

Industry analysis #2 2015

Mobile data usage

Price and bucket size matter



This is tefficient's 11th public analysis on the development of mobile data usage. The good news is that data usage continues to grow: +58% in 2014 for the markets in this analysis.

In some high usage markets like the US and Singapore, however, we see signs of saturation with annual usage growth of just about 20%.

But it's not a general trend: In other high usage markets – Finland, Estonia, Denmark, Japan and Ireland – the mobile data usage grew 60 to 80%.

Customer behaviour in low usage markets like Germany and the Netherlands developed in a direction towards higher usage, but a Mbyte still effectively costs 11-14 times more than in the European countries with the lowest effective Mbyte price.

The average Finnish SIM card used 2,9 GB per month last year

Figure 1 shows the development of mobile data usage for 24 countries¹ where regulators² report mobile data traffic.

The **top 5** countries of the world are: **Finland, Sweden, Japan, Korea** (partly hidden) and **Estonia**. Another five countries qualify as **Gigabyte countries**: Latvia, Denmark, Austria, Ireland and Singapore.

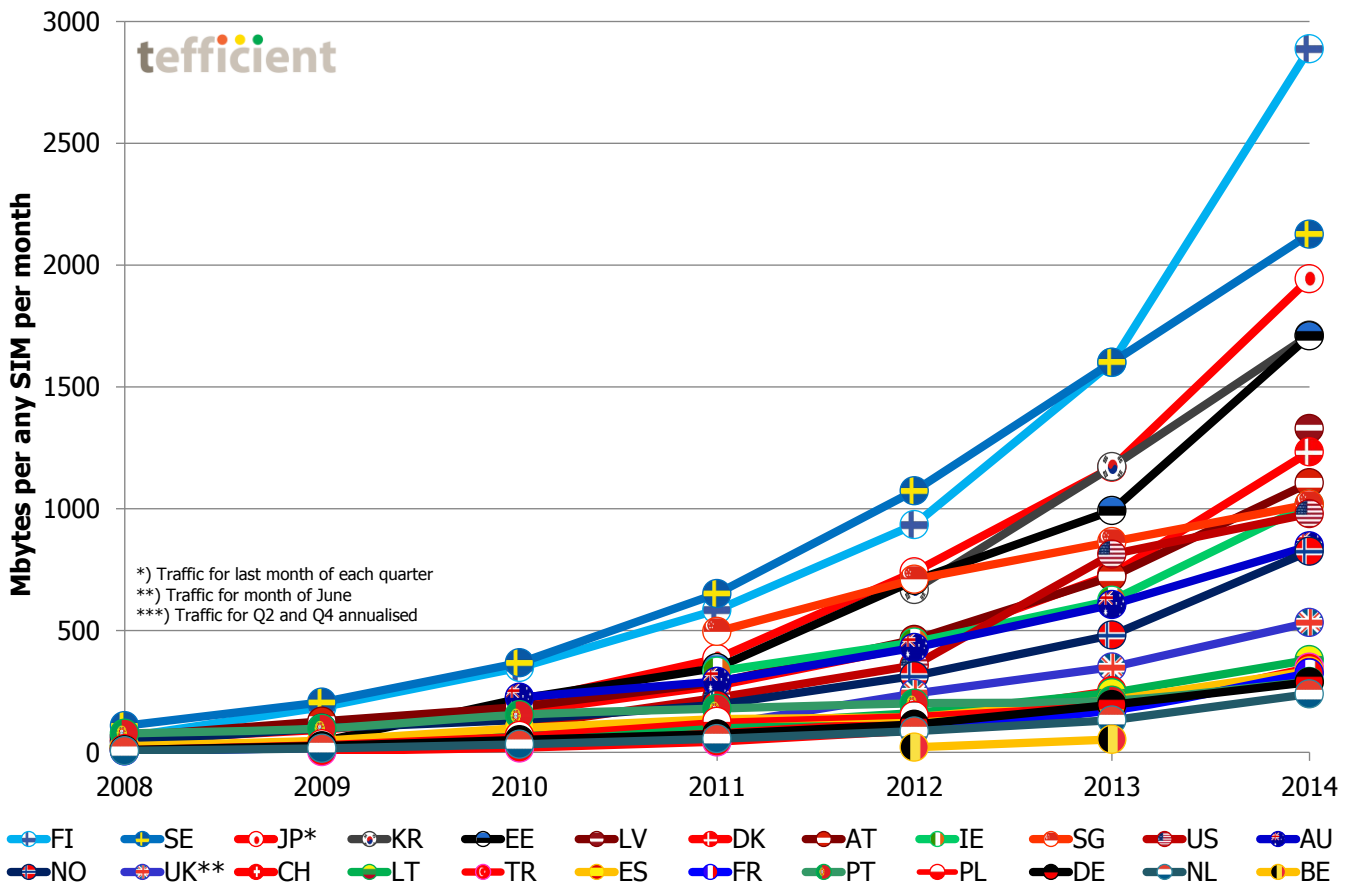


Figure 1. Development of mobile data usage per SIM per country



With **2,9 GB** per month per any SIM, **Finland** continues to lead the world. It's 25% higher than the world number 2 (Sweden). Two of the three Finnish operators – **Elisa** and **DNA** – continue to offer unlimited subscriptions whereas the third, **Sonera**, has volume caps, but these are high (1, 10 or 50 GB) and unlimited is now available for a premium. Monetisation in Finland is effectively based on throughput tiers and not on volume. This is unique for a whole market.

¹ At the time of writing, Switzerland, Poland and Belgium haven't reported 2014 numbers

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

Sweden is number 2 with 2,1 GB per month followed by **Japan** with 1,9 GB and by **Korea** and **Estonia**, both with 1,7 GB. For the first time, traffic data for **Latvia** is available and the country enters the chart as number 6.

