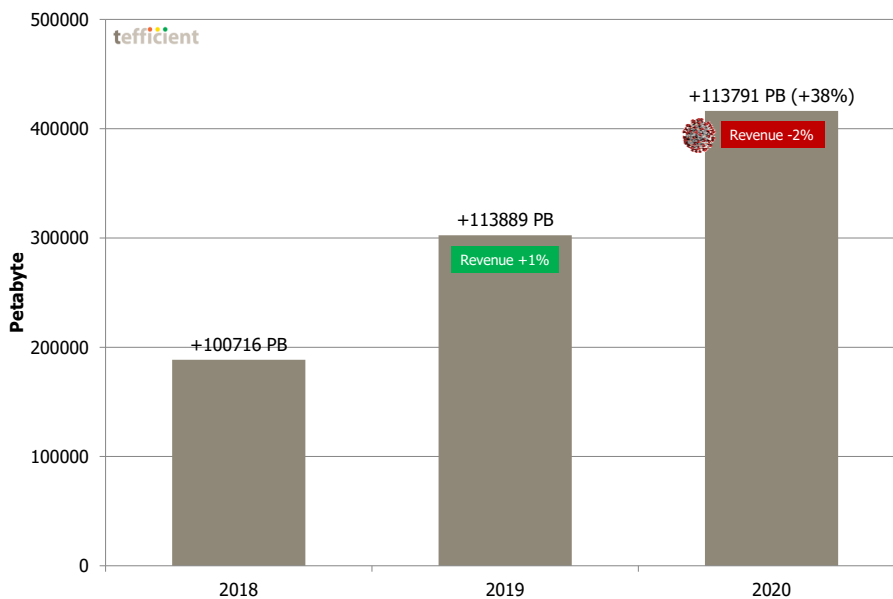


Industry analysis #1 2021

Mobile data – full year 2020

2020 was a horrific year – but not for the global mobile data traffic that grew 38%

Not just sunshine, though – revenue fell 2%



Tefficient's 30th public analysis on the development and drivers of mobile data ranks 105 operators based on average data usage per SIM, total data traffic and revenue per gigabyte in the full year of 2020.

The data usage per SIM grew for basically every operator. 39% could turn that data usage growth into ARPU growth.

39% is a bit lower than in our previous reports and the pandemic is of course to blame when restrictions and WFH more or less put an end to travelling and commuting and shifted traffic from mobile to fixed networks. But as not all homes have access to fixed broadband – or good enough fixed broadband to support both remote work and remote schooling – mobile data stepped in. 38% global growth in mobile data traffic is actually quite remarkable given the pandemic – and that 39% of operators could grow ARPU in that context is impressive. This analysis names the winners.

39% of operators weren't enough to keep the overall mobile service revenue from falling, though. It fell 2% in 2020.

One third of operators now above 10 GB per SIM per month in 2020

Figure 1 shows the average mobile data usage for 105 reporting or reported¹ mobile operators globally with values for the full year of 2020 or the first half of 2020.

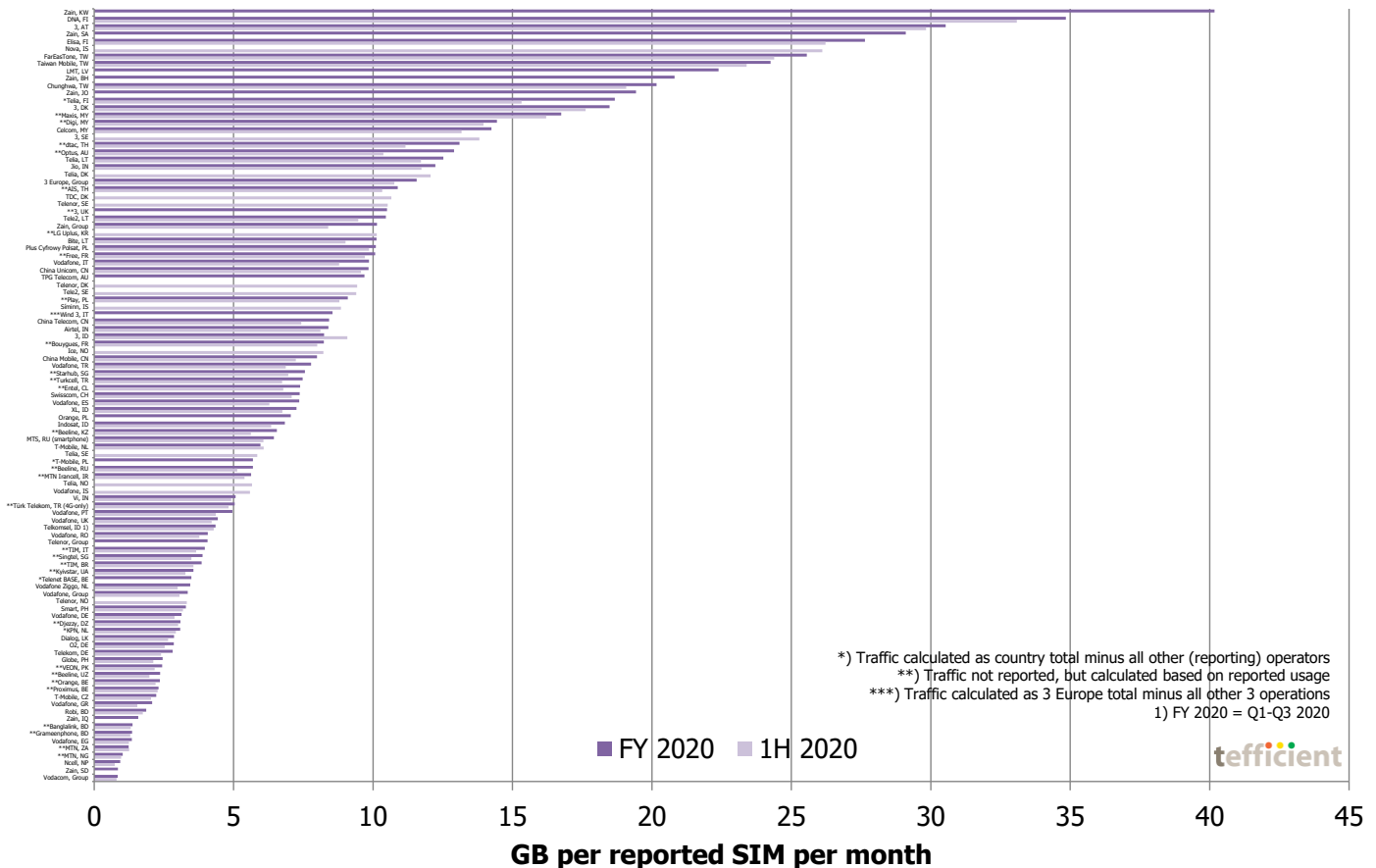


Figure 1. Average data usage per reported SIM per month – all operators

As it's not easy to read Figure 1 we will break it down into three regions of the world, but let's first identify the **global data usage podium** – see Figure 2.

Zain Kuwait reclaims the gold medal. Zain was also our [FY 2019 gold medallist](#), but as Zain doesn't report mobile data traffic for its affiliates more than once a year², Zain Kuwait wasn't the gold medallist in our [1H 2020 analysis](#). Zain's **40.2 GB** per SIM per month in 2020³ grants it the number one position of the world. Zain launched **5G** in June 2019 and sells smartphone plans with massive buckets

¹ By regulators – if reported by 12 April 2021

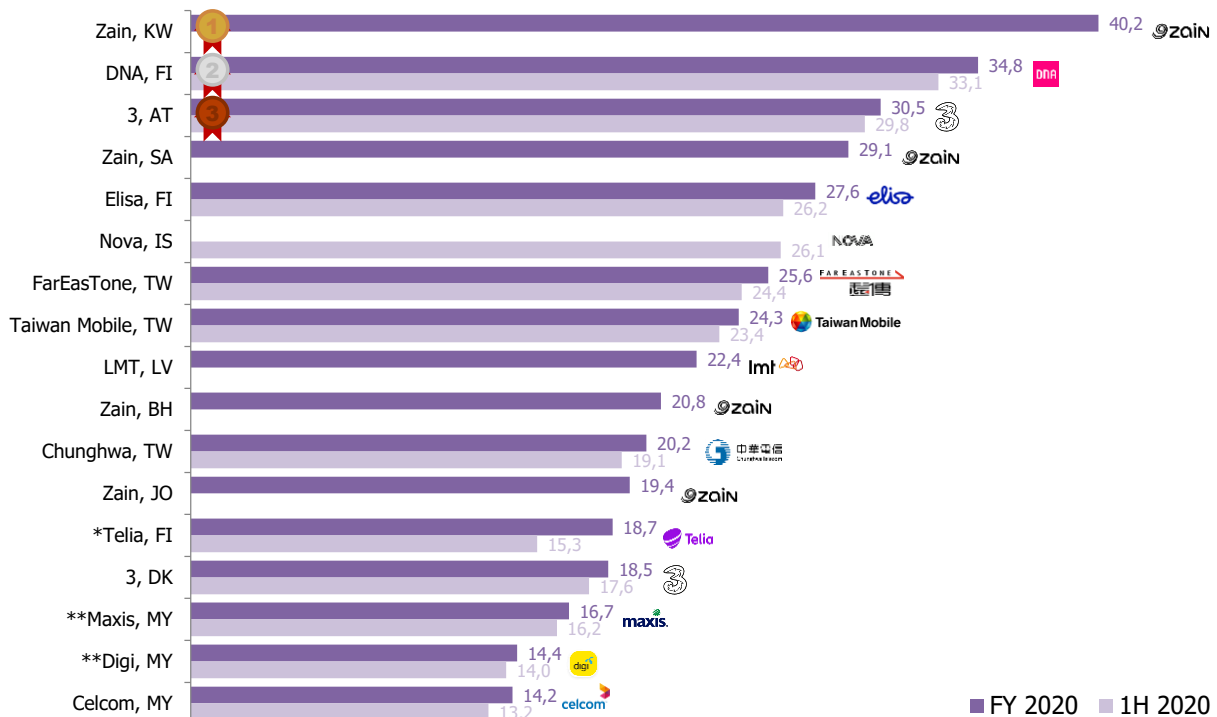
² Zain reports traffic for the whole group more frequently, though

³ Zain's IR department has now clarified that Zain's reported "average daily data volume" indeed is the yearly average, something we also assumed in previous reports

– now with **unlimited** as the ultimate tier. Zain is also offering data-only 5G plans – with one unlimited plan.

DNA With **34.8 GB⁴**, **DNA** from Finland grabs the silver medal. **Unlimited, speed-tiered, plans** – both for smartphones and data-only – form a key component of the Finnish market logic. DNA doesn't report how large share of its base that has unlimited plans, but for Finland as a whole, that share was **80%** of non-M2M SIMs in December 2020. The Finnish operators all launched **5G** in 2019.

3 **Drei (3)** Austria wins the bronze medal this time with **30.5 GB**. The company carried **40%** of Austria's total mobile data traffic in 2020⁵. The Austrian home internet plans were pretty much invented by Drei and come with **unlimited, speed-tiered, data**. Hybrid routers are now offered by all operators (A1, Magenta and Drei) to speed up the slow fixed internet that has been characteristic for Austria. Unlimited smartphone plans are though a relatively new thing in Austria – Magenta and A1 (and finally also Drei) introduced these in 2019. All three have launched **5G**; Drei and Magenta in 2019 and A1 early 2020.



