 17. Mobile data usage vs. total mobile service revenue per SIM

Of our markets with 2018 or 1H 2019 data, there are three where operators derive ARPUs much higher than elsewhere: **Switzerland, USA and Luxembourg**¹³.

Operators in the upper left corner – **Finland, Taiwan, Latvia, Lithuania and India** – are being the most generous with mobile data considering their ARPU. These countries form a nice string suggesting that operators could expect to get rewarded with higher ARPU when usage grows.

But that's regrettably not to overall trend: The adherence to the grey regression line is super-weak and it's anyhow not pointing in the north-easterly direction one would like to see – with more usage leading to higher ARPU.

¹³ If the Canadian regulator would have reported 2018 data, we know from previous analyses that it would be in this group as well

The Christmas tree isn't making many happy

Let's reintroduce our Christmas tree graph in our country analysis. It's the graph we ideally like to see the branches stretch to the right as that means that the ARPU grew in the last year. That would mean that the operators of a country would have been able to monetise the growth in data usage.

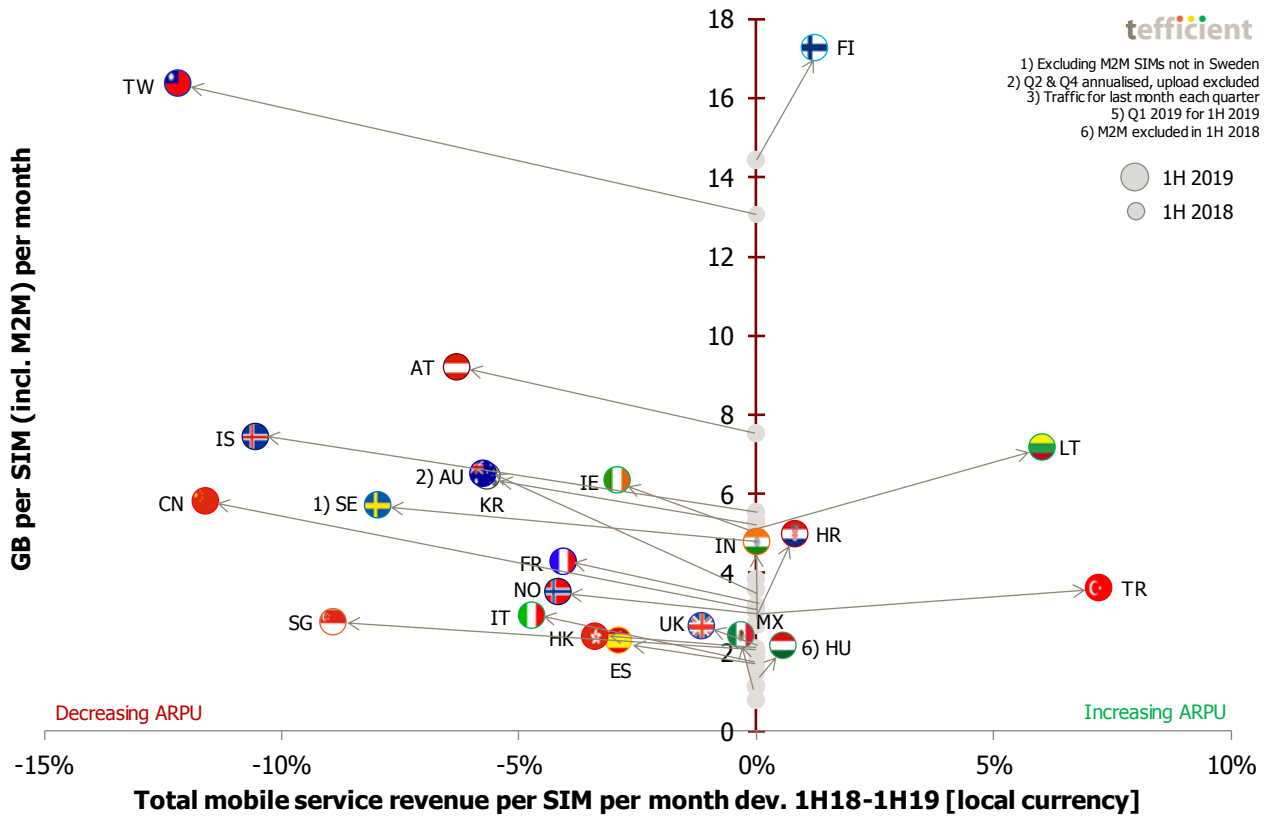
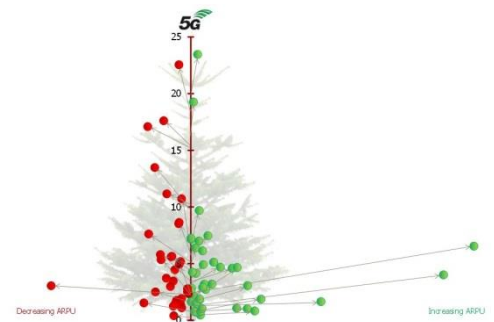