The two neighbouring countries **Belgium** and the **Netherlands** still occupy the lowest positions in Figure 1. High mobile data prices (and low bucket sizes) have historically prevailed here – which made Wi-Fi yet more attractive. Dutch and Belgian cable TV companies – **Ziggo**, **Telenet**, **VOO** – were opportunistic and made Wi-Fi widely available through the use of hot- and homespots³, meaning that **public Wi-Fi** represents an uncommonly valid alternative to mobile in the two countries. Incumbent operators **KPN** and **Proximus** (both with mobile operations) have followed, underlining the validity of the use case.

Table 1 shows the full list of countries.

Position	Country	Mbytes per any SIM and month 2014	Mbytes per any SIM and month 2013
1	Finland	2887	1600
2	Sweden	2126	1601
3	Japan	1943	1170
		March+June+September+December figures times 3	March+June+September+December figures times 3
4	Korea	1712	1172
5	Estonia	1709	992
6	Latvia	1328	n/a
7	Denmark	1232	731
8	Austria	1106	721
9	Ireland	1017	623
10	Singapore	1017	864
11	USA	979	813
12	Australia	847	606
		Q to December+Q to June times 2. Download only, but data over satellite on the other hand included.	Q to December+Q to June times 2. Download only, but data over satellite on the other hand included.
13	Norway	824	481
14	UK	532	349
		Month of June 2014 times 12	Month of June 2013 times 12
15	Switzerland	n/a	252
16	Lithuania	380	243
17	Turkey	348	172
18	Spain	333	214
19	France	325	172
20	Portugal	289	212
21	Poland	n/a	194
22	Germany	287	195
23	Netherlands	239	131
24	Belgium	n/a	53

Table 1. Mobile data usage per any SIM and month – values visualised in Figure 1

We will soon get back into comparing countries, but let's first take a look which *operators* have the customers with the highest mobile data usage.

³ Using the home modems of customers to transmit dual SSIDs: One private for the home and one public for guests and passers-by

Operator top list – Sweden’s comeback

Finland is the country with the highest average mobile data usage per SIM in the world. But it isn't a Finnish operator who is having the highest position in the world, see Figure 2.