*) Traffic calculated as country total minus all other (reporting) operators
 **) Traffic not reported, but calculated based on reported usage
 1) FY 2020 = Q1-Q3 2020

GB per reported SIM per month

Figure 2. Average data usage per reported SIM per month – top 17 operators

Below the podium we find **Zain** from Saudi Arabia (29.1 GB per SIM per month in 2020). **Elisa** from Finland is fifth with 27.6 GB. **Nova** from Iceland is ranked sixth with a regulator reported 26.1 GB for 1H 2020. The

⁴ Telenor acquired DNA in 2019 and is applying a stricter standard when reporting subscription base than what DNA previous did. This has elevated the average usage per subscription somewhat. We have applied Telenor's reporting also to historical values.

⁵ Compared to the total traffic reported by the regulator, RTR

Taiwanese operator **FarEasTone** follows with 25.6 GB per month – shadowed by **Taiwan Mobile** with 24.3 GB. Latvia's **LMT** is #9 – this time based on traffic and subscriber numbers confirmed by the operator⁶. The top ten ends with **Zain** Bahrain.

The rest of Figure 2 consists of Taiwan's **Chunghwa**, **Zain** Jordan, **Telia** Finland, **3** Denmark – and the three largest operators in **Malaysia**.

⁶ The comparable traffic number for 2019 is still now known, but LMT's position in our 2019 report was likely exaggerated

Europe: Nordic & Baltic operators and '3' dominate the top

Now to the first of three breakdowns: Europe. To ease comparability, the scale is kept intact throughout this section. The number 2 and 3 of the world, **DNA** Finland and **Drei** (3) Austria, top this chart with **Elisa** being third.

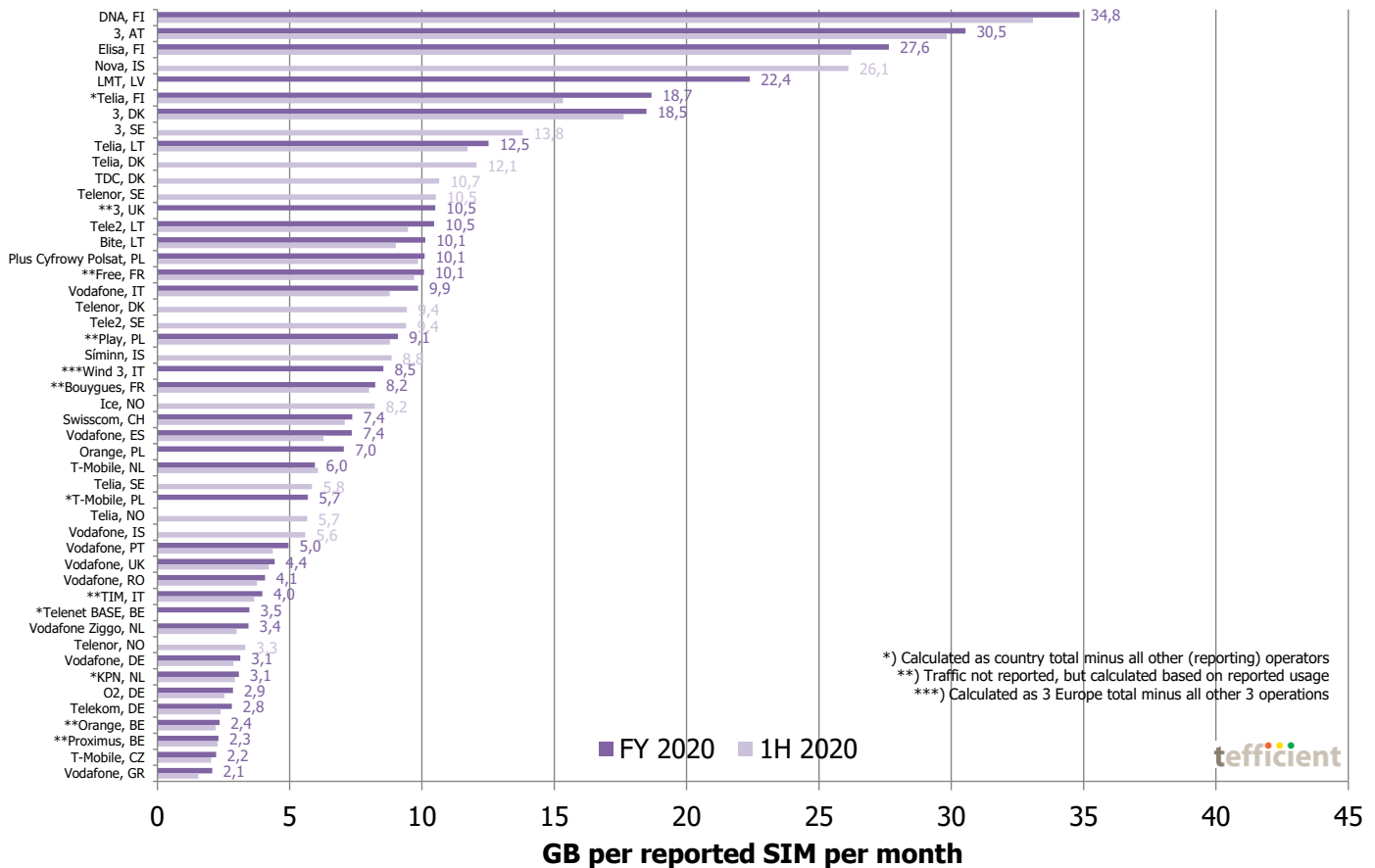


Figure 3. Average data usage per reported SIM per month – European operators

Iceland’s **Nova** is ranked as number 4 based on a figure for 1H 2020. **LMT** from Latvia is number 5. **Telia** from Finland follows. Since Telia doesn’t report its mobile data traffic, we have assigned the country residual to Telia (after having deducted Elisa’s and DNA’s reported traffic). **3** Denmark is number 7 followed by its sibling **3** Sweden (with a 1H 2020 value). Lithuania’s **Telia** is number 9 and **Telia** Denmark ends the top ten (with a 1H 2020 value).

The bottom eleven operators are from the low usage markets⁷ of **Greece** (Vodafone), **Czech Republic** (T-Mobile), **Belgium** (Proximus, Orange, Telenet BASE), **Germany** (Telekom, O2, Vodafone) and the

⁷ See our latest country data usage report: <https://tefficient.com/the-growth-in-mobile-data-wasnt-stopped-by-a-pandemic/>

Netherlands (KPN and Vodafone Ziggo – but not T-Mobile). The only other operator that mixes into these low usage countries is **Telenor** Norway – albeit with a value for 1H 2020.



Who had the fastest usage growth in Europe? It was again **Telia Lithuania** with **86%** – from just 6.7 GB per month in 2019 to 12.5 GB per month in 2020. In the last years, Telia launched new propositions that encourage mobile data usage: It offers a premium unlimited plan, but is also selling **time-limited unlimited**: 4 EUR for a day or 9 EUR for a week – on top of your regular plan. In addition, customers on the FMC plan, Telia One, get their bucket allowance doubled. Although the mobile data usage of Telia’s Lithuanian competitors also is growing fast – Tele2 51% and Bite 46% – Telia’s growth was much faster.

Other European operators with fast usage growth are **Vodafone Spain** with 81%, **Vodafone Italy** with 69% and **T-Mobile** Czech Republic with 66%. Introductions of **unlimited** mobile data are behind all of these.

We find it interesting that Vodafone’s **speed-tiered unlimited** model – see current offering from Vodafone Italy below with, from left, 2, 10 Mbit/s and no speed limitation – seems to have spiralled usage in **South Europe** particularly:

Vodafone’s speed-tiered unlimited drove usage

- Vodafone Spain +81%
- Vodafone Italy +69%
- Vodafone Greece +56%
- Vodafone Portugal +47%

OFFERTA 5G		OFFERTA 5G		OFFERTA 5G	
Infinito		Infinito Gold Edition		Infinito Black Edition	
Ideale per navigare online, sui social network e ascoltare musica in streaming.		Perfetto per guardare film in streaming, condividere foto e chiamare in HD.		Ottimo per scaricare documenti velocemente e guardare video in ultra HD.	
GIGA MINUTI E SMS	Illimitati	GIGA MINUTI E SMS	Illimitati	GIGA MINUTI E SMS	Illimitati
MINUTI VERSO UE	Illimitati	MINUTI VERSO UE	Illimitati	MINUTI VERSO UE	Illimitati
MINUTI VERSO EXTRA UE	1000	MINUTI VERSO EXTRA UE	1000	MINUTI VERSO EXTRA UE	1000
ROAMING EXTRA UE	1 Giga + 200 MINUTI	ROAMING EXTRA UE	2 Giga + 300 MINUTI	ROAMING EXTRA UE	5 Giga + 500 MINUTI
INCLUSO NELL'OFFERTA	TOP Service + INFO	INCLUSO NELL'OFFERTA	TOP Service + INFO	INCLUSO NELL'OFFERTA	TOP Service + INFO
36,99€ 24,99€ al mese con SMART PAY		39,99€ 29,99€ al mese con SMART PAY		59,99€ 39,99€ al mese con SMART PAY	
VELOCITÀ 2Mbps		VELOCITÀ 10Mbps		VELOCITÀ MASSIMA	

In the UK, where it was introduced too, Vodafone’s usage grew 36% – a rather average value.

Asia and China: Taiwan fills the podium – but Malaysia on the move

As in our last report, the three Taiwanese operators **FarEasTone**, **Taiwan Mobile** and **Chunghwa**⁸ hold the top three usage positions in Asia and China. A total of five operators offering very cheap unlimited plans continue to drive Taiwan’s traffic. **5G** was launched in 2020, but the operators are rolling out coverage very fast and it’s thus likely that the Taiwanese usage leadership will remain in 2021.

Malaysia’s leading operators **Maxis**, **Digi** and **Celcom** follow. Unlimited plans are becoming more common in Malaysia taken to the market by the fourth operator, U Mobile⁹. 5G is however not yet available in Malaysia after a licensing hiccup in 2020.

India’s **Jio** was overtaken by **dtac** from Thailand and **Optus** from Australia. The Thai market leader, **AIS**, ends the top ten.

