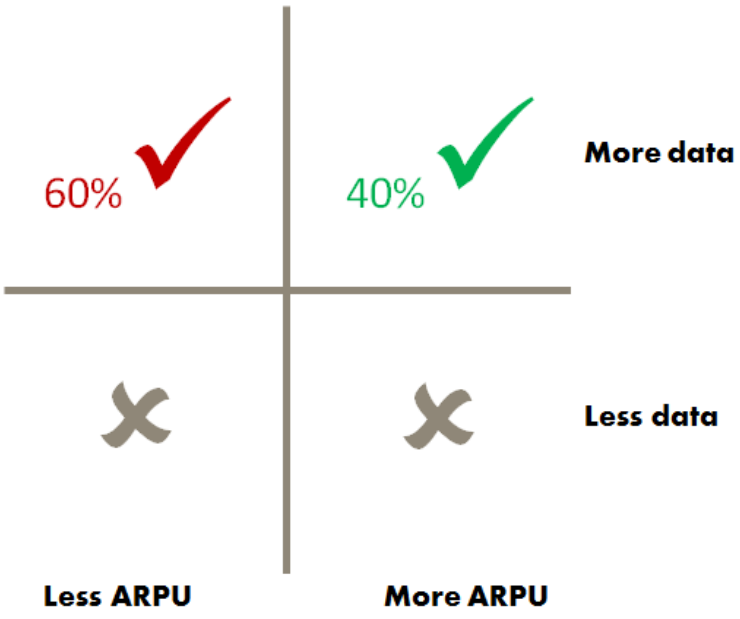
tefficient

Industry analysis #2 2018

Mobile data – full year 2017 and 1H 2018

More data? Always.
For more? It happens.



This is tefficient's 20th public analysis on the development and drivers of mobile data. It follows on our country-focused analysis Unlimited moves the needle – but it's when mobile addresses slow fixed internet that something happens.

We have ranked 115 reporting or reported operators based on average data usage per SIM, total data traffic and revenue per gigabyte.

The data usage per SIM grew for all operators. And it grew quickly. But what happened to ARPU? Could operators monetise the data usage growth? Our Christmas tree graph visualises those that delivered on "more for more" – and those that are just followed the "more for less" stream.

Average consumption per SIM per month? Up to 20 GB.

Figure 1 shows the average mobile data usage for a large number of reporting or reported[1] mobile operators globally. The usage for the full year of 2017 and – if available – the usage for the first half of 2018 are both displayed.

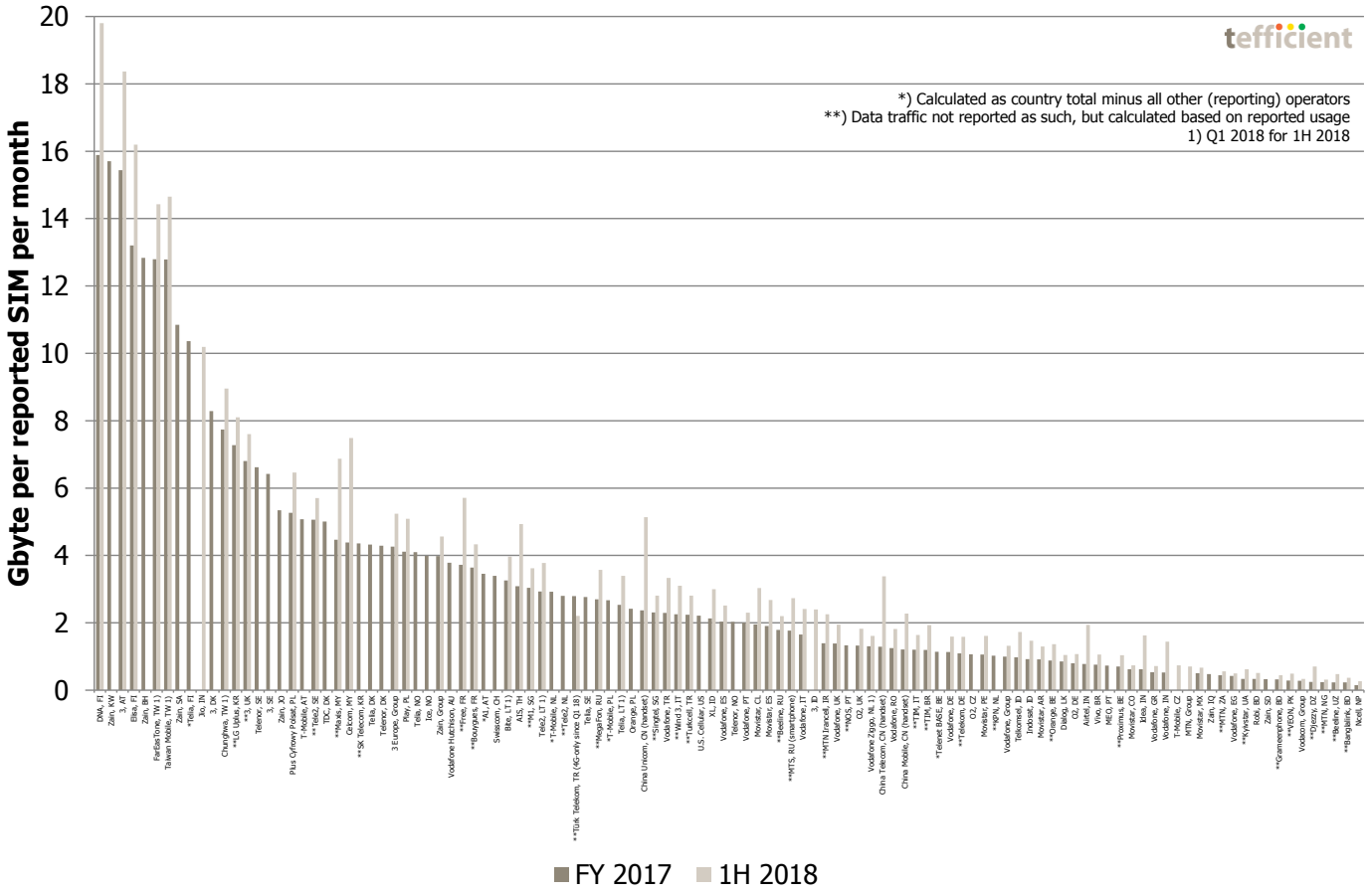


Figure 1. Average data usage per reported SIM per month – all operators

As it's near to impossible to read Figure 1 we will break it down into three regions of the world, but let's first use Figure 1 to identify the **global data usage leaders**.

[1] By regulators

Gold DNA Finland with 15.9 GB per SIM and month in FY 2017 and 19.8 GB in 1H 2018

DNA is again the usage leader of the world, but the lead is quite narrow. Most of DNA's subscriptions – regular ones as well as data-only subscriptions – have **unlimited data** volume where the price depends on the chosen speed tier. DNA isn't reporting how many subscriptions that had unlimited data volume, but the December 2017 figure for Finland as a whole was a whopping **64%** of all non-M2M SIMs, making it very likely that Finland is the premier unlimited market in the world. What we do know is that **58%** of DNA's consumer subscribers had chosen speeds that require 4G in June 2018. DNA currently sells subscriptions with up to 100 Mbit/s, 300 Mbit/s and one without any speed limitation (called Max 4G).

Silver Zain Kuwait with 15.7 GB per SIM and month in FY 2017

Zain Kuwait is (alongside other Zain affiliates) in our analysis for the first time. No data is available for the first half of 2018 – it's only reported annually. Based on the 2017 data, Zain was just behind DNA. Zain has been flirting with unlimited, but unlike Finland, the plans have not been truly unlimited but with certain daily fair usage caps. The subscriptions that currently are sold are bucket plans, but the buckets are large – up to 1 TB for postpaid and 200 GB for prepaid.

Bronze 3 Austria with 15.4 GB per SIM and month in FY 2017 and 18.4 GB in 1H 2018

Three (or Drei) Austria has always been in the top in our analyses and takes the bronze medal this time. The usage is still very high, but the distance to first ranked DNA increased in the first half of 2018. This could likely be attributed to 3's competitors T-Mobile and A1 that, starting 2017, aggressively targeted a segment that previously was more or less owned by 3: **Data-only**. In Austria these subscriptions are used to substitute (slow) fixed broadband. They come with unlimited data volume but are charged based on speed tiers. In 2016, 3 carried 64% of the Austrian mobile data traffic – but in 2017 that share had declined to **50%**. It suggests that competition had some success in this segment in 2017. In our country analysis, we show just how important data-only is for the overall data usage of a country – and how uniquely positioned Austria is in this respect.

Just below the podium we find **Elisa** from Finland (13.2 GB per SIM per month in 2017 and 16.2 GB in 1H 2018), **Zain** from Bahrain (12.8 GB per SIM per month in 2017). **FarEasTone** and **Taiwan Mobile**, both from Taiwan, follow with more or less the same usage (12.8 GB in 2017, 14.4/14.7 GB in 1H 2018). **Telia** Finland (10.4 GB in 2017) and **Jio** from India (10.2 GB per SIM per month in 1H 2018) finalise the top ten list of the world.

Europe: Finnish operators and '3' dominate the top

Now to the first of three breakdowns: Europe. As the world data usage leader, **DNA** obviously tops also this chart.