Figure 18. Development in mobile data usage vs. the development in ARPU – 1H 2018 to 1H 2019

In reality the branches stretch right in **5 of 23 markets**¹⁴. These five are – from the top – **Finland, Lithuania, Croatia, Turkey and Hungary**. In 17 markets (74%), the branches stretch left meaning that even though data usage grew, ARPU fell. Taiwan, Iceland and China all had an ARPU erosion higher than 10% between the first half of 2018 and the first half of 2019.

It's important to remember that Figure 18 depicts the development of a market as a whole. Individual operators might not follow the country trend. In our operator report for the same time period – "[Mobile data consumption continues to grow – a majority of operators now rewarded with ARPU](#)", the situation is actually looking better as a majority (53%) of the operators could grow ARPU based



¹⁴ The 23 markets for which regulators have reported the necessary underlying stats

on an increase in data usage. If you haven't yet read it, we propose you do.

As shown earlier, **5G** has had a major impact on the data usage in Korea. But Korea doesn't have a positive ARPU development in Figure 17 (Korea hides behind Australia in the chart). This is in part because our comparison is for the first half of 2019. At the end of June, 5G had only been around for three months and the Korean 5G penetration had only reached 2%. Another explanation is that Korea's ARPU was heavily affected by a government decision to increase the SIM-only discount from 20% to 25%. This started to have an effect on the ARPU at the end of 2017 and as the typical contract binding period on handset plans is two years in Korea, the effect will be around until the end of 2019. The upside of the change has been an equally significant improvement in churn.

The Korean operators do not break out their 5G ARPU in their reporting, but by looking at the quarter-over-quarter¹⁵ development of the overall ARPU, we could try to see if 5G actually has had a positive development in Q2 and Q3 2019 – the first quarters with 5G.