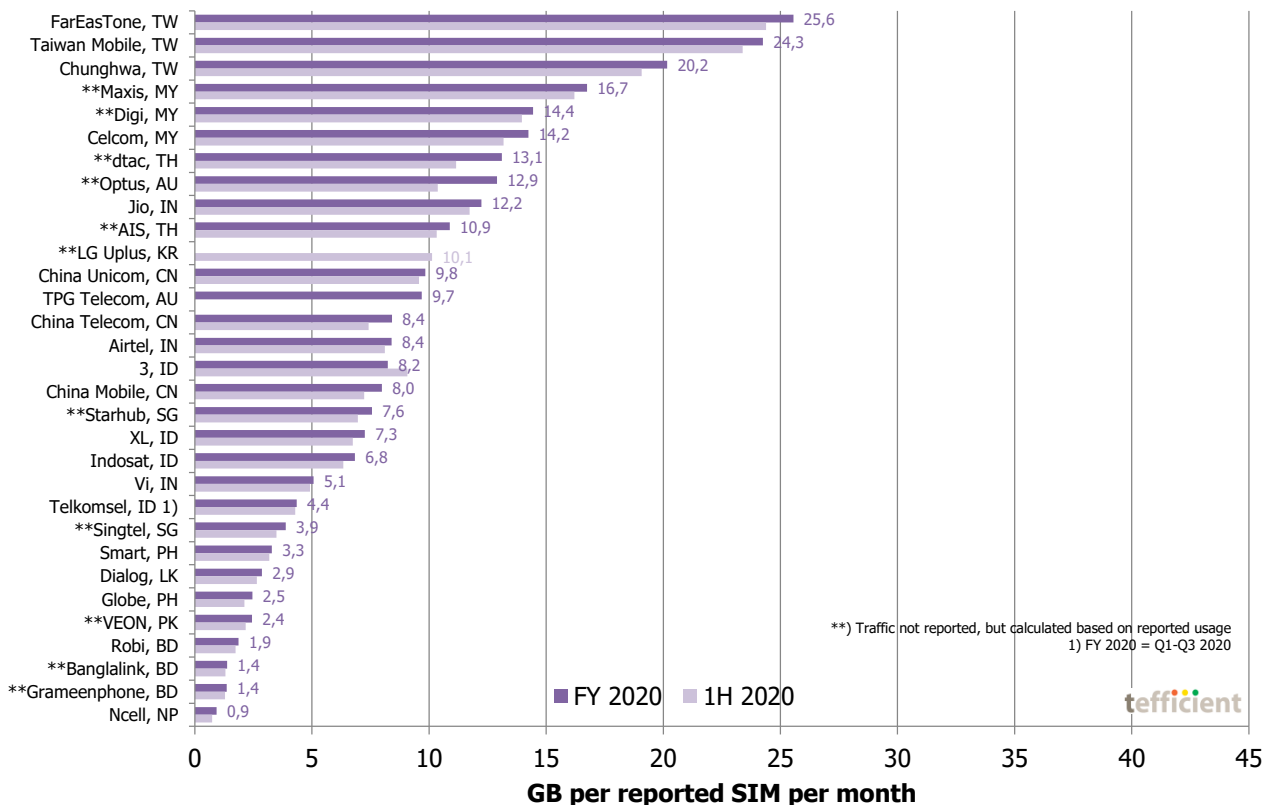


Figure 4. Average data usage per reported SIM per month – Asian and Chinese operators

The Asian/Chinese operators with the fastest growth in mobile data usage in 2020 are:

⁸ The operators aren’t reporting their mobile data traffic themselves; it is being reported by the regulator with a certain delay. There are two other Taiwanese operators, T Star and Gt, but they are just reported together as ‘other’ and hence not shown here.

⁹ Regretfully not reporting

- Ncell Nepal +105%
- VEON Pakistan +90%
- Banglalink Bangladesh +68%
- dtac Thailand +64%
- Smart Philippines +64%

The slowest like-for-like growth¹⁰ is with **Jio** – just **7%**. Having said that, Jio is still top-ranked in India with 12.2 GB per month. **Airtel** had 8.4 GB and **Vi** (formerly Vodafone Idea) just 5.1 GB. But competition is coming closer: The growth in usage was 56% for both Airtel and Vi in 2020.

Usage generally grew quickly in Asia and China – except for Jio (and possibly Singtel)

¹⁰ Singtel from Singapore appears to have had a decline in mobile data traffic and usage in 2020, but as Singtel currently only reports mobile data usage per postpaid user we do not regard this as a like-for-like comparison

RoW: Zain dominates the top

The rest of world ranking combines Latin American and Russian/CIS operators with operators from Middle East, Africa and reporting international groups, see Figure 5.

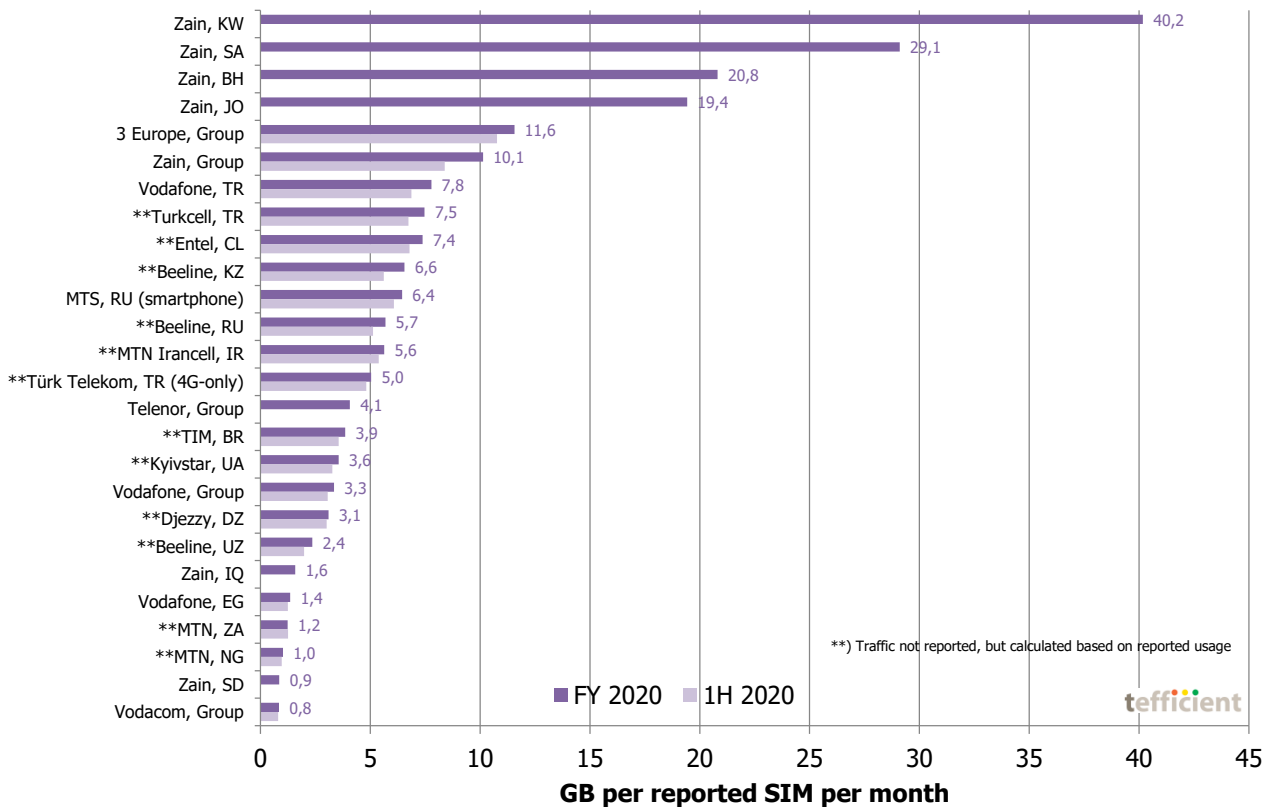


Figure 5. Average data usage per reported SIM per month – RoW operators

The world number 1, **Zain Kuwait**, obviously tops also this chart. Actually all of the top four operators are Zain operations. Zain Group is though just ranked as number 6, showing that two Zain operations, Iraq and Sudan, pull that group average down significantly. Two thirds of the subscriptions in Zain Group are in these two countries.

3 Europe Group is ranked as number five and it's easy to see why; in the European comparison (Figure 3), several operations of '3' are top-ranked: Austria, Denmark and Sweden.

Turkish and Russian operators have relatively high usage and the growth is still there. The two Latin American operators have fairly average usage.

It is a pity that none of the US or Canadian operators report their data traffic or usage. If they did, their usage would have been shown in this chart.

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

These are the RoW operators with the fastest growth in mobile data usage in 2020:

- MTN Nigeria +105%
- Zain Iraq +100%
- MTN Irancell Iran +81%
- Beeline Uzbekistan +71%
- Beeline Kazakhstan +68%
- Vodacom Group +67%

Usage grew quickly
in sub-Saharan
Africa, Iraq, Iran
and CIS

Traffic growth continued – pandemic or not

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 6.

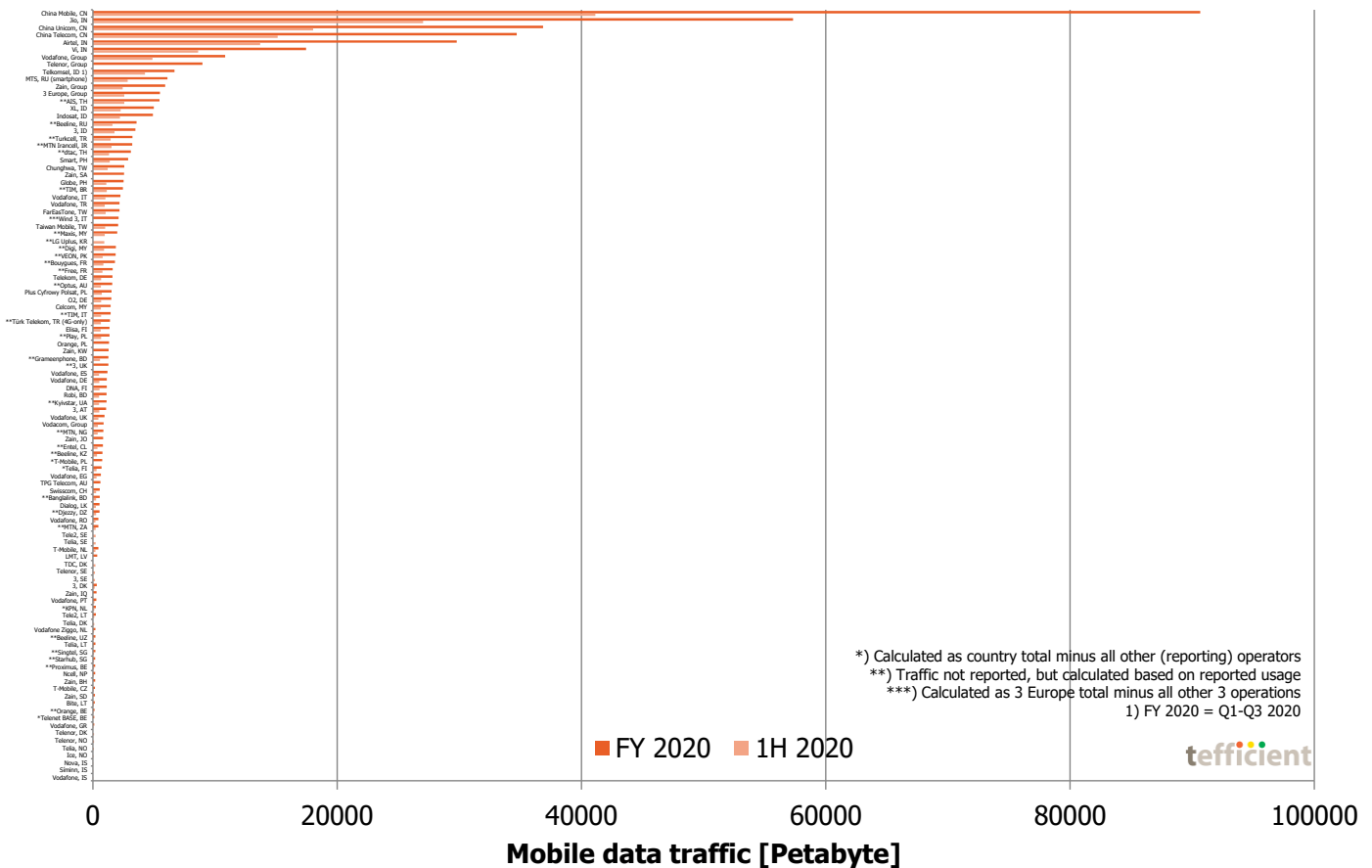


Figure 6. Total data traffic – all operators

As it's difficult to read Figure 6 we will in a bit break it down into the three regions of the world, but let's first identify the **global data traffic leaders** – see Figure 7.