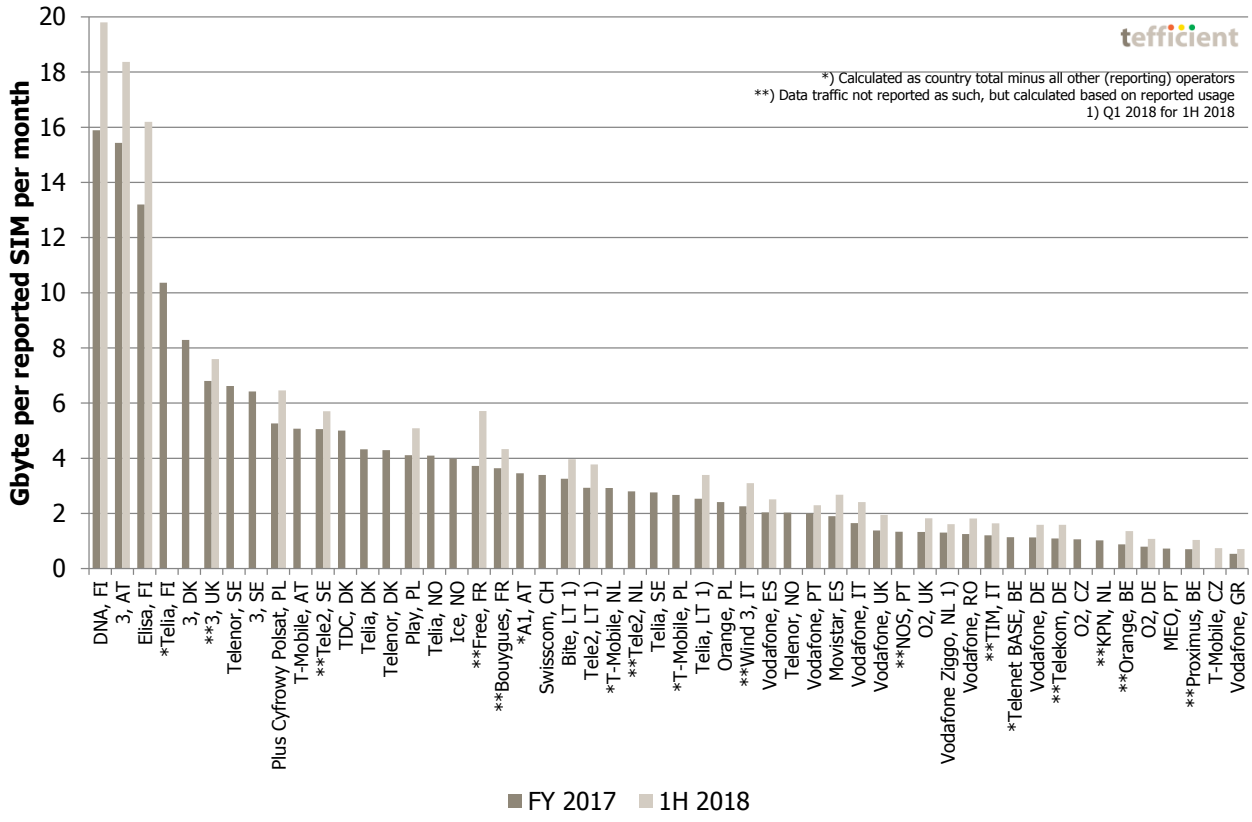


Figure 2. Average data usage per reported SIM per month – European operators

The first eight operators are either Finnish – **DNA**, **Elisa**, **Telia** – or affiliates to '**3**' (Austria, Denmark, Sweden). The only non-Finnish, non-'3', operator among the eight is **Telenor** Sweden.

The remaining European operators have customers with significantly lower usage than in the top, but there are a number of operators that had an average usage above 5 GB per month in 2017: **Plus/Cyfrowy Polsat** from Poland, **T-Mobile** Austria, **Tele2** Sweden and **TDC** from Denmark. In the first half of 2018 **Play** from Poland and **Free** from France also surpassed 5 GB.

Free had one of the fastest growth rates in 1H 2018 and unlimited mobile data could be an explanation. For the first time, Free's owner Iliad in Q2 reported how large share of Free's mobile customers that are on the 'unlimited' plan – **55%**. All those customers aren't truly unlimited though; that plan is unlimited exclusively for customers who *also* subscribe to Free's triple-play Freebox. But with a cap of 100 GB, customers without a Freebox aren't likely feeling very restricted. The change to 100 GB/unlimited was made in March 2017. It was previously 50 GB.

But Europe has a long tail: Operators from six countries – **Greece**, **Czechia**, **Portugal**, **Belgium**, **Germany** and the **Netherlands** – hold the eleven lowest usage positions.

If comparing the 1H 2018 to the FY 2017 usage bars, we can see that the usage is growing everywhere (where reported).

Asia and China: Taiwan, Jio, Korea and Malaysia dominate the top

The two Taiwanese operators **FarEasTone** and **Taiwan Mobile** hold the top two positions. Taiwan Mobile passed FarEasTone in 1H 2018. **Jio**'s usage exceeded the 10 GB per SIM per month level in the first half of 2018.

The Taiwanese market leader, **Chunghwa**, has significantly lower average data usage than its two smaller competitors. South Korea was once a data usage leader – not just in Asia, but globally – but the growth in usage isn't very fast any longer. The growth in Malaysia is, in contrast, very fast. **Celcom** overtook **Maxis** in average data usage in the first half of 2018.

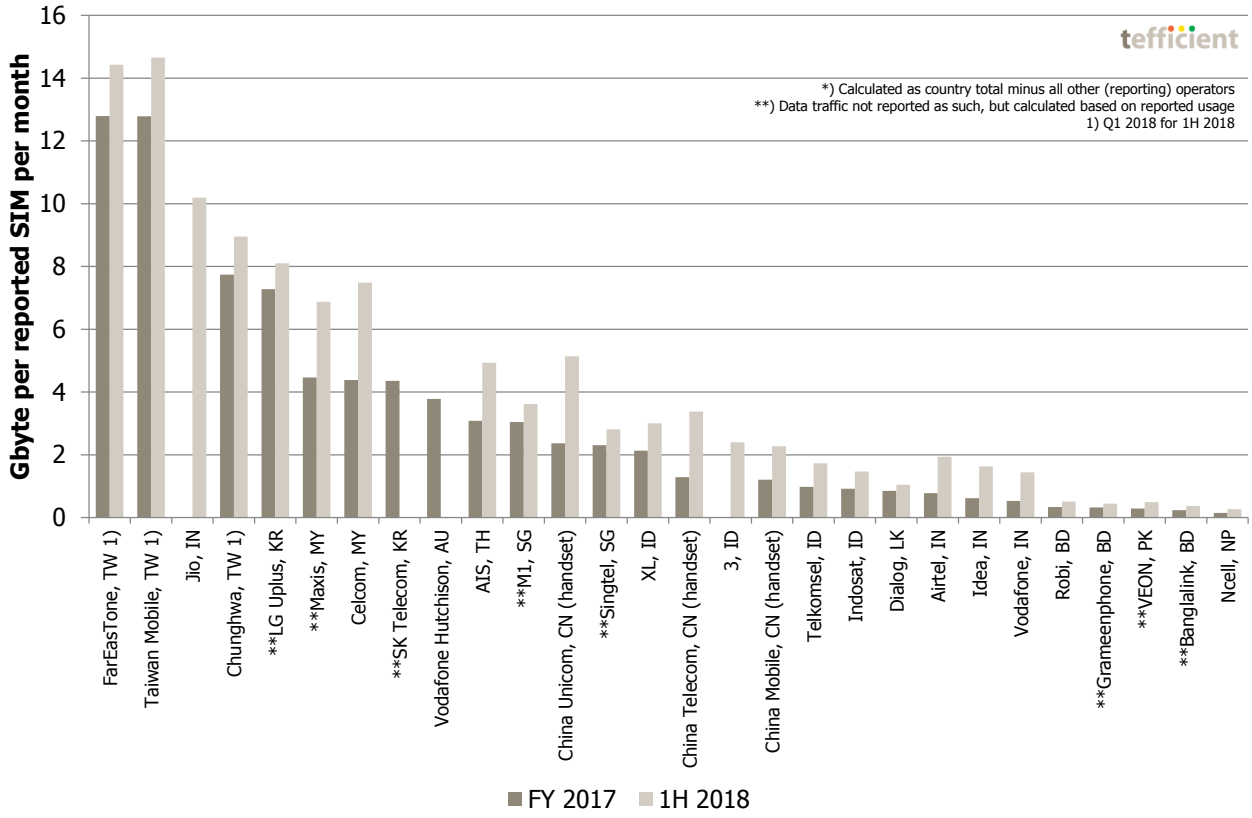


Figure 3. Average data usage per reported SIM per month – Asian and Chinese operators

Also the Thai operator **AIS** has had quick usage growth in 1H 2018. But the fastest growth is found in China and India[2]:

- Vodafone, India **+173%** growth in average usage per month between FY 2017 and 1H 2018
- Idea, India **+162%**
- China Telecom **+162%**

[2] Jio's growth rate can't be calculated as the traffic in the first half of 2017 hasn't been reported

- Airtel, India **+150%**
- China Unicom **+117%**
- China Mobile **+88%**

Even if the Indian incumbent operators have very fast growth in data usage, they are obviously still far from Jio's 10.2 GB per SIM per month in 1H 2018. Note also that all three Chinese operators exclude data-only from their reported data traffic.

The fastest usage growth is found in India and China

RoW: Zain dominates the top

The rest of world ranking combines North American, Latin American and Russian operators with operators from Middle East, Africa and reporting international groups, see Figure 4.