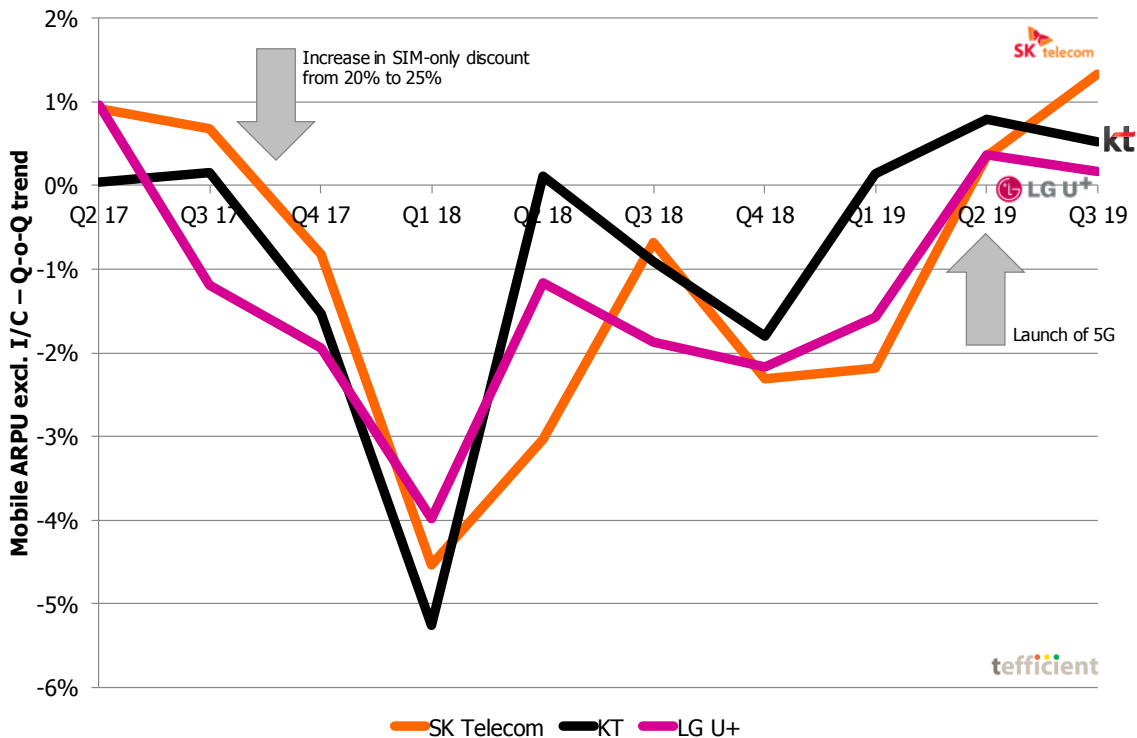


Figure 19. Q-o-Q development in overall ARPU – Korea

In Figure 19 it's clear that the increase in SIM-only discount (see the first arrow) had a large negative impact on ARPU when customers rather took the 25% SIM-only discount than committing to binding contracts with subsidised handsets. From the second arrow (=5G launch), the overall ARPU started to grow again quarter-over-quarter for all the three Korean operators. There's reason to be positive, but we need a couple of more

¹⁵ Our view is that Q-o-Q trends should, as a general rule, be avoided as basis for analysis, but in this case the Y-o-Y trend is so heavily affected by another factor than 5G; the increase in SIM-only discount

quarters to be sure that the effect of the increase of the SIM-only discount is over. But as said, the Korean 5G development bodes well for the industry: In its presentation at the Qualcomm 5G Summit 15 October, SK Telecom said that its 4G customers that upgraded to 5G had increased their ARPU with **50%**.

The Korean 5G development bodes well for the industry

Conclusion

Mobile data usage is growing in all of the 42 countries covered by this analysis. The growth rates are very different and so are the usage levels. **Finland** tops the charts – with 17.3 GB per average SIM per month in the first half of 2019. If excluding M2M, the usage grows to 20.3 GB per month. But in spite of **71%** of non-M2M SIMs being **unlimited**, the data usage isn't particularly fast in Finland – it grew 20% in the year to June 2019. **Mexico** grew 113% and **China** 93%. To determine usage is no longer as simple as classifying a market as mature or maturing. The lowest usage is found in Greece, Belgium and Germany, hardly any maturing markets.

Our analysis shows strong correlation between the **data-only share** of a country's SIM base and the average data usage. **Latvia, Bahrain and Finland** are the data-only powerhouses of the world. But ever since the smartphone era started, data-only's *share* of total mobile traffic declined. Until now. Thanks to FWA and to operators letting go of their unlimited-phobia in this segment, the **data-only traffic started to grow quicker** than the overall data traffic in many markets.

While 4G doesn't really drive data usage as such any longer, **5G** is different. The Korean progress is stunning. Seven months after launch, four million Koreans (6% of SIM base) have moved to a 5G subscription. Month after month, the data consumption per 5G subscription is **three times** that of the average subscription. That factor hasn't deteriorated in seven months, suggesting that it can't just be dismissed as an 'early adopter thing'. According to the Korean operators, 5G has had a major impact on mobile data usage and turned the overall ARPU around.

Regardless of technology, data usage could be elevated by an increased data-only penetration through fixed-line substitution. But a prerequisite for this – and for high data usage in general – is that the **total revenue per gigabyte** is low.

This is the case in **India, Latvia, Taiwan, Lithuania, Finland and China. Belgium, Luxembourg, Germany and Greece** represent the other end.

Low usage doesn't necessarily mean that the ARPU is low, though. Market ARPU is uncorrelated with usage. **Switzerland, USA and Luxembourg** have much higher ARPU levels than all other countries in our analysis¹⁶.

¹⁶ For Canada 2018 or 2019 stats aren't available yet. In our previous reports Canada had a similar position.