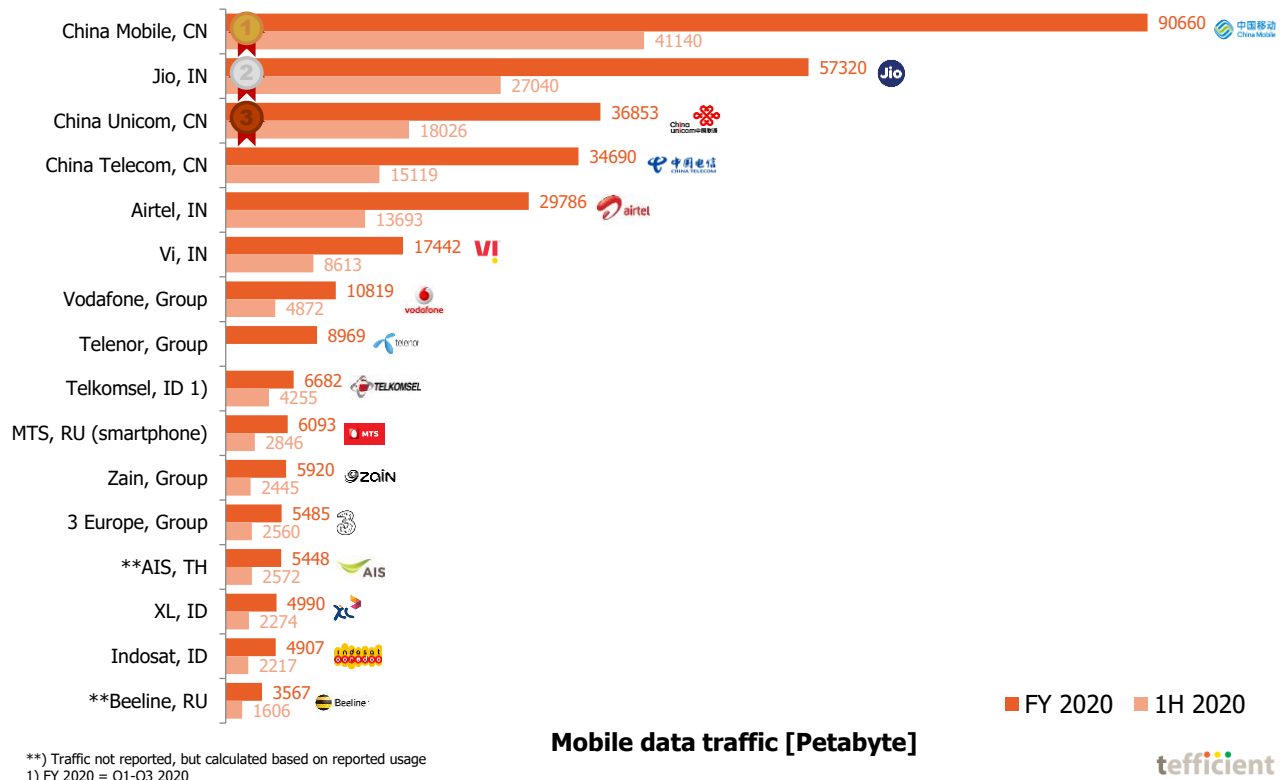





Figure 7. Total data traffic – top 16 operators

 **China Mobile** had 942 million mobile subscribers in December 2020 (of which 165 million on 5G plans) and is, by far, the largest operator in the world in mobile data traffic. Its total handset traffic grew **38%** from 2019 to 2020 – which actually is a slowdown.

 The Indian challenger **Jio** is now the operator with the largest subscriber base in India – 411 million in December 2020. Jio’s data traffic growth in 2020 was **29%** since the subscriber base grew much faster than the average usage. Airtel India had a traffic growth of **63%** whereas Vi had **30%**.

 **China Unicom** is the Chinese operator with the highest average usage per subscription. Compared to China Mobile, Unicom’s subscription base is smallish, though: 306 million in December 2020 (of which 71 million on 5G plans). Even China Telecom had a larger total base (351 million/87 million). The total handset data traffic of Unicom grew much slower than China Mobile’s and China Telecom’s: **17%** in 2020.

Note that **Vodafone Group** (excluding India) only comes in as number 7 even though it consists of about 20 countries. It says something about the size of the Chinese and Indian operations.

Europe: Italy, France, Germany and Poland take the first eight positions

First to the European breakdown: Since the highest ranked European operator is just number 25 in our global ranking, we could generally conclude that the European countries are less populated than the global leaders – but also that growth often is 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 8.

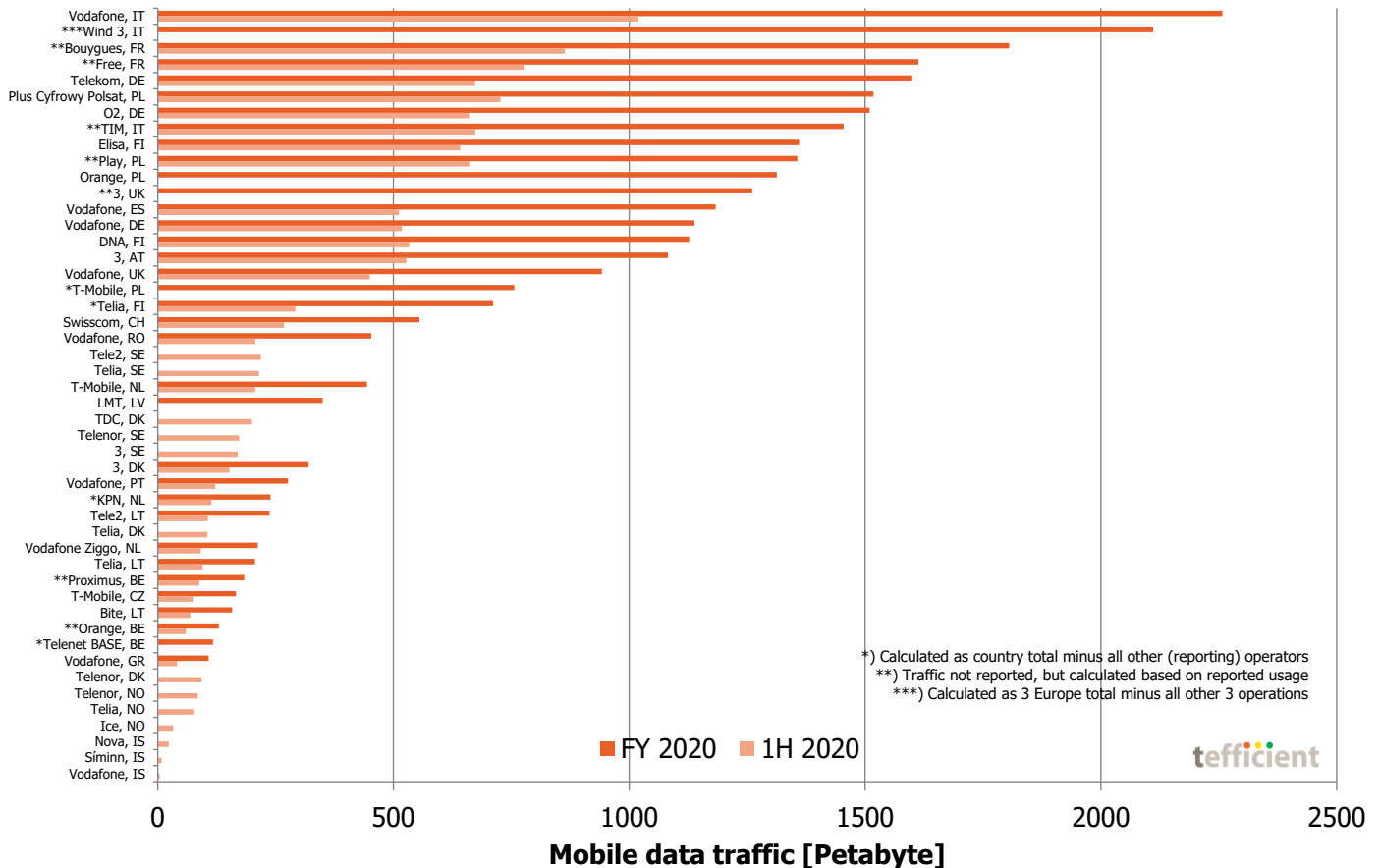


Figure 8. Total data traffic – European operators

Of reporting operators, **Vodafone** Italy is again Europe’s largest operator in total data traffic. Its competitor **Wind 3** is no longer reporting but based on our calculation¹¹ we believe Wind 3 is number 2. Italy has had an explosion in mobile data usage ever since the new fourth operator, Iliad, launched 30 GB for 5.99 EUR in May 2018 – which all of competition copied.

¹¹ CK Hutchison has taken over the full ownership of Wind 3 and as it was their previous shareholder VEON that reported data usage, we miss input from Wind 3. In this analysis we have for assigned the residual traffic of 3 Europe Group after having subtracted the calculated traffic of UK, Denmark, Austria, Sweden and Ireland.

The two French operators **Bouygues** and **Free** follow¹². Following an ambitious rollout and consequently an increase in data traffic in 2020, the German incumbent, **Telekom**, excited us with a straight-forward reporting of its traffic for the first time, making it number 5 in Europe.

The Polish operator **Plus/Cyfrowy Polsat** is number 6, **O2** Germany number 7 and Italy's **TIM** number 8. **Elisa** from Finland is number 9 and the top ten ends with **Play**¹³ from Poland.

The operators with the fastest traffic growth in Europe are:

- | | |
|---------------------------|--------------------|
| • Telia Lithuania | +86% |
| • Vodafone Spain | +76% |
| • Bite Lithuania | +75% |
| • T-Mobile Czech Republic | +66% |
| • Telekom Germany | +64% ¹⁴ |

Fast traffic growth
in Lithuania,
Vodafone Spain, T-
Mobile Czech – and
Telekom

¹² Orange and SFR could have been high-ranked as well, but aren't reporting data traffic or usage

¹³ Play has been acquired by Iliad and it was disappointing that Iliad discontinued Play's excellent reporting of mobile data usage and other key KPIs from Q4 2020. In this analysis, we have assumed that Q4 2020 traffic equals Q3 2020 traffic.

¹⁴ As Telekom didn't report its total traffic for 2019, the growth rate can be exaggerated. O2 Germany had 58%, so Telekom's figure is realistic.

Asia and China: Substantial traffic growth in petabyte, but slowing growth rates

We find the six global traffic leaders in the top of the Asian/Chinese comparison: **China Mobile, Jio, China Unicom, China Telecom, Airtel** and **Vi**. The annual growth rates have come down a bit for these operators (17%-63%), but in absolute petabyte terms, the growth was still massive.