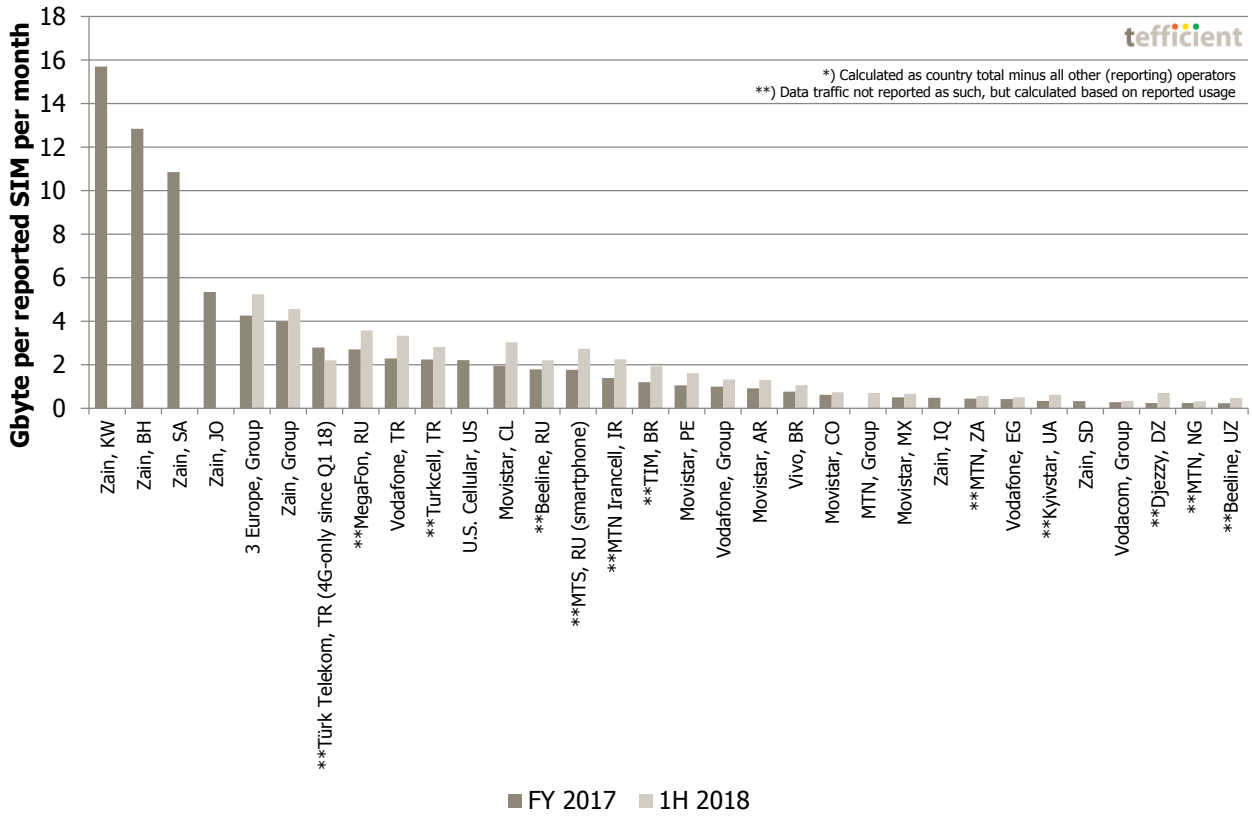


Figure 4. Average data usage per reported SIM per month – RoW operators

If we disregard **3 Europe** group whose affiliates are represented in the European comparison (Figure 2), it's interesting to see how high the average usage of **Zain** Group is. If looking at Zain's reported 2017 figures, the average is lifted by Kuwait, Bahrain, Saudi Arabia and Jordan whereas Iraq and Sudan lower it.

Russian and Turkish operators have high average usage. The Latin American operators have – with the exception of Chile – fairly low average usage, but the growth in 1H 2018 has generally been high.

It is a pity that none of the major US or Canadian operators report their data traffic or usage. The only sample in Figure 4 is **U.S. Cellular**. It's likely that four larger US carriers Verizon, AT&T, T-Mobile and Sprint could have higher data usage (the country average was 3.3 GB in 2017).

African operators are – together with operators from Uzbekistan and Ukraine – having the lowest monthly data usage per SIM in our sample.

China Mobile overtakes Jio as the largest operator in the world – also in traffic

We have seen that the data usage varies much between customers of different operators in different countries. If we instead compare the total data traffic, the large population differences between the countries make the spread even wider, see Figure 5.

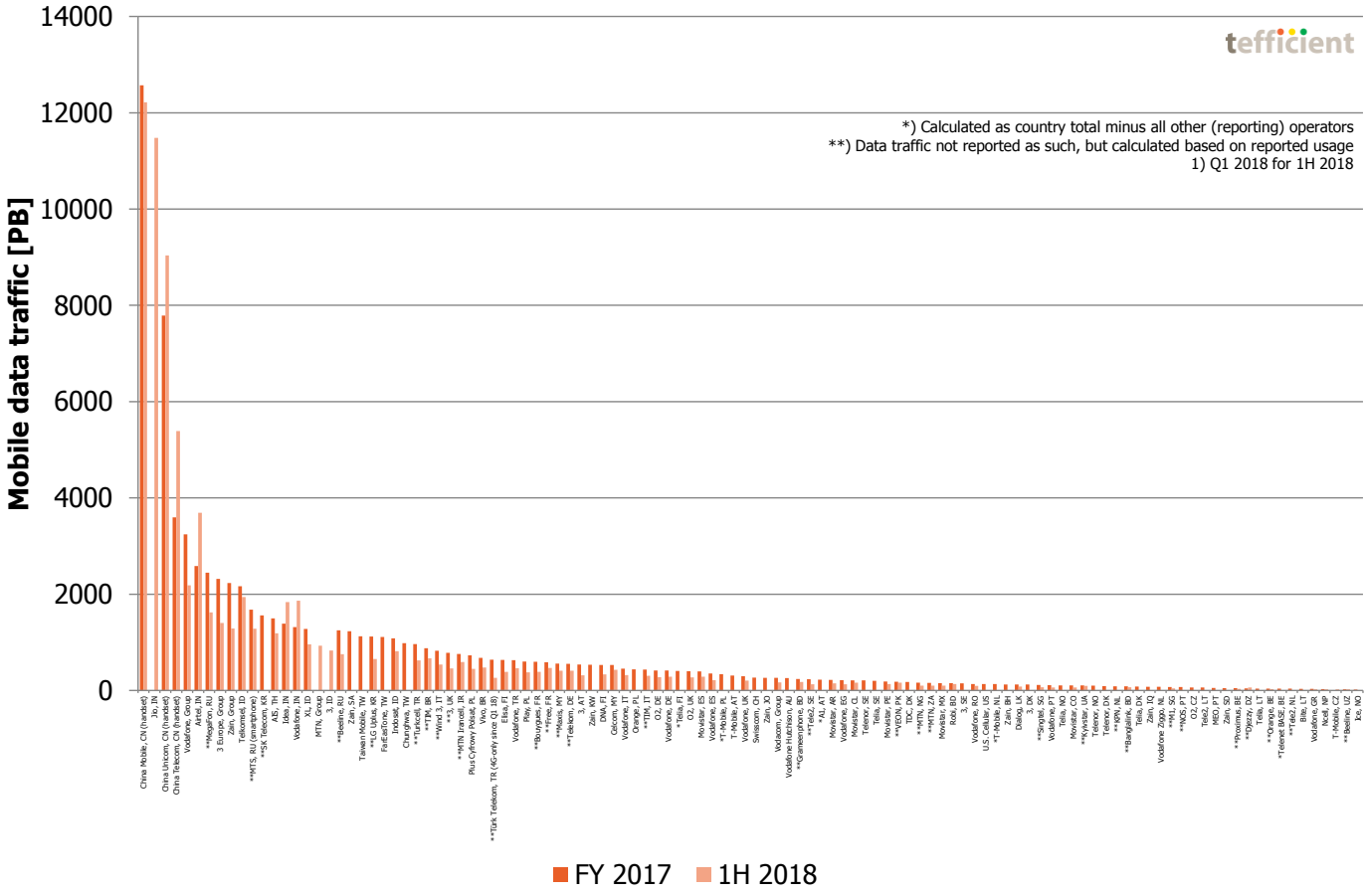


Figure 5. Total data traffic – all operators

As it's near to impossible to read Figure 5 we will in a bit break it down into the three regions of the world, but let's first use Figure 5 to identify the **global data traffic leaders**.

Gold China Mobile with 12569 PB in FY 2017 and 12219 PB in 1H 2018

With 906 million mobile subscriptions, China Mobile is the operator with the largest customer base in the world. But in our previous report, China Mobile didn't have the highest mobile data traffic. In the first half of this year, China Mobile however overtook Jio to become the biggest carrier. Noticeably, unlike local competition, China Mobile uses the home-grown Chinese TD-LTE standard for 4G. Unclear if it has an impact, but China Mobile's traffic growth rate was slower than that of China Telecom and China Unicom. But China Mobile's subscription base is larger than the sum of its two competitors[3].

Silver Jio with 11480 PB in 1H 2018

The Indian market disruptor Jio continues to grow its mobile subscription base quickly. In June, Jio had 215 million subscribers – less than two years after launch. Since Jio started to report its mobile data traffic in Q3 2017 it has shown some growth, but it comes mainly as a consequence of the growth in the subscription base, less so from growth in the usage per subscriber. With its free launch proposition, the high usage was there from day one. This also means that Jio was passed by China Mobile as the operator with the largest traffic in the world during the first half of 2018.

Bronze China Unicom with 7786 PB in FY 2017 and 9039 PB in 1H 2018

It's impressive to see that China Unicom already in the first half of 2018 handled more data traffic than it handled during the full year of 2017. It says something about the usage growth rate in China. In contrast to Jio, the mobile traffic of China Unicom is driven by growth in the average usage more than growth in its subscription base. When the base grew 6% between 2017 and the first half of 2018 – to 302 million – the usage grew 117%. With regards to 4G, China Unicom (as well as fourth-ranked China Telecom) uses the 'regular' FDD-LTE standard.

Other country operators that are highly ranked are **Airtel** from India (#6), **MegaFon** from Russia (#7) and **Telkomsel** from Indonesia (#10). Airtel actually carried more traffic than the Vodafone Group as a whole[4] (#6 based on 2017) in the first half of 2018. Now that the last hinders for the merger between Vodafone and Idea in India are cleared, it's of interest to sum up the two and see where they would have been in 1H 2018: Pretty much exactly the same place as Airtel (3700 PB).

[3] At the time of writing, rumours have surfaced that the Chinese government considers to merge China Unicom and China Telecom.
[4] Vodafone Group excludes Vodafone India (and VodafoneZiggo from the Netherlands) from its definition due to the merger with Idea and the JV with Liberty Global

Europe: The largest operators are not the usual suspects

First to the European breakdown. Since the highest ranked European operator is just number 28 in our global rank, we could generally conclude that the European countries are less populated than the global leaders – but also that growth is significantly faster outside of Europe. And it's not the operators that you necessarily would suspect (with the largest SIM base) that are in the top of Figure 6.