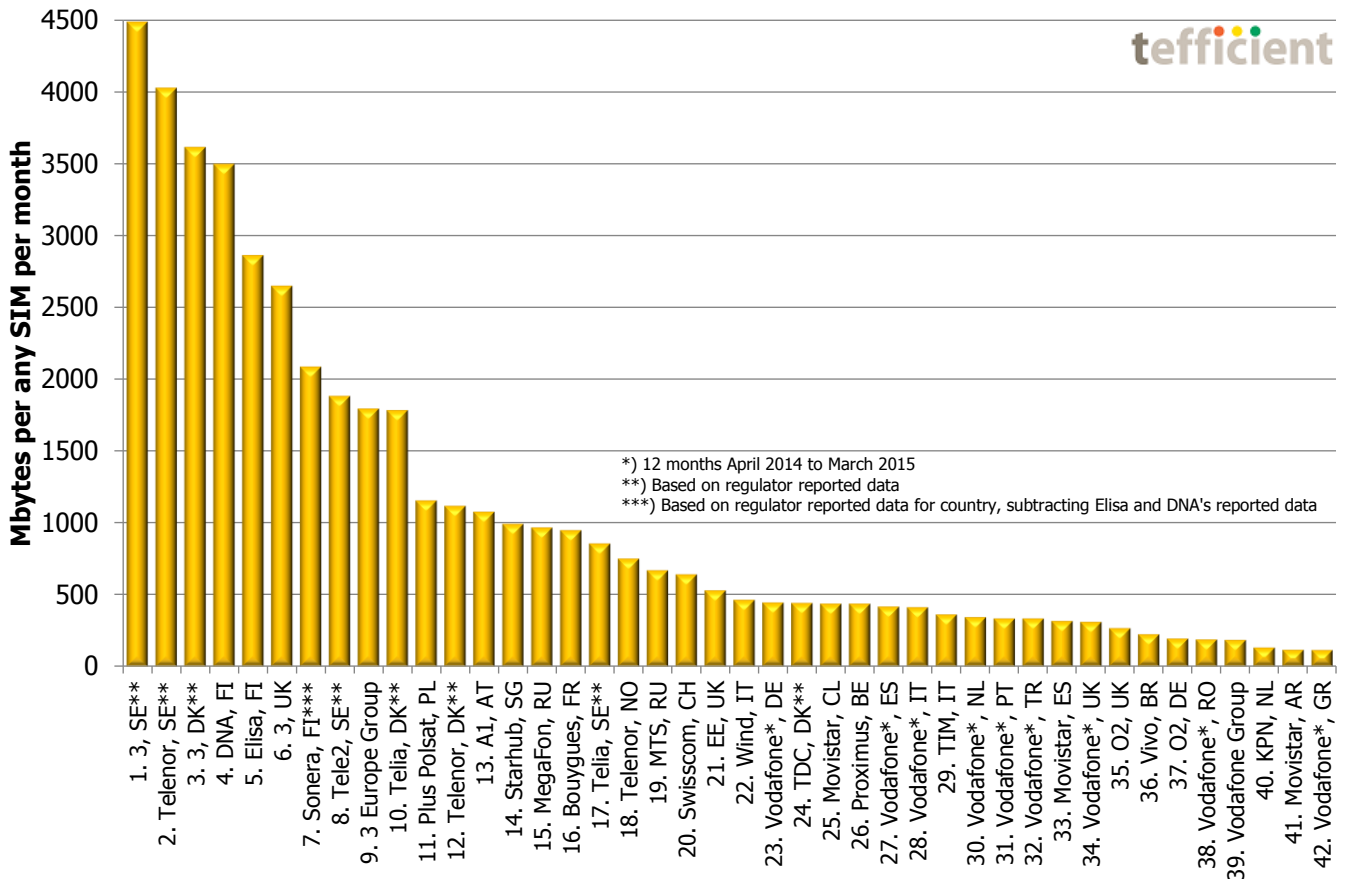


Figure 2. Mobile data usage per any SIM and month – for reporting operators (or where the regulator reports it)

3 With **4,5 GB** per any SIM and month in 2014, **3 Sweden** is the reporting⁴ operator with the highest mobile data usage in the world. 28% of 3's SIM cards are data-only and these averagely used 11,8 GB per month in 2014 which obviously lifts the average. Having said that, 3's voice-also subscriptions also had much traffic: 1,8 GB per month.