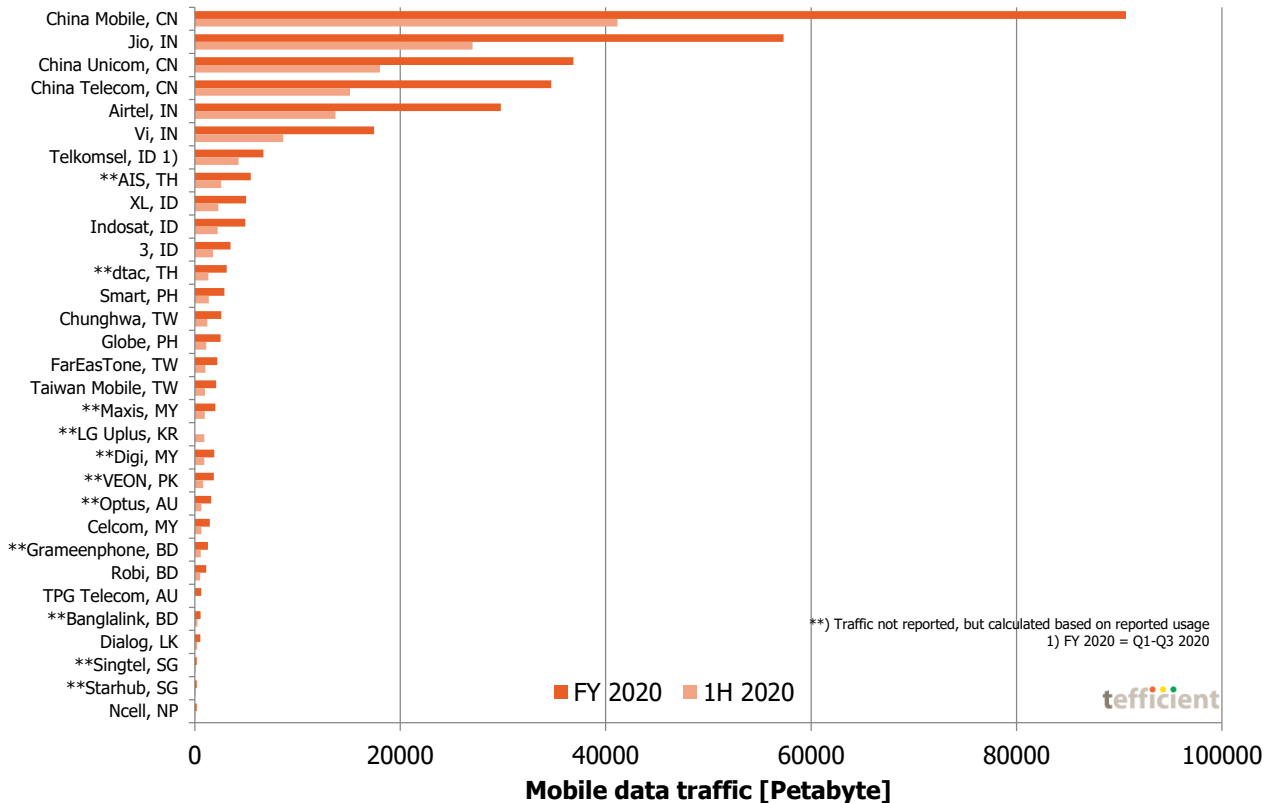


Figure 9. Total data traffic – Asian and Chinese operators

The **Indonesian** operators (Telkomsel, XL, Indosat and 3) and the Thai operator **AIS** follow.

The fastest growth in mobile data traffic in Asia/China was with these operators:

- VEON, Pakistan +107%
- Ncell Nepal +101%
- Smart Philippines +79%
- Dialog Sri Lanka +76%
- Banglalink Bangladesh +70%

Fastest traffic growth in Pakistan, Nepal, Philippines, Sri Lanka and Bangladesh

RoW: MTS larger than 3 Europe Group and Zain Group

Figure 10 collects operators from the rest of the world, but also a few reporting international groups.

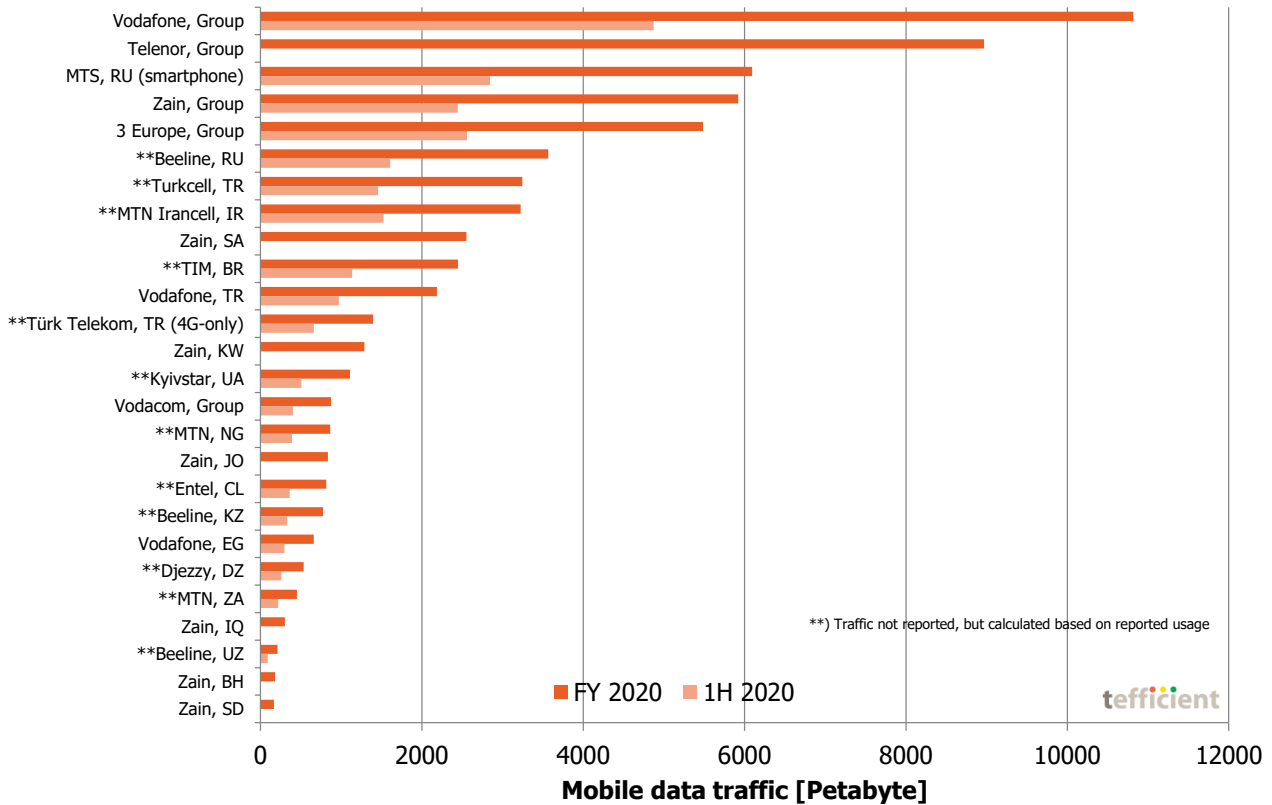


Figure 10. Total data traffic – Rest of world operators

Vodafone Group and **Telenor Group** are number 1 and 2¹⁵ in this RoW ranking. The other two groups, **Zain** and **3 Europe**, are ranked as number 4 and 5. (Vodacom Group is number 15, but also part of Vodafone Group).

The Russian operator **MTS** is number three whereas **Beeline** (#6) has significantly lower traffic. Turkish, Iranian, Saudi and Brazilian operators follow.

The operators with the fastest growth in mobile data traffic in 2020 were:

- MTN Nigeria +136%
- Zain Iraq +101%
- MTN Irancell Iran +89%
- MTN South Africa +75%
- Vodacom Group +66%

¹⁵ Based on the assumption that the CO2e of Telenor Group was constant from 2019 to 2020

How much money can you make on mobile data?

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 higher degree. This is true also for voice and messaging. With our calculation method, one might think that the operators ending up with the highest effective revenue per gigabyte would thus be operators from maturing markets. On the contrary, the nine operators with the highest revenue per GB are from six European countries: **Greece, Belgium, Norway, the Netherlands, Czech Republic and Switzerland**. Note that Germany no longer belongs to this group in the absolute bottom.

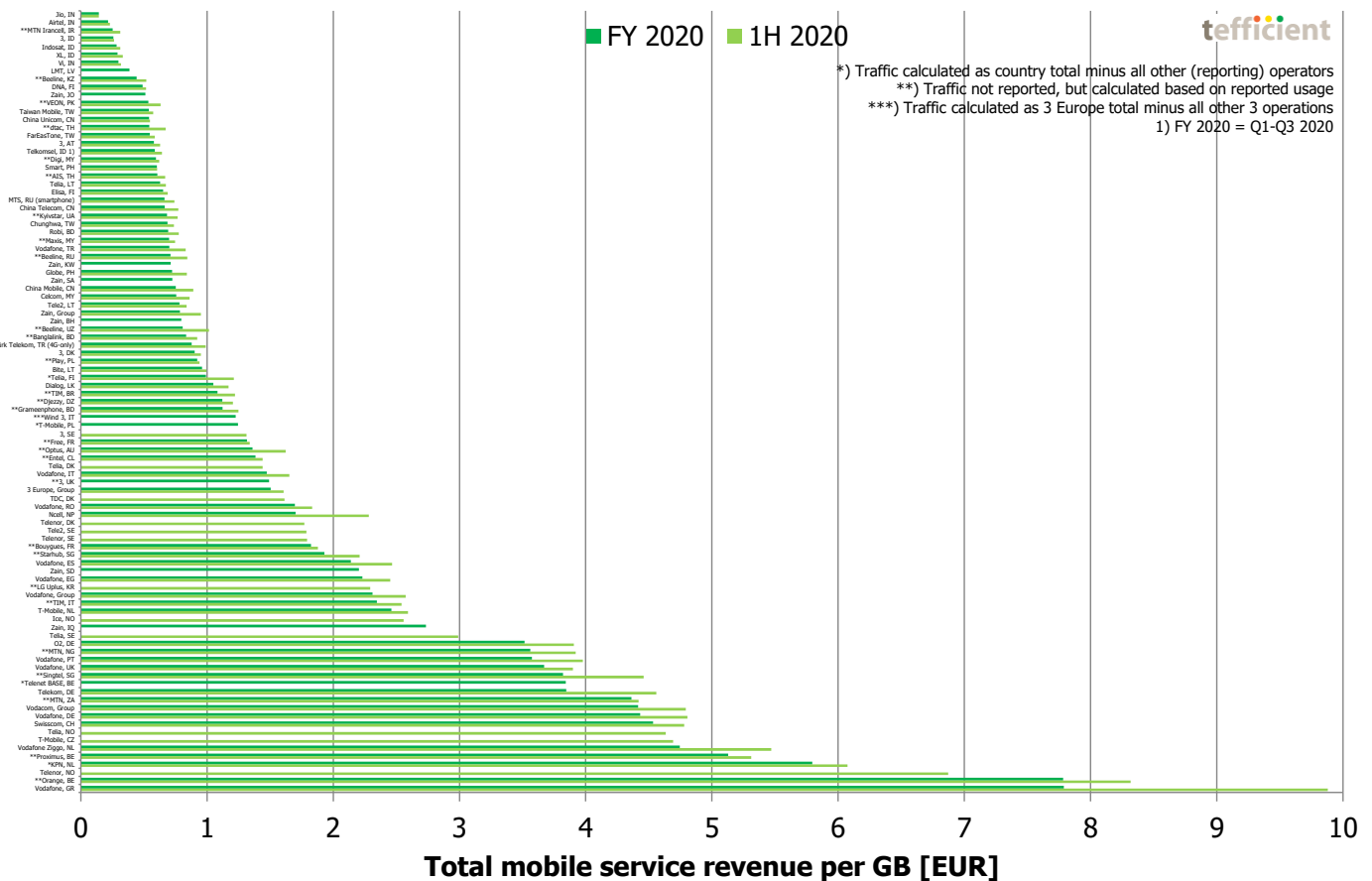


Figure 11. Total mobile service revenue per gigabyte – all operators¹⁶

¹⁶ That also report mobile service revenue

We will – for readability reasons – soon break Figure 11 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 – but no longer from Telefónica

Most graphs in this analysis carry this legend:

*) Traffic calculated as country total minus all other (reporting) operators

**) Traffic not reported, 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** is a good example. We encourage all operators to follow it. Telefónica reported traffic too, but that good practice was regrettably abandoned entirely in 2020.