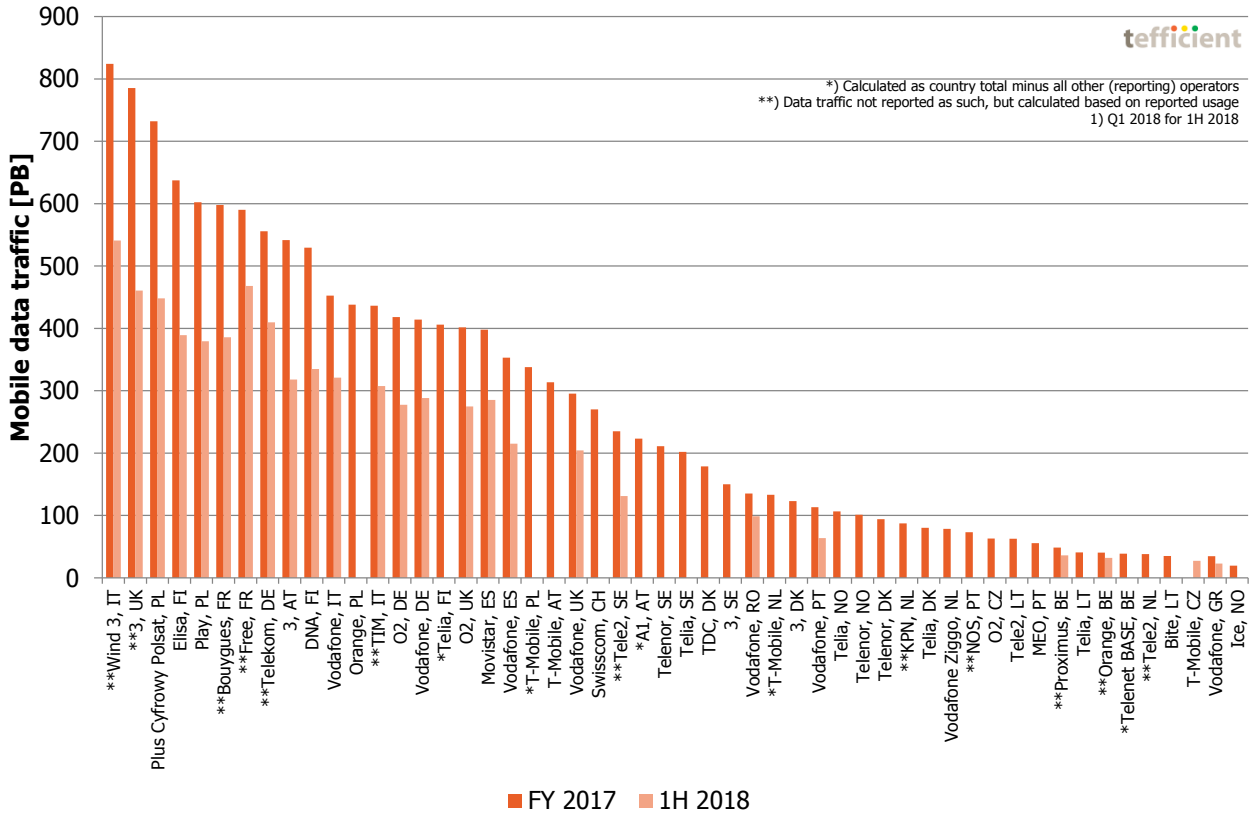


Figure 6. Total data traffic – European operators

The relatively newly created **Wind 3** joint venture[5] is Europe's new number one in total data traffic. This is true for both the full year of 2017 and for the first half of 2018. Vodafone Italy is number 11 from the top and TIM number 13. There's generally good growth in the Italian data traffic which can be attributed to the market entry of **Iliad** in May this year. The Italian operators have upped the mobile data allowances – and lowered the price points – to mitigate Iliad's ability to disrupt. Iliad has not yet reported any mobile data traffic for Italy, but indicated that it had acquired 1.5 million subscribers in the beginning of August. With an initial allowance of 30 GB per month for 5.99 EUR – later changed to 40 GB for 6.99 EUR – we look forward to adding them to our usage charts.

[5] CK Hutchson was in September 2018 given EU's blessing for a buy-out of VEON, making CK Hutchison the 100% owner of Wind 3.

3 UK has been pushed down from its previous number one position. The company is known for its **all-you-can-eat** plans since long and is still the only provider that offers unbundled unlimited in the UK[6]. Given that Three just holds about 14% of the UK's total subscription base, a second place in Europe is still quite an achievement.

The third largest operator in Europe is Poland's **Plus/Cyfrowy Polsat**. It uses data-only as fixed-line substitution – but is now is process of becoming a significant shareholder in Netia, a fixed operator. Fifth-ranked **Play** is also Polish and has a similar approach – using mobile as fixed-line replacement – as Plus/Cyfrowy Polsat has had.

In between the two Polish operators, we find **Elisa** from Finland. We have said it before, but with Finland's 5.5 million inhabitants, it is impressive to find Elisa being number 4 in Europe in 2017. Local competitors **DNA** and **Telia** are number 10 and 16 respectively.

Europe's largest operator in SIMs – **O2 Germany** – is number 14.

If we instead look at the traffic data for 1H 2018, we could identify **Free** from France as a fast-mover. The company has moved from number 7 in 2017 to number 2 in 1H 2018. Also Free's competitor **Bouygues** carries a lot of mobile data – ranked number 6 in 2017.

Free moved from a number 7 position in 2017 to a number 2 position in 1H 2018

[6] Virgin Media has introduced an unlimited 25 GBP mobile data plan in 2018, but it is exclusively sold to customers who also subscribe to Virgin Media fixed broadband and TV.

Asia and China: Massive traffic growth

We find the four global traffic leaders in the top of the Asian/Chinese comparison: **China Mobile**, **Jio**, **China Unicom** and **China Telecom**.

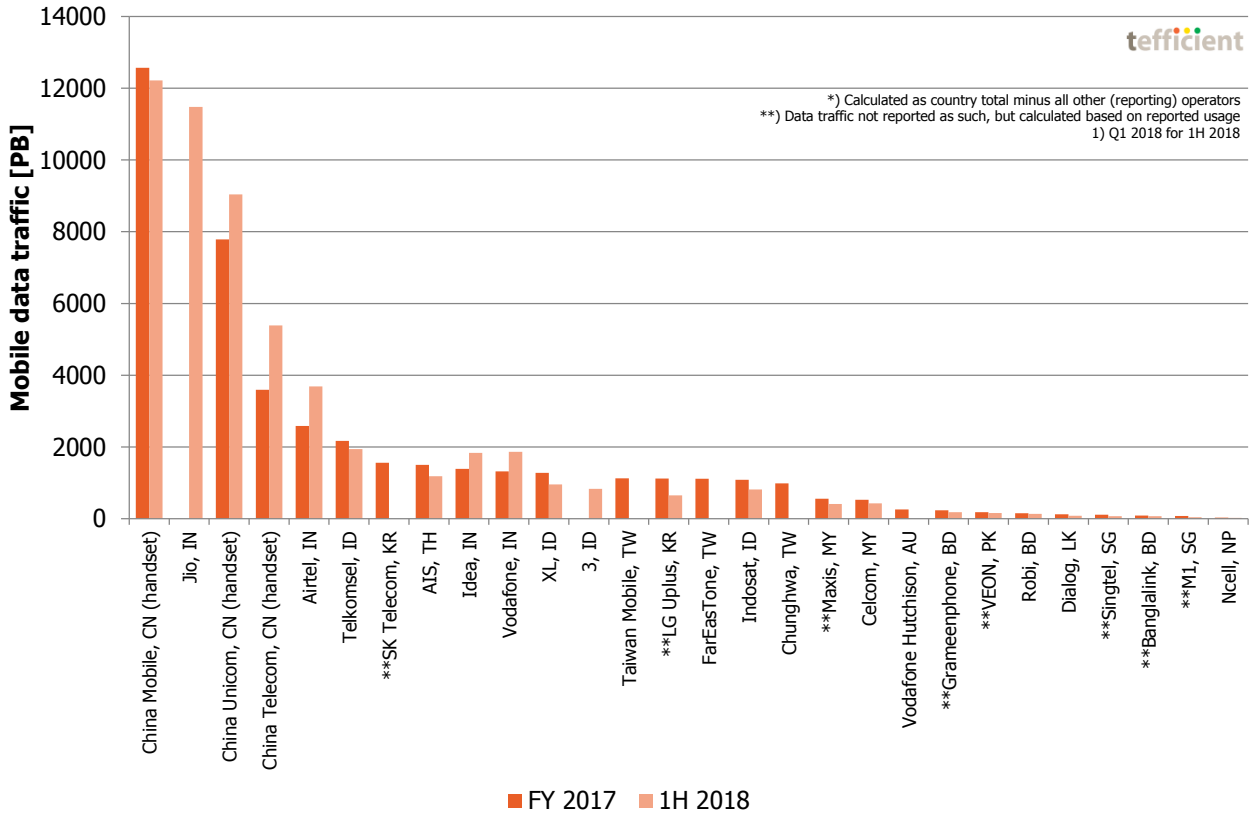


Figure 7. Total data traffic – Asian and Chinese operators

There are several operators in Figure 7 that in the first half of 2018 carried more mobile data than in the full year of 2017 – **China Unicom** and **China Telecom** as well as **Airtel**, **Idea** and **Vodafone** from India. It goes without saying that the same is true also for Jio even though there's no full year 2017 traffic data to support it.

Telkomsel from Indonesia – with 179 million subscribers in a very competitive market – is number 6 followed by the Korean market leader, **SK Telecom**.

Many Chinese and large Asian operators carried more data in 1H 2018 than in the full year of 2017

RoW: MegaFon larger than 3 Europe Group and Zain Group

Figure 8 collects operators from the rest of the world, but also a few reporting international groups.