3's competitor **Telenor Sweden** follows as number 2. 20% of their SIM base is data-only – having used averagely 13,6 GB of data per month. Voice-also subscriptions used 1,7 GB.

The other two Swedish operators are in positions 8 (**Tele2**) and 17 (**Telia**).

⁴ Well, in this case it is their regulator reporting



In position number 3 we find **3 Denmark**, suggesting that 3's operations typically have high usage customers (which is proved by the 3 Europe Group having position 9).

The other three Danish operators are in positions 10 (**Telia**), 12 (**Telenor**) and with market leader **TDC** as low as position 24.



The first Finnish operator, **DNA**, is in position 4 with an average usage per SIM of 3,5 GB per month in 2014. **Elisa** is number 5 and **Sonera** number 7.



3 UK is in position 6 – many positions ahead of Europe's largest 4G operator **EE** (21) as well as ahead of **Vodafone** (34) and **O2** (35).

What is happening in the US and Singapore?

When operators implement tighter control over mobile data usage – through controlled bucket sizes or increased prices – the growth of the mobile data usage is of course affected.

Looking at Figure 3 – which compares the usage level with its year-on-year development – we can see two corners of the chart with atypical behaviour: **Finland**, upper right, represents one. Here mobile data usage grew **80%** in 2014 in spite of the world’s highest data usage. Is this how the rest of the world would look if mobile data was unlimited?