Some operators are instead reporting – or occasionally indicating – **data usage**. These are the operators marked with **. The problem here is that many 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. Exceptions to that operators reporting usage aren’t reporting the number of associated users are e.g. **VEON Group**, **MTN Group** and **AIS** that report the usage per mobile data customer *and* the number of such mobile data customers (a subset of the total customer base). Well done.

The majority of operators are still not reporting anything, though. Orange Group and Telia Company are such examples. And, of course, all 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 the 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 or roaming traffic 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. We will cheer when Telefónica starts with it again.

Having explained this, let’s now from Figure 11 identify the ten operators that get the *lowest* total mobile service revenue per gigabyte in the world:

	<u>1H 2020</u>	<u>FY 2020</u>
1. Jio , India	0.1 EUR	0.1 EUR ↑
2. Airtel , India	0.2 EUR	0.2 EUR ↓
3. MTN Irancell , Iran**	0.3 EUR	0.3 EUR ↓
4. 3 , Indonesia	0.3 EUR	0.3 EUR ↓
5. Indosat , Indonesia	0.3 EUR	0.3 EUR ↓
6. XL , Indonesia	0.3 EUR	0.3 EUR ↓
7. Vi , India	0.3 EUR	0.3 EUR ↓
8. LMT , Latvia	n/a	0.4 EUR
9. Beeline , Kazakhstan**	0.5 EUR	0.4 EUR ↓
10. DNA , Finland	0.5 EUR	0.5 EUR ↓

These operators are either active in mature high data usage markets (Finland, Latvia) or in highly competitive maturing markets (India, Indonesia). You also find MTN Irancell and Beeline from Kazakhstan in the list.

As the only operator in the world, **Jio** was able to **increase its revenue per gigabyte** in 2020 (vs. 2019 and 1H 2020).

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

Jio was the only operator with an increase in revenue per GB in 2020

	<u>1H 2020</u>	<u>FY 2020</u>
1. Vodafone , Greece	9.9 EUR	7.8 EUR ↓
2. Orange , Belgium**	8.3 EUR	7.8 EUR ↓
3. Telenor , Norway	6.8 EUR	n/a
4. KPN , Netherlands*	6.1 EUR	5.8 EUR ↓
5. Proximus , Belgium**	5.3 EUR	5.1 EUR ↓
6. Vodafone Ziggo , Netherlands	5.5 EUR	4.8 EUR ↓
7. T-Mobile , Czech Republic	4.7 EUR	n/a
8. Telia , Norway	4.6 EUR	n/a
9. Swisscom , Switzerland	4.8 EUR	4.5 EUR ↓
10. Vodafone , Germany	4.8 EUR	4.4 EUR ↓

In our mature market focused [country analysis](#) you can identify Greece, Belgium, Norway, the Netherlands, Czech Republic, Switzerland and Germany as some of the country markets (of the covered) with the highest revenue per gigabyte so this list seems plausible.

We conclude that there in 2020 was **54x difference** between the operator with the highest total service revenue per gigabyte (Vodafone Greece) and the operator with the lowest (Jio India). Although a high multiplier, it has been higher in our previous analyses.

Europe: Wide spread in the revenue per GB

Figure 12 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.

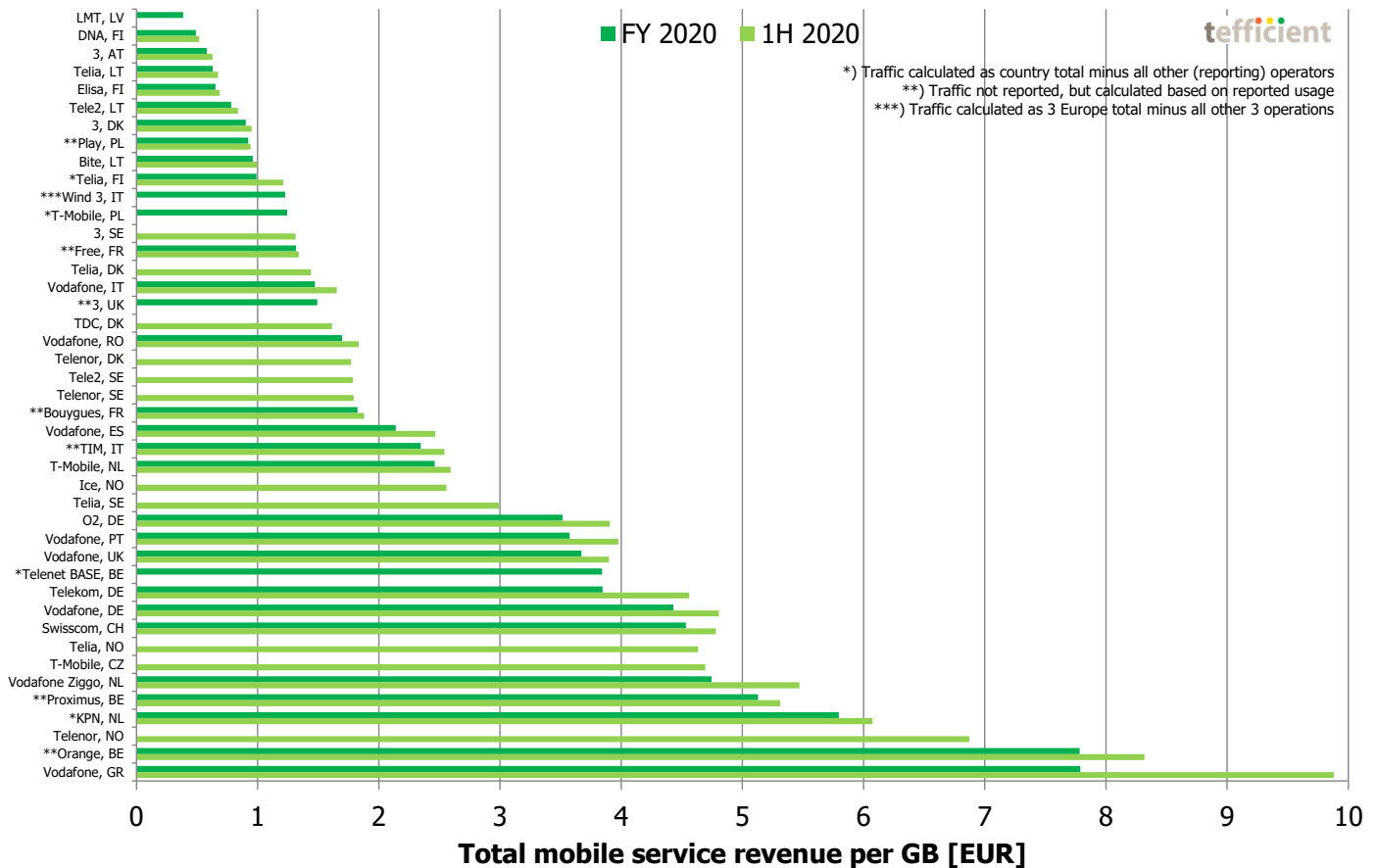


Figure 12. Total mobile service revenue per gigabyte – European operators

As pointed out in the global section, Greek, Belgian, Norwegian, Dutch, Czech, Swiss and German operators play in the bottom of the graph – where the total service revenue per consumed gigabyte is high. In the other end of the scale – where the revenue per gigabyte is low – we find operators from **Latvia, Finland, Austria** and **Lithuania**.

Asia and China: Revenue per GB decreasing, but not as fast as before

Figure 13 shows the Asian and Chinese operators. Indian and Indonesian operators have the lowest revenue per gigabyte whereas no operator is having very high revenue.

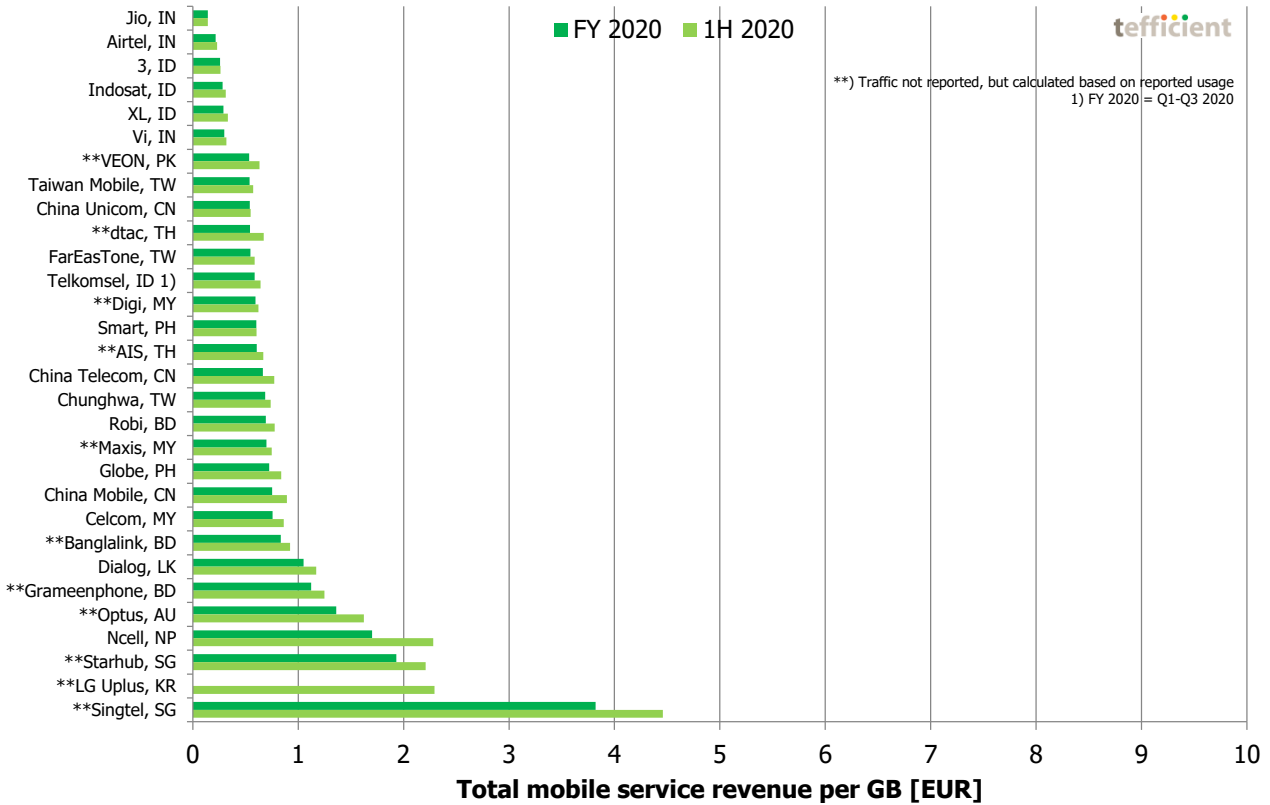


Figure 13. Total mobile service revenue per gigabyte – Asian and Chinese operators

The erosion in revenue per gigabyte in Asia/China is no longer as quick as it has been in our previous reports. In most cases, data usage has still reached new highs – of these operators, only Nepal’s Ncell was below 1 GB per SIM per month in 2020.