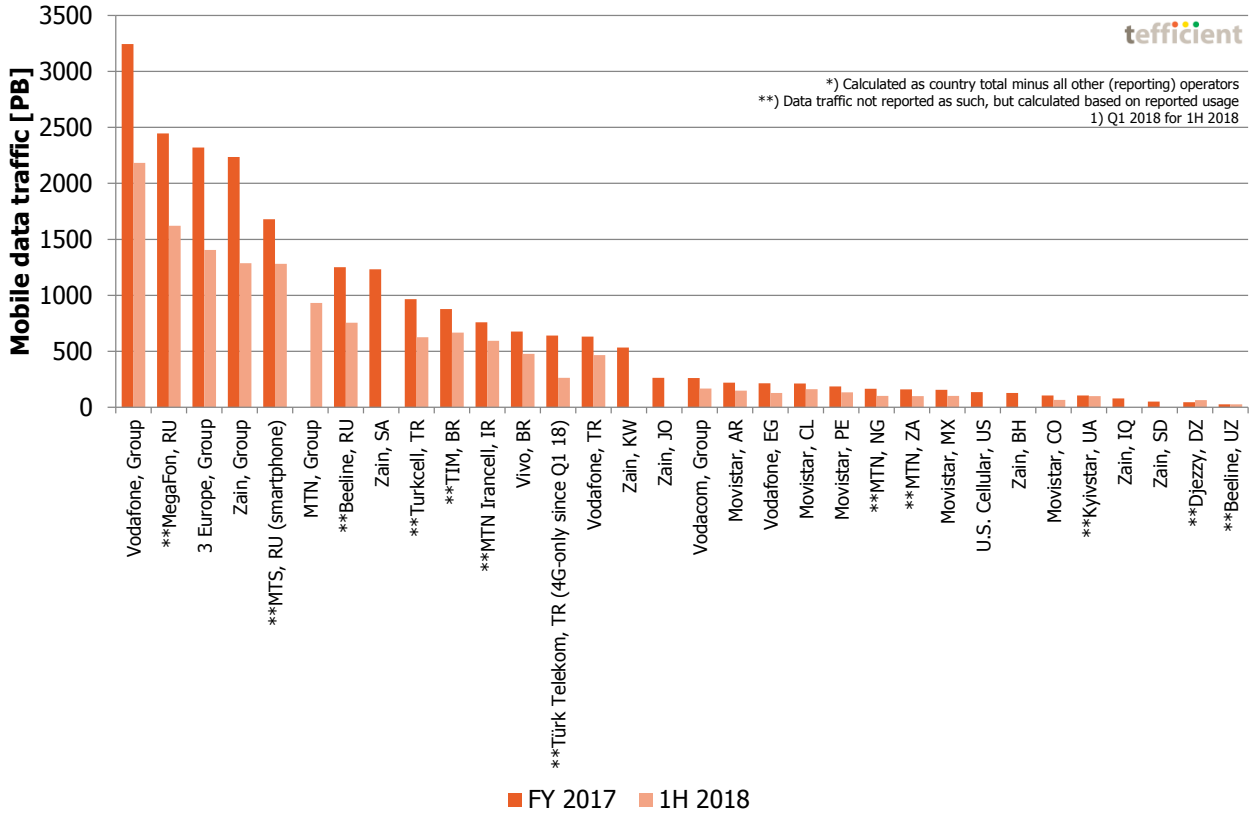


Figure 8. Total data traffic – Rest of world operators

The Russian operator **MegaFon** (#2) is an international giant in mobile data, carrying more traffic than the whole of 3 Europe Group or the whole group of Zain. Even though MegaFon's local competitors MTS and Beeline (VEON) are large too, MegaFon is larger. This can be attributed to MegaFon's acquisition of the 4G data-only specialist Yota back in 2013.

Saudi, Turkish and Brazilian operators follow – together with **MTN Irancell**, an operator with 45 million subscribers showing a quickly increasing appetite for mobile data.

What's the revenue per GB? How long is a piece of string?

In our country analysis, we have traditionally been focused on mature markets. The way we calculate revenue per gigabyte – *total* mobile service revenue per carried gigabyte – will resonate with mature markets where operators generally aren't attempting to monetise voice and SMS based on usage. Instead they have made voice and messaging allowances unlimited and included them in a flat fee.

In *maturing* markets, usage-based monetisation is still used to a much higher degree. This is true also for voice and messaging. With our calculation method, one might conclude that the operators ending up with the highest effective revenue per gigabyte would thus be operators from maturing markets. The operators to the right in Figure 9 aren't maturing market operators, though.

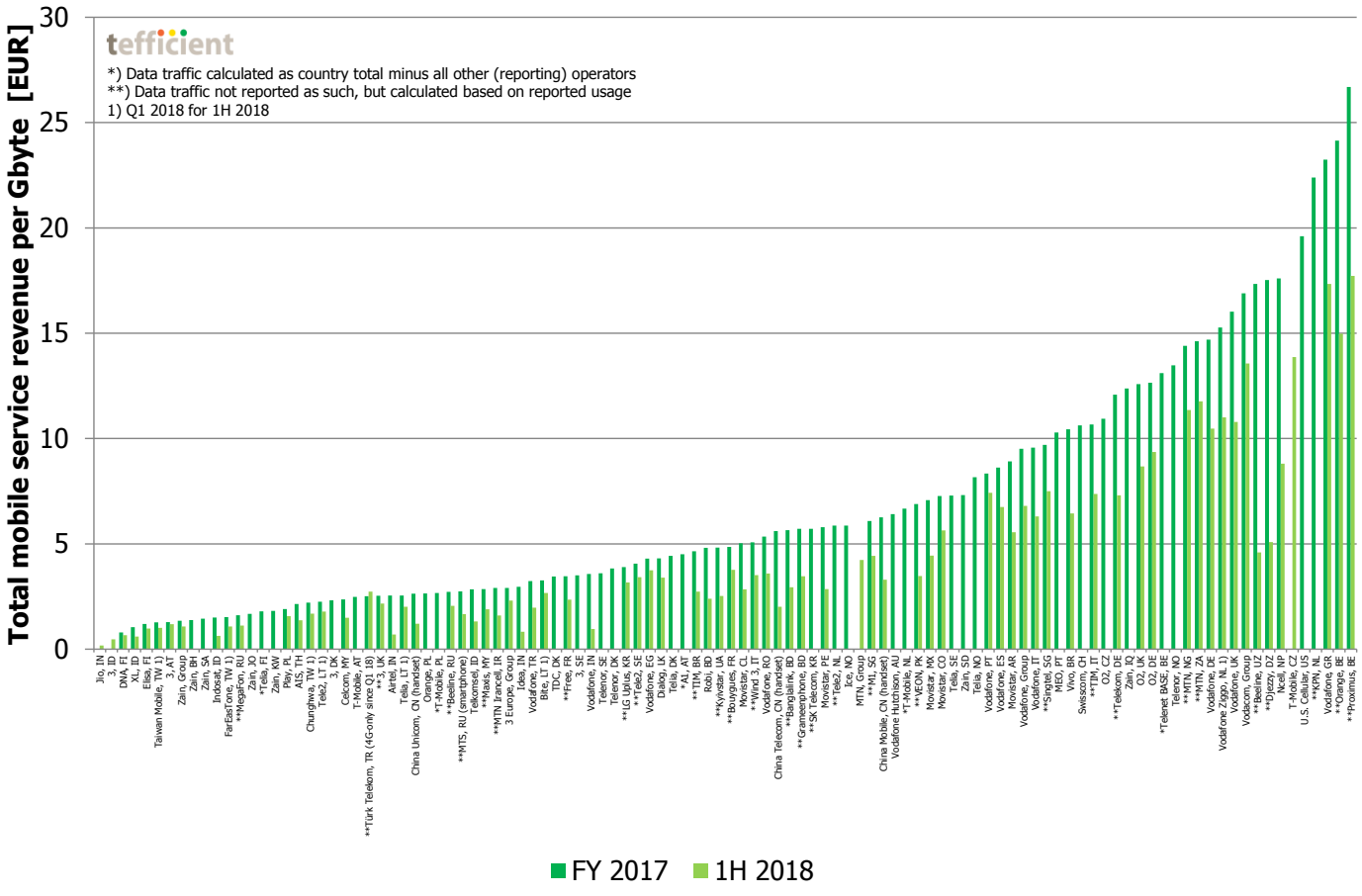


Figure 9. Total mobile service revenue per gigabyte – all operators[7]

[7] That also report mobile service revenue

We will – for readability reasons – soon break Figure 9 down into Europe, Asia/China and RoW, but let's first look into a disclaimer with regards to operators marked with * or **.

When reporting mobile data traffic, take inspiration from Vodafone and Telefónica

All graphs in this analysis carry this legend:

*) Data traffic calculated as country total minus all other (reporting) operators
**) Data traffic not reported as such, but calculated based on reported usage

There are a number of operators globally that, in their regular easy-to-use Excel sheets, report their **total mobile data traffic** quarter by quarter. Of the larger operators groups, **Vodafone** and **Telefónica** are two good examples. We encourage all operators to follow their example.

Some operators are instead reporting – or occasionally indicating – **data usage**. These are the operators marked with **. The problem here is that most operators aren't defining what a user is – sometimes it is all users, sometimes "active data users" (whatever that is), sometimes smartphone users, sometimes branded smartphone users, sometimes postpaid users, sometimes 4G users. Typically these usage numbers are stated to impress, i.e. they are representative only for a smaller, high-usage, segment of the subscriber base. An exception to that operators reporting usage isn't reporting the number of associated users is **VEON** Group that reports the usage per mobile data customer *and* the number of such mobile data customers (a subset of the total customer base). Well done, VEON.

The majority of operators are still not reporting anything, though. Orange Group, Telia Company and Telenor Group are examples of it. And, of course, all large North American carriers. In some cases, country regulators are helpful in reporting a breakdown per operator. But in most cases, the country regulator is just reporting a total. In such occasions – and if also all other operators report data traffic or at least usage – we have calculated the country residual and assumed that this traffic equals that of the non-reporting operator. These are the operators marked with *.

It's not necessarily so that a regulator and the reporting operators use exactly the same definition when reporting data traffic. Traffic via MVNOs can e.g. disturb the comparability. Where the error risks to be the largest, though, is in countries where the country residual has been assigned to a *-marked operator while, at the same time, one or several of the other operators are **-marked operators, i.e. have not explicitly reported the total data traffic but some type of usage.

So if any operator (*-marked or **-marked) is unhappy with its calculated data traffic, the solution is simple: Start to report your total mobile data traffic.

Having explained this, let's now in Figure 9 identify the ten operators that get the *lowest* total mobile service revenue per gigabyte in the world. The ranking is primarily based on the full year of 2017 as that data set is complete:

	FY 2017	1H 2018
1. **Jio**, India	n/a	0.2 EUR
2. **3**, Indonesia	n/a	0.5 EUR
3. **DNA**, Finland	0.8 EUR	0.7 EUR
4. **XL**, Indonesia	1.0 EUR	0.6 EUR
5. **Elisa**, Finland	1.2 EUR	1.0 EUR
6. **Taiwan Mobile**, Taiwan	1.3 EUR	1.0 EUR *Q1* 2018
7. **3**, Austria	1.3 EUR	1.2 EUR
8. **Zain**, Group	1.3 EUR	1.1 EUR
9. **Zain**, Bahrain	1.4 EUR	n/a
10. **Zain**, Saudi Arabia	1.4 EUR	n/a

All these operators are either active in high data usage markets (Finland, Taiwan, Bahrain) or have usage leadership positions. In the mature market focused country analysis you can identify India, Finland, Taiwan, Poland and Austria as some of the country markets (of the covered) with the lowest revenue per gigabyte so this list seems plausible.

The ten operators that get the *highest* total mobile service revenue per gigabyte in the world are:

	FY 2017	1H 2018
1. **Proximus**, Belgium**	26.7 EUR	17.7 EUR
2. **Orange**, Belgium**	24.2 EUR	15.0 EUR
3. **Vodafone**, Greece	23.2 EUR	17.3 EUR
4. **KPN**, Netherlands**	22.4 EUR	n/a
5. **U.S. Cellular**, US	19.6 EUR	n/a
6. **T-Mobile**, Czechia	n/a	13.9 EUR
7. **Ncell**, Nepal	17.6 EUR	8.8 EUR
8. **Djezzy**, Algeria**	17.5 EUR	5.1 EUR
9. **Beeline**, Uzebekistan**	17.3 EUR	4.6 EUR
10. **Vodacom**, Group	16.9 EUR	13.6 EUR

In the mature market focused country analysis you can identify Greece, Belgium, the Netherlands and, to some extent, Czechia as some of the country markets (of the covered) with the highest revenue per gigabyte so this list seems plausible too.