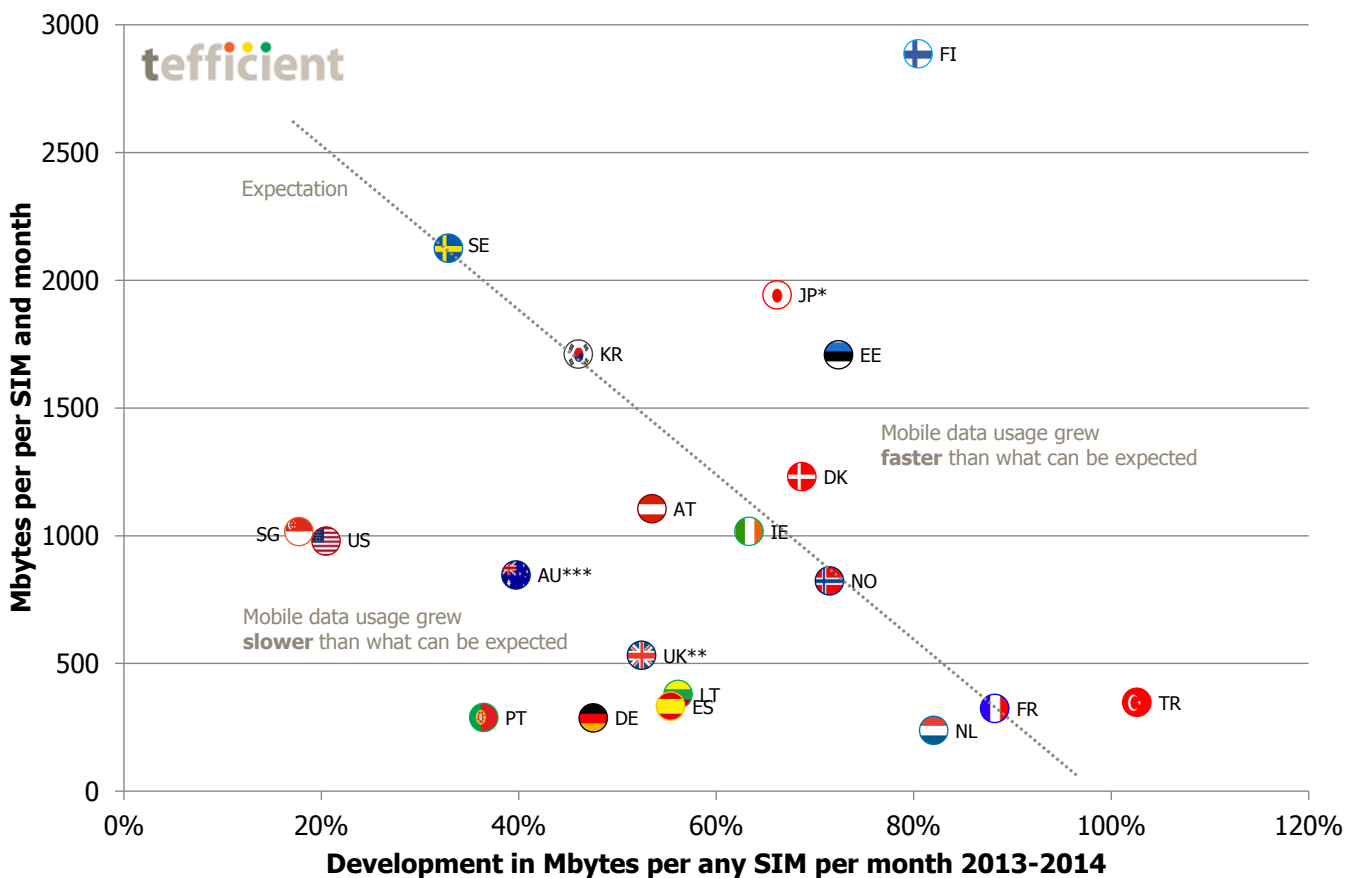


Figure 3. Mobile data usage vs. its development from 2013

The other atypical corner is represented by **Singapore** and the **US** – lower left. Here we observe signs of saturation: Mobile data usage only grew 20% last year when operators tightened their monetisation of mobile data.

Also **Portugal** and **Germany** should worry about signs of saturation – already at a very low usage level.

In Figure 4, we’ve ranked the mobile data usage development in 2014 (the X-axis from Figure 3) and highlighted the outliers Finland, the US and Singapore.