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

We are ending this section with Figure 14 – showing the operators in the rest of the world alongside a few groups that separate out mobile service revenue in their reporting.

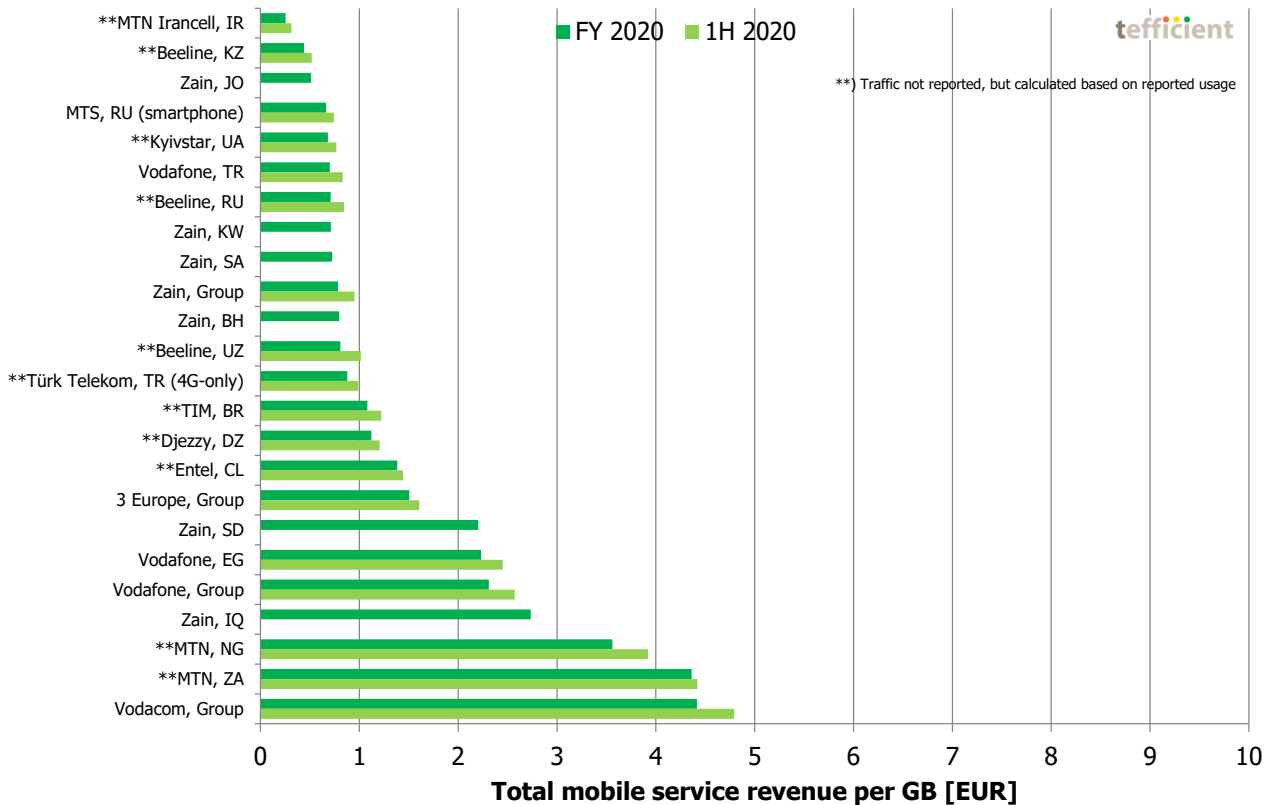


Figure 14. Total mobile service revenue per gigabyte – rest of world operators

MTN Irancell, Beeline Kazakhstan, Russian operators, Kyivstar from Ukraine, Turkish operators and Zain’s Middle East operations dominate the top of the chart where revenues are the lowest per gigabyte. Latin American operators are in the middle of the chart whereas **sub-Saharan operators** populate the bottom of the graph.

Zain Iraq, MTN Irancell, MTN Nigeria and MTN South Africa all had very significant drops – 50% or more – in the revenue per gigabyte in 2020.

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, see Figure 15.

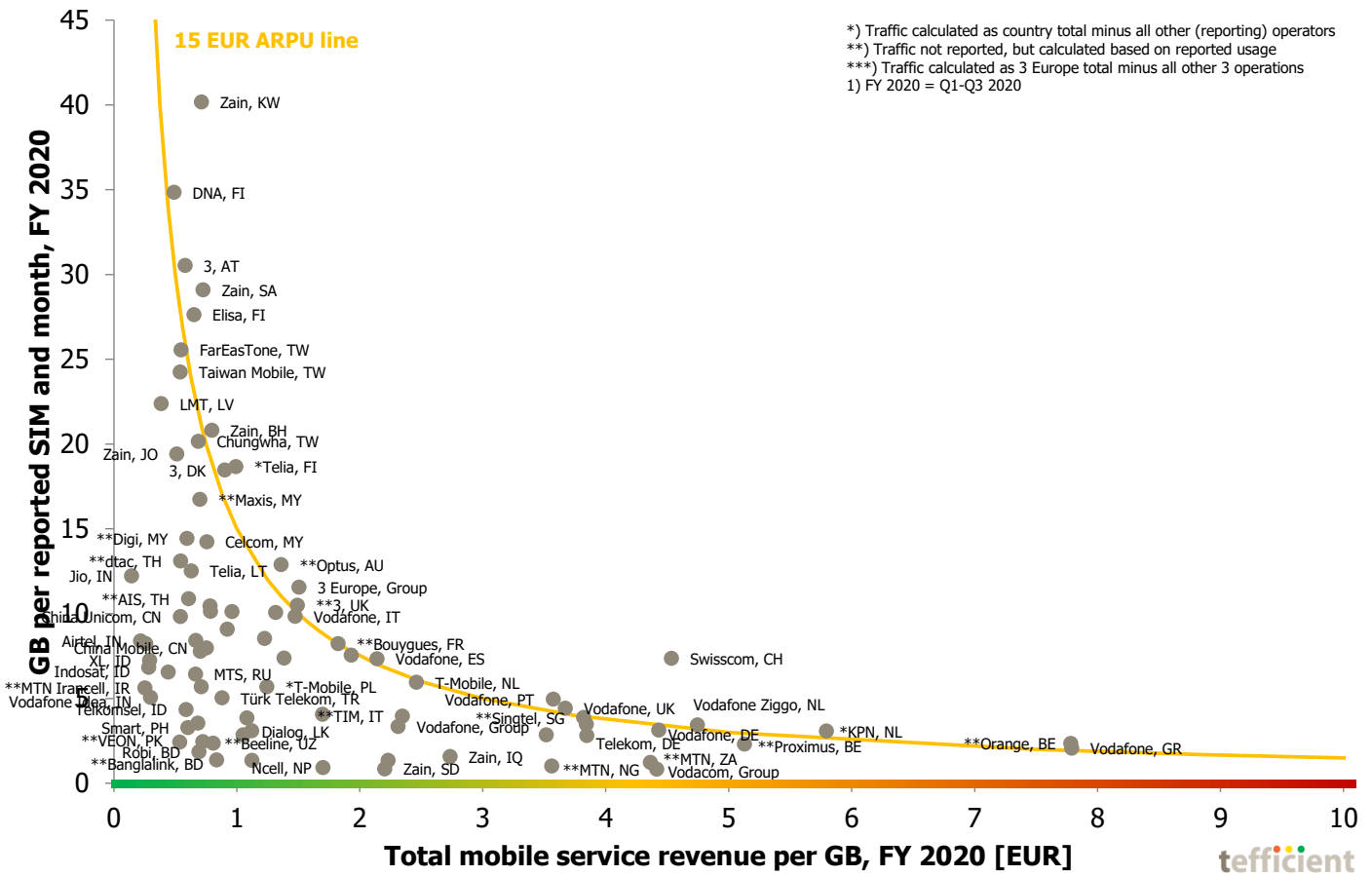


Figure 15. Mobile data usage vs. total mobile service revenue per Gbyte

With all those markers, we have not been able to highlight all operators. The amber line is not a regression line, but illustrates where 15 EUR of ARPU is earned. Operators above the line earn more – and operators below the line less than 15 EUR.

Most mature markets operators operate with an APRU of around 15 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 16, is therefore comparing the number of gigabytes with the revenue per subscription, i.e. the ARPU. And that is perhaps even more interesting.

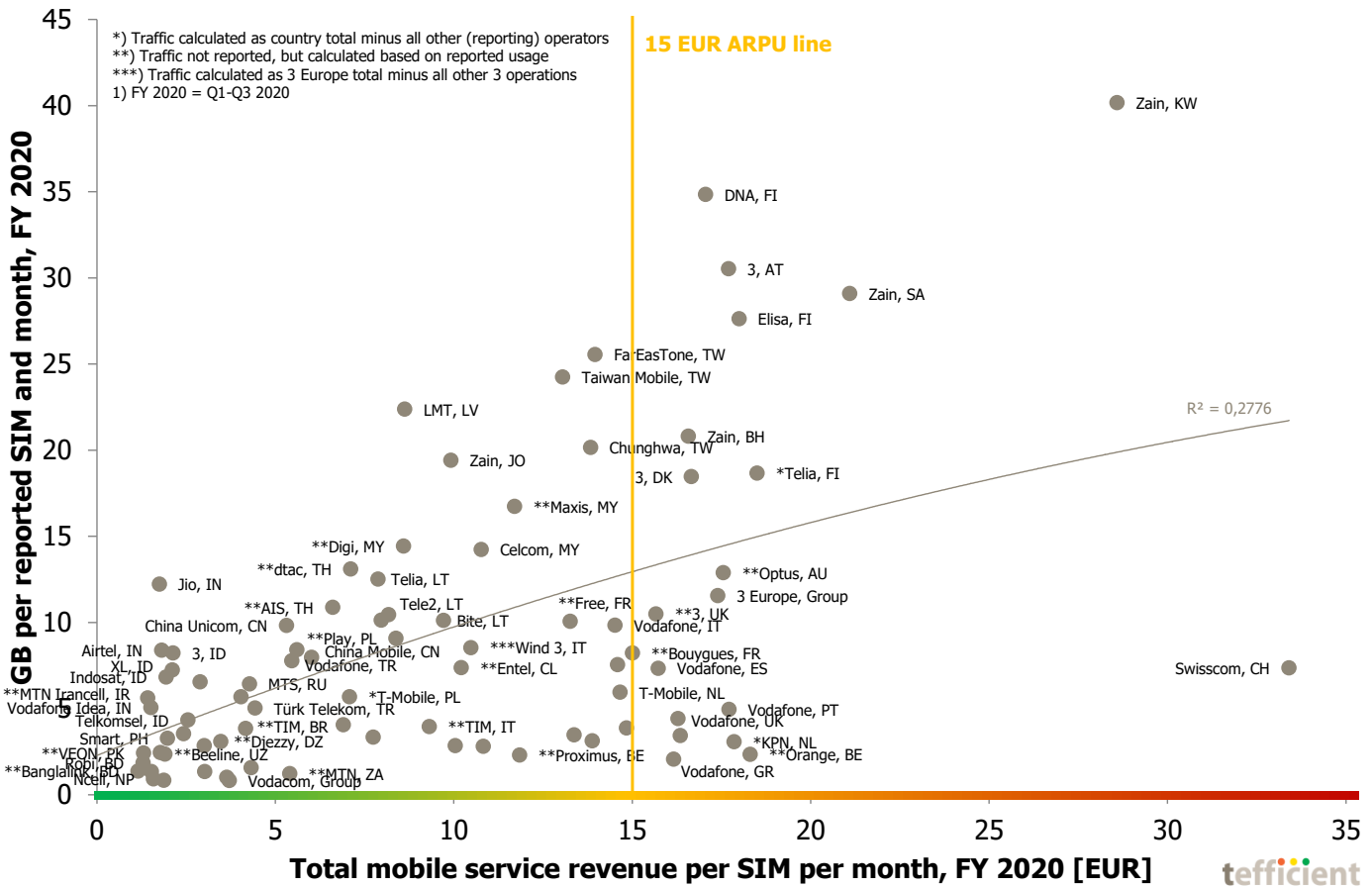


Figure 16. Mobile data usage vs. total mobile service revenue per SIM

Of all the operators there are two¹⁷ – **Swisscom** and **Zain Kuwait** – that enjoy much higher total mobile service revenue per SIM than all other operators. In the case of Zain the data consumption is also the highest in the world. Swisscom’s subscribers – although many are on speed-tiered unlimited plans – are not using particularly much data, but the ARPU is the highest in this group of reporting operators.