We conclude that there in the first half of 2018 was a **106-fold difference** between the operator with the highest total service revenue per gigabyte (Proximus Belgium) and the operator with the lowest (Jio India).

Europe: Belgium, Greece and the Netherlands have the highest revenue per GB

Figure 10 shows the European breakdown. Since European operators played both in the bottom and in top of the global chart, the spread is almost as large as in the global view. To ease comparability, the scale is kept intact throughout this section.

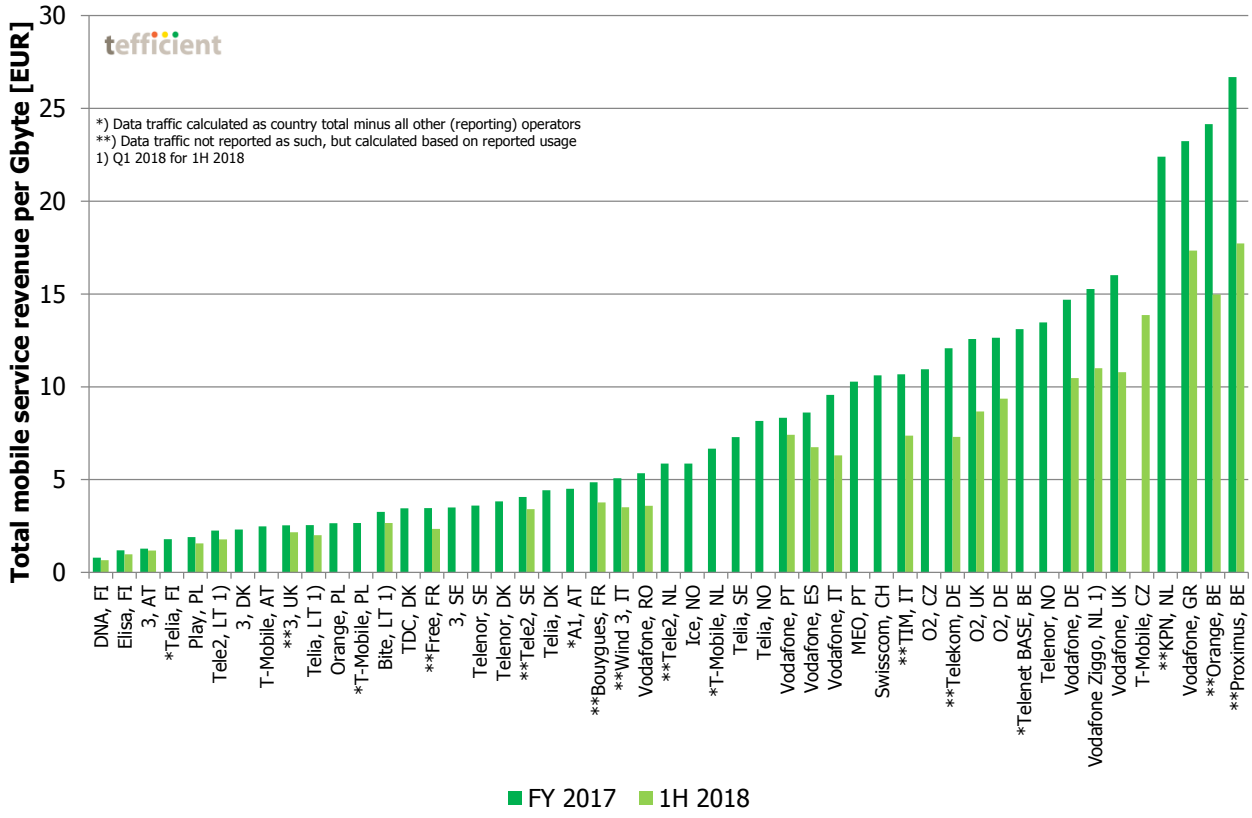


Figure 10. Total mobile service revenue per gigabyte – European operators

As pointed out in the global section, Belgian, Greek and Dutch operators play in the right end – where total service revenue per consumed gigabyte is high. In the other end of the scale – where the revenue per gigabyte is low – operators from **Finland**, **Austria**, **Poland** and **Lithuania** play. Also a couple of affiliates to '**3**' – Denmark and the UK – are found here.

The position of **3** stands out: In each[8] European market where it operates – Austria, Denmark, the UK, Sweden and Italy – 3 has revenues per gigabyte which are lower than *all* of its local competition. 3 has thus improved the competitiveness of many European markets when it comes to mobile data. At the same time, 3 Group has been allowed by the European Commission to consolidate several European markets; Austria, Ireland and Italy have all gone from four to three[9] MNOs based on initiatives taken by 3's

[8] No data exists for 3 Ireland

[9] As a result of the remedies agreed with the EU, Wind 3 sold assets to Iliad in order for it to launch a new fourth MNO. This happened in May, so Italy is again a four MNO market.

owner **CK Hutchison**. The exception is the UK where the European Commission turned down 3's request to merge with O2.

Asia and China: Revenue per GB going down very quickly

Figure 11 shows the Asian and Chinese operators. Jio, Indonesian and Taiwanese operators have the lowest revenue per gigabyte whereas no operator (except Nepal's Ncell in 2017) is having very high revenue. The quickly growing data usage in China and India has moved the Chinese and Indian operators to the left compared to our previous analysis.

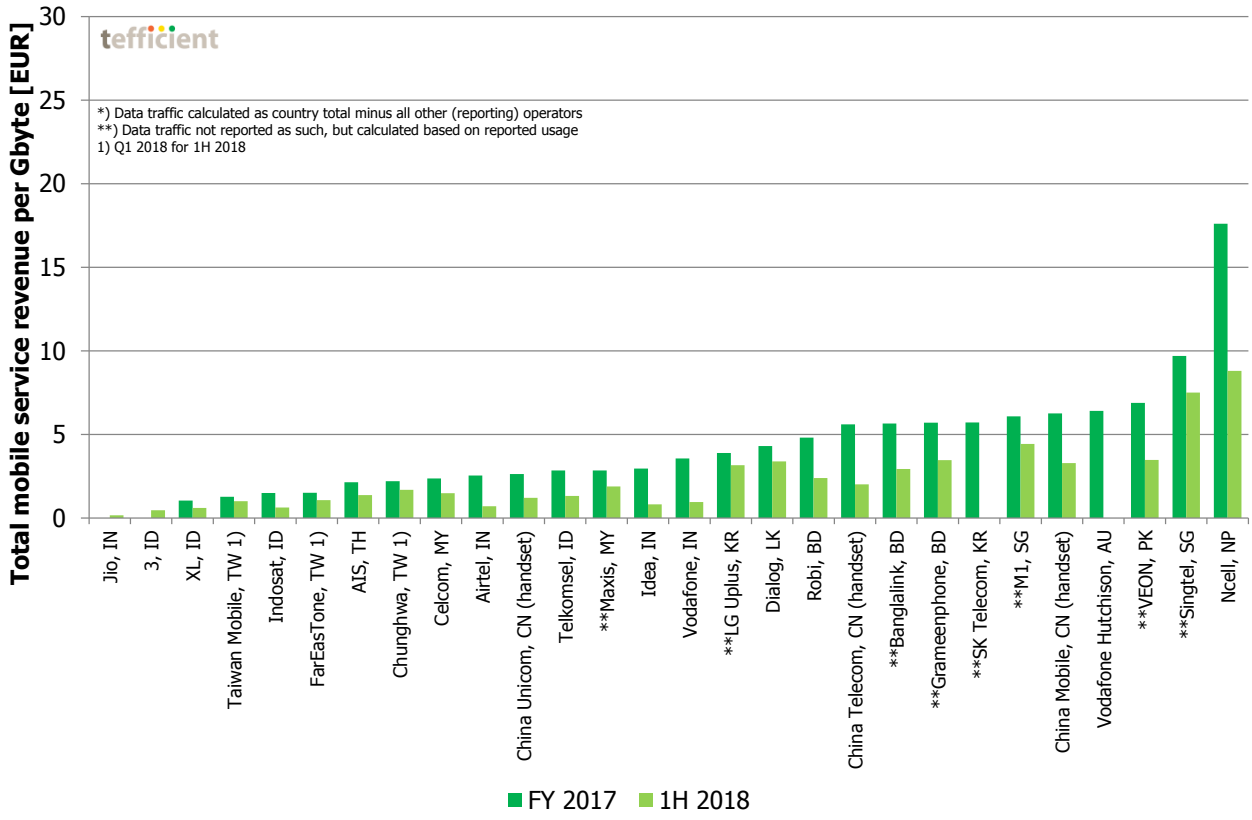


Figure 11. Total mobile service revenue per gigabyte – Asian and Chinese operators

RoW: Big drop in revenue per GB in certain maturing markets

Finally Figure 12 which shows the operators in the rest of the world alongside a few groups that separate out mobile service revenue in their reporting.

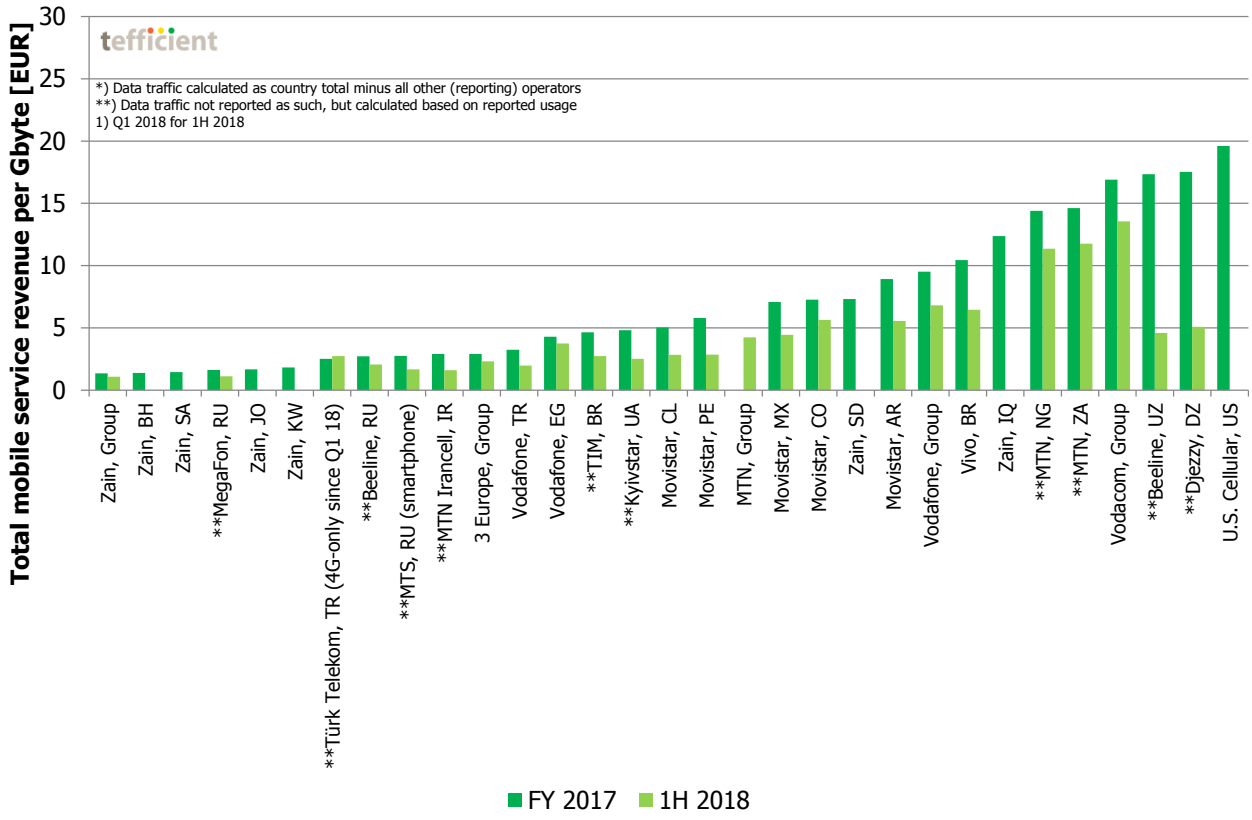


Figure 12. Total mobile service revenue per gigabyte – rest of world operators

Zain's Middle East operations together with Russian and Turkish operators dominate the left end of the chart where revenues are the lowest per gigabyte. Latin American operators clutter the middle of the chart whereas **sub-Saharan operators** including Vodacom Group populate the right hand of the graph, especially if looking at the 1H 2018 figures.

The only reporting North American operator, **U.S. Cellular**, had the highest total service revenue per consumed gigabyte in 2017. As to Beeline Uzbekistan and Djezzy from Algeria, there's been a significant drop in their revenue per gigabyte in 1H 2018.

The revenue per GB vs. usage chart

Let us now combine the revenue per gigabyte with the usage. Those of you that have read our data usage and revenue analyses before are familiar with the **revenue per GB vs. usage** chart. But where it is normally populated with countries, it is here populated with operators, see Figure 13.

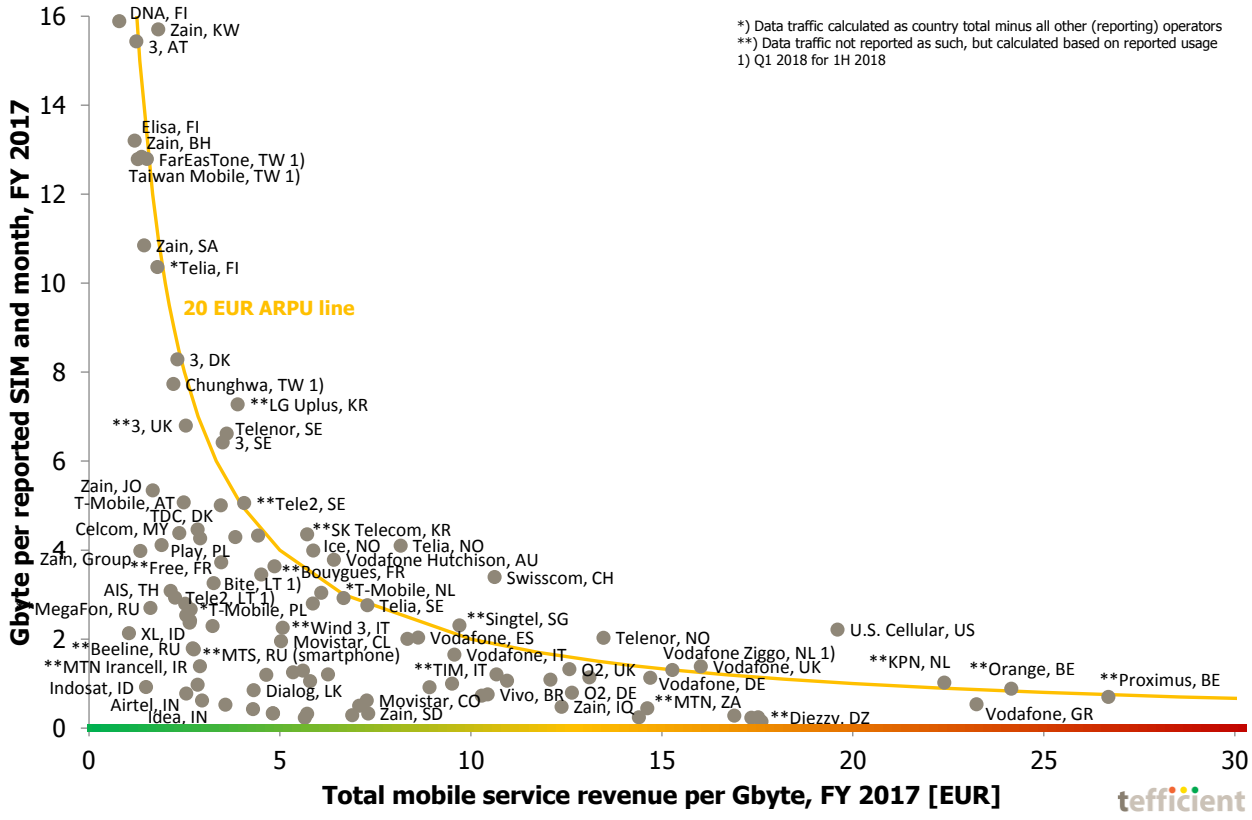


Figure 13. Mobile data usage vs. total mobile service revenue per Gbyte FY 2017

With all those markers, we have only been able to highlight the operators that have more extreme positions. The amber line is not a regression line, but illustrates where 20 EUR of ARPU is earned. Operators above the line earn more – and operators below the line less than 20 EUR.

Most mature markets operators operate with an APRU of around 20 EUR. Many operators in maturing markets clutter in the southwest or south parts of the chart.

The ARPU vs. usage chart

One could criticise the previous chart for comparing the number of gigabytes with something that relates to it – the revenue per gigabyte. Our next chart, Figure 14, is therefore comparing the number of gigabytes with the revenue per subscription, i.e. the ARPU. And that is perhaps even more interesting.

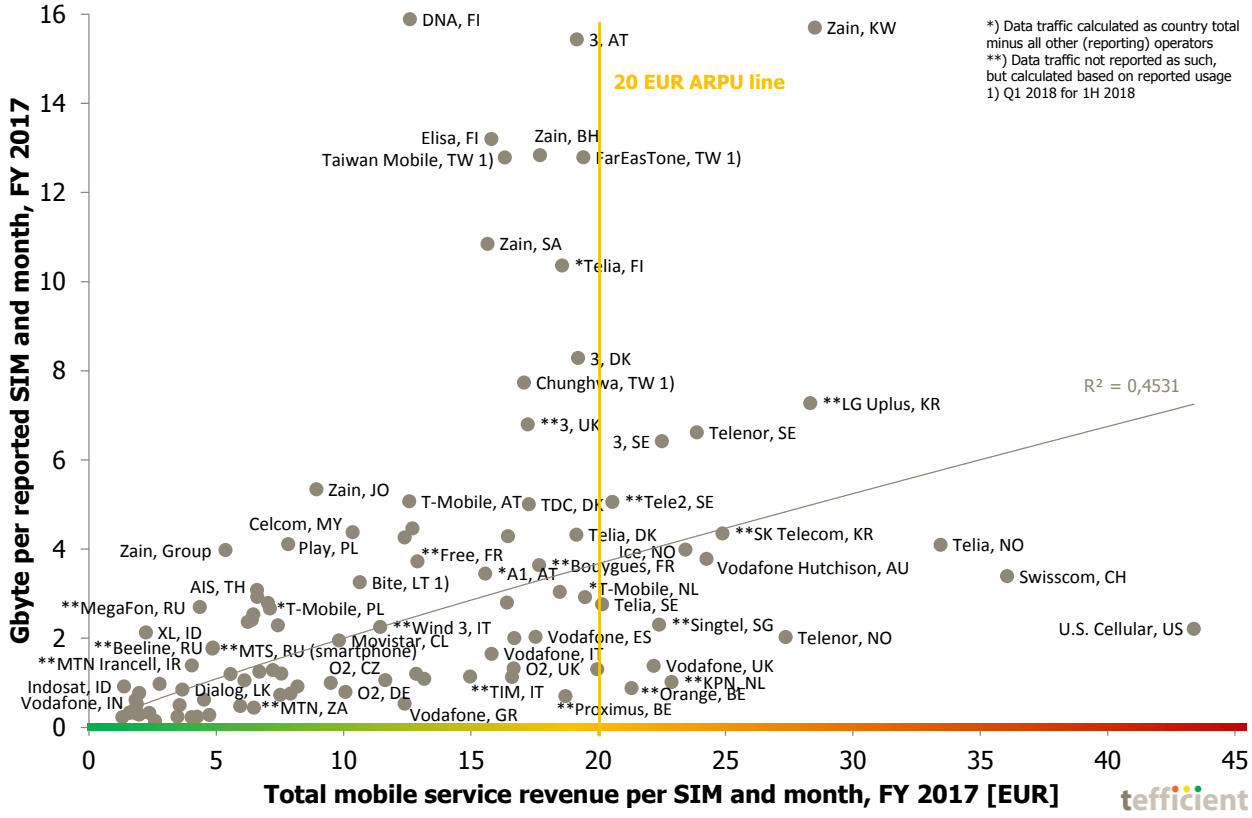


Figure 14. Mobile data usage vs. total mobile service revenue per SIM FY 2017

Of all the operators there are six – **U.S. Cellular**, **Swisscom**, **Telia** Norway, **Zain** Kuwait, **LG Uplus** and **Telenor** Norway – that enjoy much higher total mobile service revenue per SIM than all other operators. It is interesting that this happens even though the mobile data usage isn't particularly high – with the exception of Zain Kuwait. If comparing to the corresponding graph in the country analysis, we note that Canada, USA and Switzerland (as whole countries) play in this corner. If other US operators – or the Canadian operators – would have reported their data usage, they would thus likely have been close to the position of U.S. Cellular. Its position is thus rather more a reflection of a local market reality (high ARPU, low to medium data usage) than being unique to U.S. Cellular.