In the middle upper part of the graph there is a cluster of operators with very high average data usage but moderate ARPU of about 10-20 EUR. Here we find the **Finnish** and the **Taiwanese** operators together with **Drei (3) Austria**, **LMT Latvia**, **3 Denmark**, many **Zain** operations and **Malaysian** operators.

¹⁷ Of the operators that have reported data usage and mobile service revenue in 2020. This leaves out high ARPU operators in e.g. Canada, USA and Norway as not reported.

And then there's **Jio**. Its ARPU isn't the lowest – and it's growing – but considering an average data usage of more than 12 GB per month, Jio is still the affordability leader of the world.

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.

International trend:
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 isn't the prettiest Christmas tree you've seen, but it is surprisingly well balanced given the influence of the pandemic: When data usage increased, **39% of operators could grow ARPU** (with branches growing to the right) – 61% could not.

Data usage grew for almost 100% of operators

ARPU grew for 39% of operators

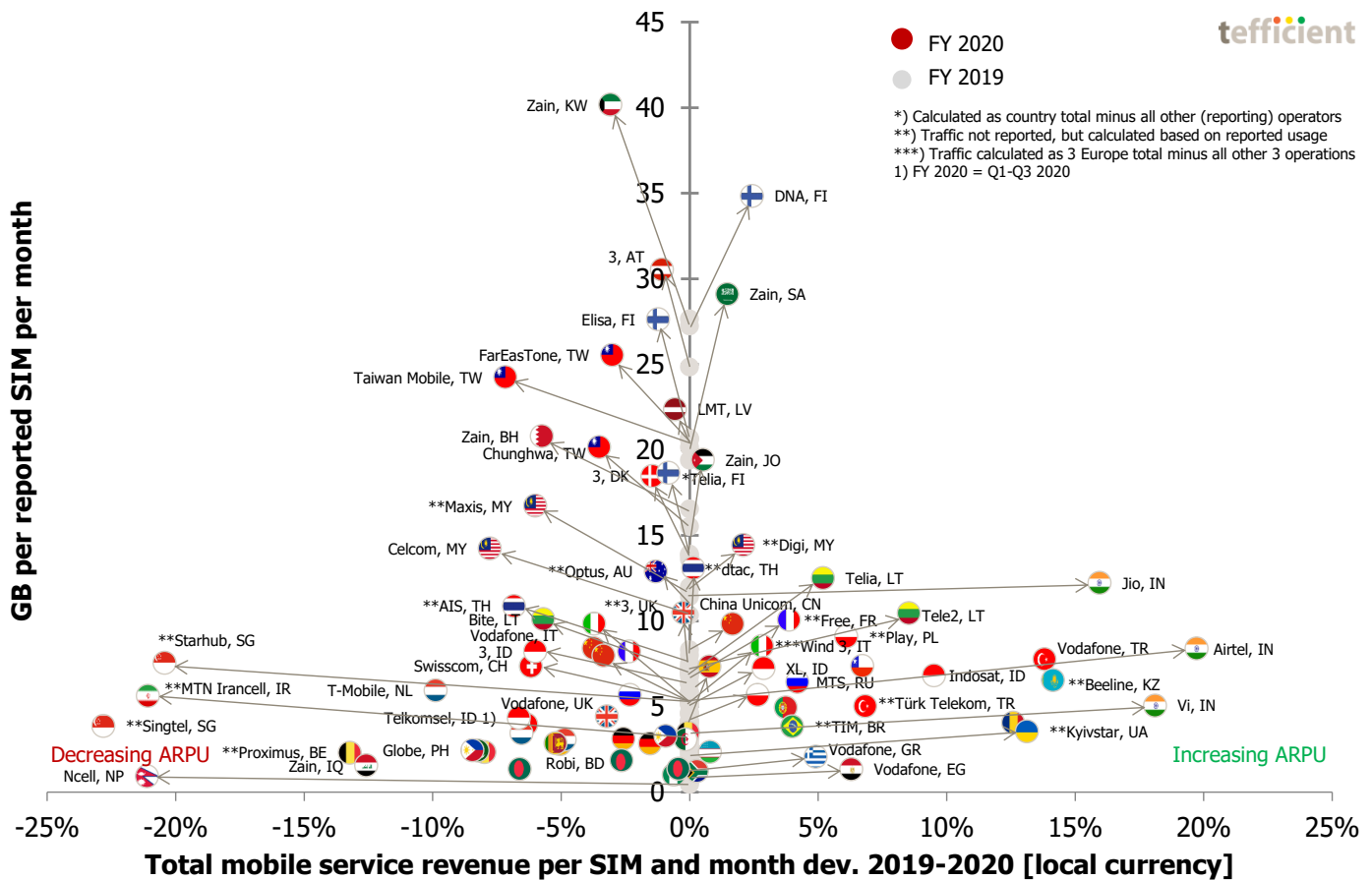


Figure 17. Mobile data usage development vs. ARPU¹⁸ development – 2019 to 2020

¹⁸ 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.

Let's highlight a few best practices of successful "more for more" operators:

- The Finnish operator **DNA** has been able to grow ARPU thanks to more customers upgrading to faster (and more expensive) speed tiers on their unlimited plans. DNA launched 5G for modems late 2019 and for smartphones in 2020. Note that neither Elisa nor Telia had increasing ARPU.
- **Zain** in Saudi Arabia could grow ARPU when 5G fuelled an increase in data usage.
- Unlike Maxis and Celcom, **Digi** in Malaysia could increase ARPU in 2020.
- **Telia** and **Tele2** Lithuania could turn the fast usage growth into ARPU increase in 2020.
- **Free** in France isn't growing its total mobile base much any longer – but are gradually increasing the share of customers who subscribe to their premium unlimited 4G¹⁹ plans, thereby lifting ARPU. Local competitor Bouygues is also growing its data usage, but with a falling ARPU.
- All three **Indian** operators Jio, Airtel and Vi could turn usage growth into strong ARPU growth (albeit from a low level).

61% of the operators are on the branches facing left. They had data usage growth, but anyhow a **decline in ARPU**. There are a few operators standing out quite negatively here:

- **Taiwan** where the three incumbent mobile operators Taiwan Mobile, Chunghwa and FarEasTone all continued to experience decreasing ARPU in spite of growing data usage.
- **Singtel** and **Starhub** Singapore²⁰ whose ARPU collapsed as a result of the entry of the fourth MNO, TPG, who launched in March 2020 but since December 2018 offered free unlimited data during a trial phase.
- **Proximus** Belgium where the loss of incoming roaming due to the pandemic significantly worsened the ARPU.
- Finally **MTN Irancell** where data usage grew but ARPU collapsed when sanctions worsened the country's financial crisis.

The fact that just 39% of the operators managed to turn data usage growth into ARPU growth is a **deterioration** compared to our previous reports – but given the pandemic, actually a bit better than expected.

The mobile data traffic has been surprisingly resilient in 2020. If summing up all our operators, it grew **38%**. The narrative that no mobile data would be used when people stay at home (and on Wi-Fi) during lockdowns hasn't proven right.

But when just 39% of operators were able to grow ARPU – and where some major operators fell into the non-growth ARPU category – the pandemic still hit the total mobile service revenue which **declined 3%** in 2020.

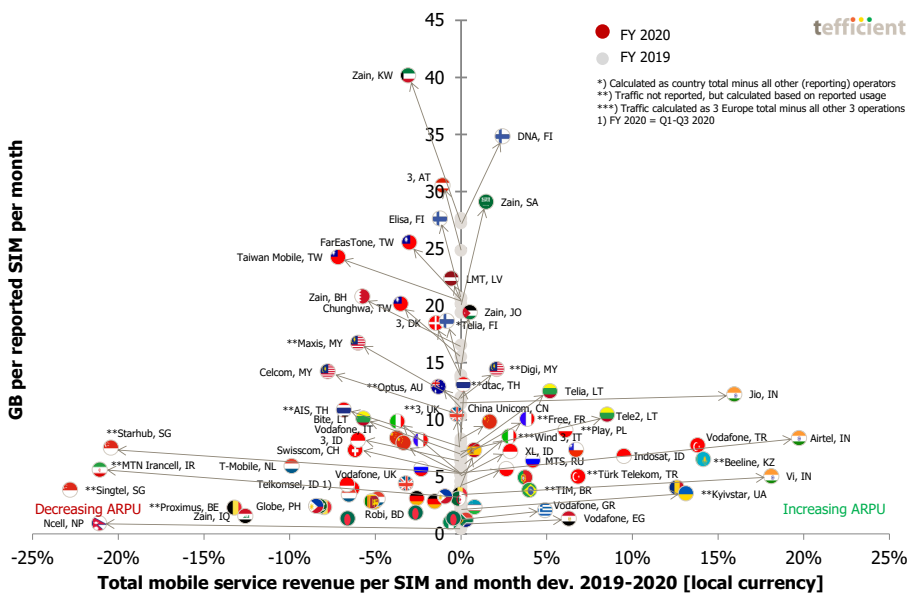
¹⁹ Unlimited in conjunction with a Freebox (triple-play) subscription – otherwise limited to 50 or 100 GB

²⁰ Most likely also M1, but the company is no longer reporting

Conclusion

In this analysis, we have presented fourteen updated ranking charts and three updated correlation plots and we hope these are useful for you in understanding how **mobile data usage, traffic** and **service revenues** develop globally. Generally speaking, data usage and traffic grew – while service revenue declined. If summing up all our studied operators, they carried **38% more gigabytes** in 2020 compared to 2019 – when **revenue fell 2%**.

If this would have been a normal year, we would now criticise our industry for not being able to turn usage growth into revenue growth. But given the pandemic and the associated lockdowns, we instead say that our industry **demonstrated resilience**. The narrative that no mobile data would be used when people stay at home (and on Wi-Fi) didn't prove right.



Our darling graph, the Christmas tree, shows that data usage grew for basically all operators – but that just **39%** of these operators were able to turn that into ARPU growth; they delivered on a “more for more” promise. This is a lower share than in our previous operator reports. We believe that operators’ generosity with mobile data during

the pandemic has affected this somewhat – but that the main reason is the negative effects lockdowns had on roaming revenue, on prepaid top-up revenue and prepaid subscriber base.

Pandemic or not, **effective monetisation of data usage** is a key parameter for the business sustainability of mobile operators. The demand is there – even during a pandemic – but the monetisation toolbox might need to be filled with more or sharper tools. As specialists in mobile data monetisation, we can help you to understand what works.