The most generous operators are found in the upper left corner: **DNA**/**Elisa** Finland, **Taiwan Mobile**/**FarEasTone**, **3** Austria, **Zain** Bahrain/Saudi Arabia/Jordan, **Play** Poland and **XL** Indonesia. These operators allow customers to consume much data, yet having relatively low ARPU.

But there's hope in Figure 14: The grey regression line suggests that **operators with higher data usage have higher ARPU**.

To moderate this, one has to realise that the adherence to this line (shown by a R^2 value below 1) isn't perfect. And we should also remember that the line visualises an international – not a national – trend: It is quite difficult to find national examples showing that operators with higher data usage enjoy higher ARPU. If anything, it's rather the opposite. It's typically the challenger operator that has the customers with the highest data usage and challenger operators tend to have lower ARPU than incumbents.

Operators with higher data usage tend to have higher ARPU

Dressing the Christmas tree

Absolute ARPU aside, how many of the operators have been able to deliver on "**more for more**" i.e. been able to increase ARPU while increasing data usage? And how many are just following the "more for less" stream, giving users more data but not being able to charge anything more?

This might be the ugliest Christmas tree you've ever seen, but it is at least reasonably well balanced this time.

Data usage grew for 100% of operators

ARPU grew for 40% of operators

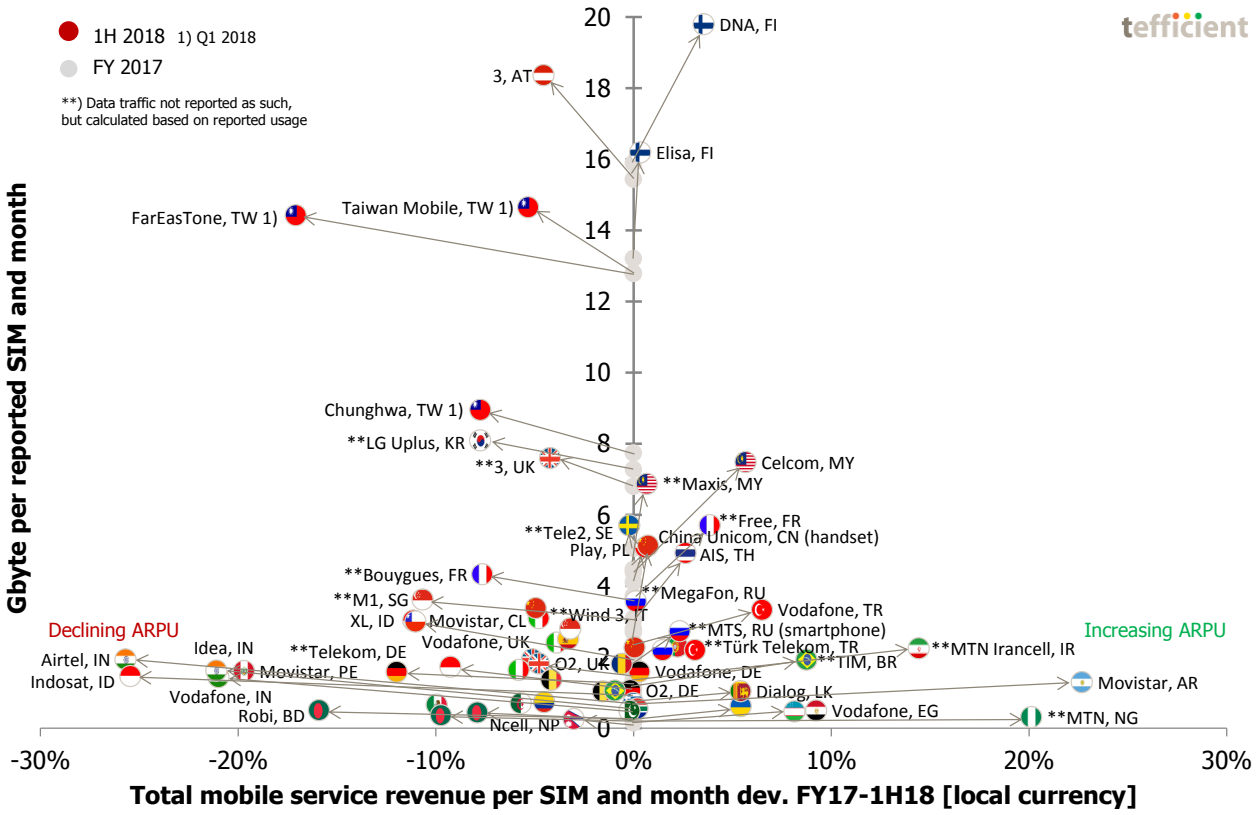


Figure 15. Mobile data usage development vs. ARPU[10] development – FY 2017 to 1H 2018

For every single operator in Figure 15, data usage has grown[11]. But **40% of the operators have managed to use that to grow ARPU**. These operators are having branches growing to the *right* in the Christmas tree. Let's highlight a few best practices:

[10] ARPU is calculated as the reported total mobile service (non-equipment) revenue incl. interconnect & roaming divided with the average number of reported SIMs. It can differ from the definition of operator reported ARPU.

[11] In some charts, this seems not to be the case for Türk Telekom (TT), but it's due to a change in their reporting – from usage per smartphone in 2017 to usage per 4G sub in 2018. Since the usage for Turkey and competitors grew, this is likely true also for TT.

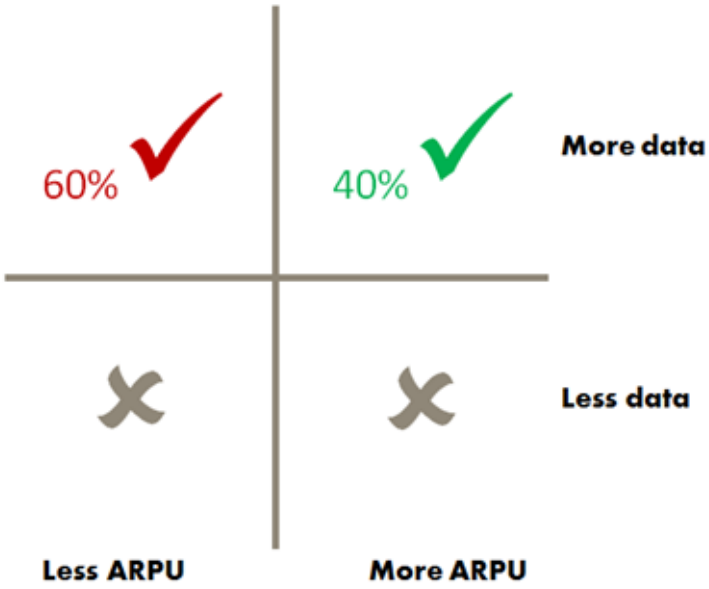
- The Finnish operator **DNA** has been able to grow its ARPU following the data traffic growth even though most of DNA's subscriptions have unlimited data volume. Elisa hasn't been able to grow mobile service revenues as quickly.
- **Celcom** in Malaysia has also been able to grow its ARPU; Maxis not as much.
- **Free** in France has also been able to grow its ARPU following its high growth in data usage. According to Iliad, this is due to a larger share of subscribers now being on the more expensive subscription tier. In contrast, Bouygues has moved in a lower ARPU direction.
- **AIS** in Thailand has also been able to grow its ARPU – without reported data from AIS' competitors it's difficult to say if it's unique to AIS
- **Vodafone** in Turkey has had very good ARPU growth – somewhat mitigated by Türk Telekom also seeing APRU growth
- **TIM** in Brazil has developed its ARPU favourably – Vivo moved in a lower ARPU direction
- **MTN Irancell** in Iran has been able to grow its ARPU fast – but without reported data from competition it's difficult to say if it's unique to MTN Irancell
- **Movistar** in Argentina has had a great growth in its ARPU, but huge fluctuations in the Argentine Peso might be behind
- **MTN in Nigeria** has too had a great growth in its ARPU, but also here there has been large fluctuations in the local currency

60% of the operators are on the branches facing left. They have had data usage growth, but still a **decline in ARPU**. There are a few markets standing out quite negatively here:

- **India** – see the positons of Airtel, Idea and Vodafone in the bottom left part of the chart. Jio's disruptive entry has not only increased the data traffic a lot, it has been very negative for the ARPU development of Vodafone, Airtel and Idea.
- **Indonesia** – Indosat, XL and Telkomsel (without marker) are all to the left in the chart. The market is very competitive and data usage is growing fast, but without any positive effect on the ARPU at all.
- **Taiwan** – another very competitive market where incumbent operators were keen to copy the unlimited initiatives of the newcomers. Attempts to 'rationalise' the market seem to have failed as the 'discipline' isn't present. All the three major Taiwanese operators FarEasTone, Taiwan Mobile and Chunghwa have had fast ARPU decrease in Q1 2018. Note that as the Q2 data isn't yet reported, the Taiwanese trends are only for Q1.

Conclusion

In this analysis, we are presenting twelve ranking charts and two correlation plots and we hope these are useful for you in understanding how **mobile data usage**, **traffic** and **service revenues** are developing globally.



But it's the Christmas tree graph that we'd like you to remember. It shows that data usage grows for *all* operators – and that **40%** of these operators have been able to turn that into ARPU growth. They have delivered on a "more for more" promise. They are the operators that have proven their capability to monetise an increasing mobile data usage.

In some cases, this follows on an overall market trend – several operators are sharing the same positive development. Nothing wrong in that.

But it's when *one* operator stands out from the crowd it is interesting to go deeper and understand what that operator has done to turn customers' data usage growth into ARPU growth. There are many initiatives taken to change mobile data monetisation or customer loyalty to the better – unlimited, zero-rating passes, rollover, speed tiers, video tiers, priority tiers, inclusive service tiers, inclusive content, bundling with fixed – to name a few. But which of them work?

To understand the underlying drivers is a complex and sometimes market-specific quest beyond the scope of this public analysis.