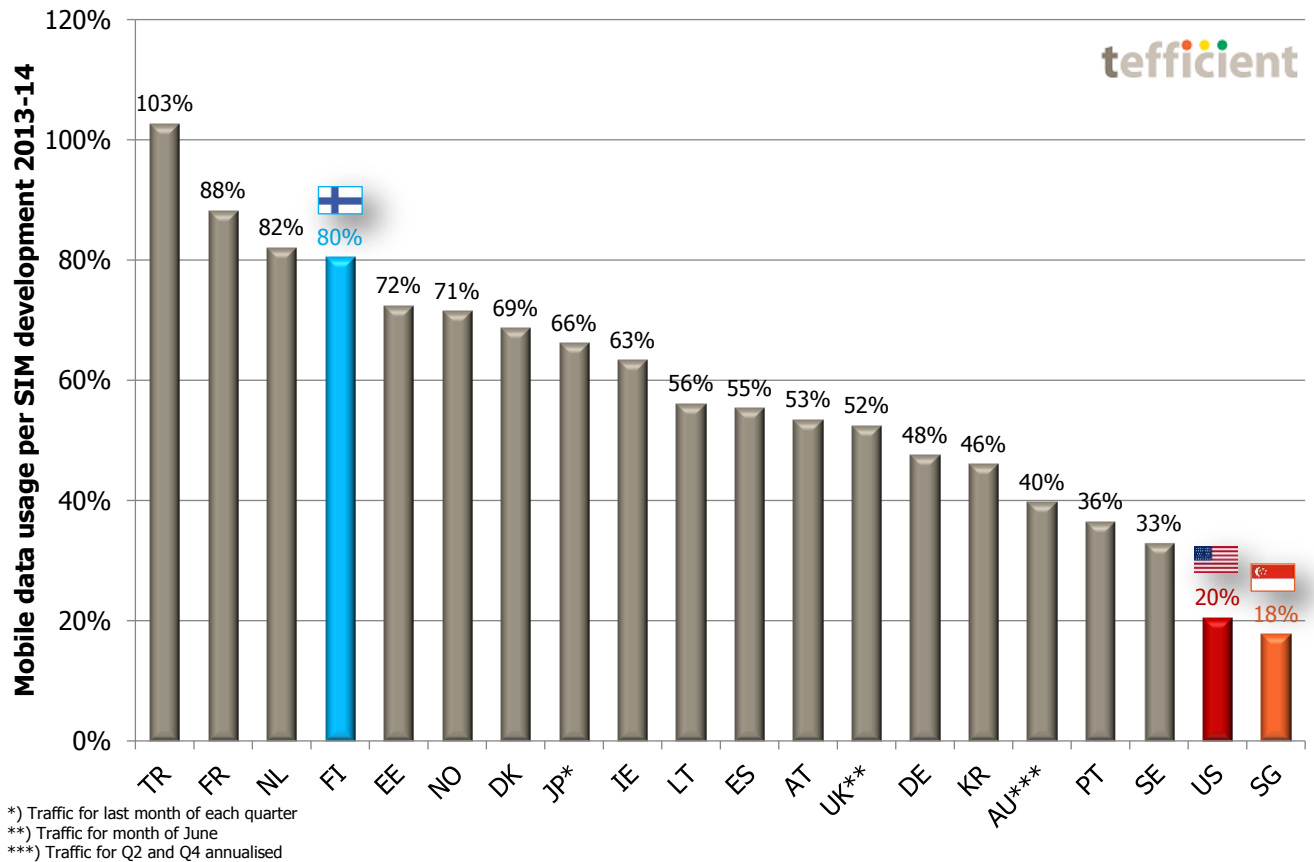


Figure 4. Mobile data usage development 2013-2014

Turkey leads with **103%** usage growth in 2014. Total traffic grew 109% indicating that the growth is only to a small extent explained by growth in the number of SIMs. [SIM base just grew 3% in 2014].

France, fuelled by competition, sees its relatively low usage go up 88%. We just deem this “as expected” (see indicative line in Figure 3), though. The same with the **Netherlands**: 82% usage growth is high – but it still left the country with an average consumption of just 239 Mbytes per any SIM and month in 2014.

As indicated, **Finland** ranks high – **80%** usage growth (84% if measuring total traffic) which is surprisingly high given its world leadership in mobile data traffic.

We find the **US** and **Singapore** in the lowest end of Figure 4. Singapore has – as shown in Figure 1 – lived with quite low growth rate for a while, but after the 128% data usage increase in the US in 2013, it’s surprising to observe the low growth rate (**20%**) of the US in 2014.

During the year, the two incumbents in the US, Verizon and AT&T, have with various tactics – including some which later might result in a fine⁵ – managed to convince many of the remaining (so called “grandfathered”) unlimited contracts to shift to contracts with tiered data volumes. **AT&T** reports that their

⁵ The US regulator, FCC, plans to fine AT&T 100 MUSD for throttling unlimited data customers, see e.g. <http://www.forbes.com/sites/amitchowdhry/2015/06/18/fcc-fines-att-100-million-for-throttling-data-speeds/>

share of postpaid smartphone customers on tiered volume contracts went up from 73% 2013 to **85%** in 2014. 12 percentage points might not seem that impressive, but unlimited customers can often have 10 times higher usage than a customer on a tiered contract, so every percent closer to 100 counts – if the ambition is to get a firm grip on data monetisation.

Similarly to what happened in Belgium and the Netherlands, American mobile customers are provided with a growing number of **Wi-Fi options** though – often provided by cable operators who don't mind disrupting mobile. US carriers should be aware of the risk of being **too ungenerous with mobile data**⁶.

⁶ T-Mobile and Sprint still offer unlimited plans – but with limitations on tethering

Is 4G coverage important for usage?

Before going into assessing the importance of price and bucket sizes for usage, we make an attempt to understand if 4G is critical for the mobile data usage. In our [previous analysis on this topic](#), we noted that high 4G *adoption* didn't automatically translate into high usage.

Maybe it's the 4G *coverage* which is important? It's obviously only when there's coverage that customers with 4G enabled terminals can use the 4G network.

Figure 5 correlates the mobile usage figures for the reporting operators with their respective "time on LTE" measurement from OpenSignal's⁷ Q2 2015 [State of LTE](#). The graph **gives weak support** for the need of wide 4G LTE coverage for high mobile data usage.

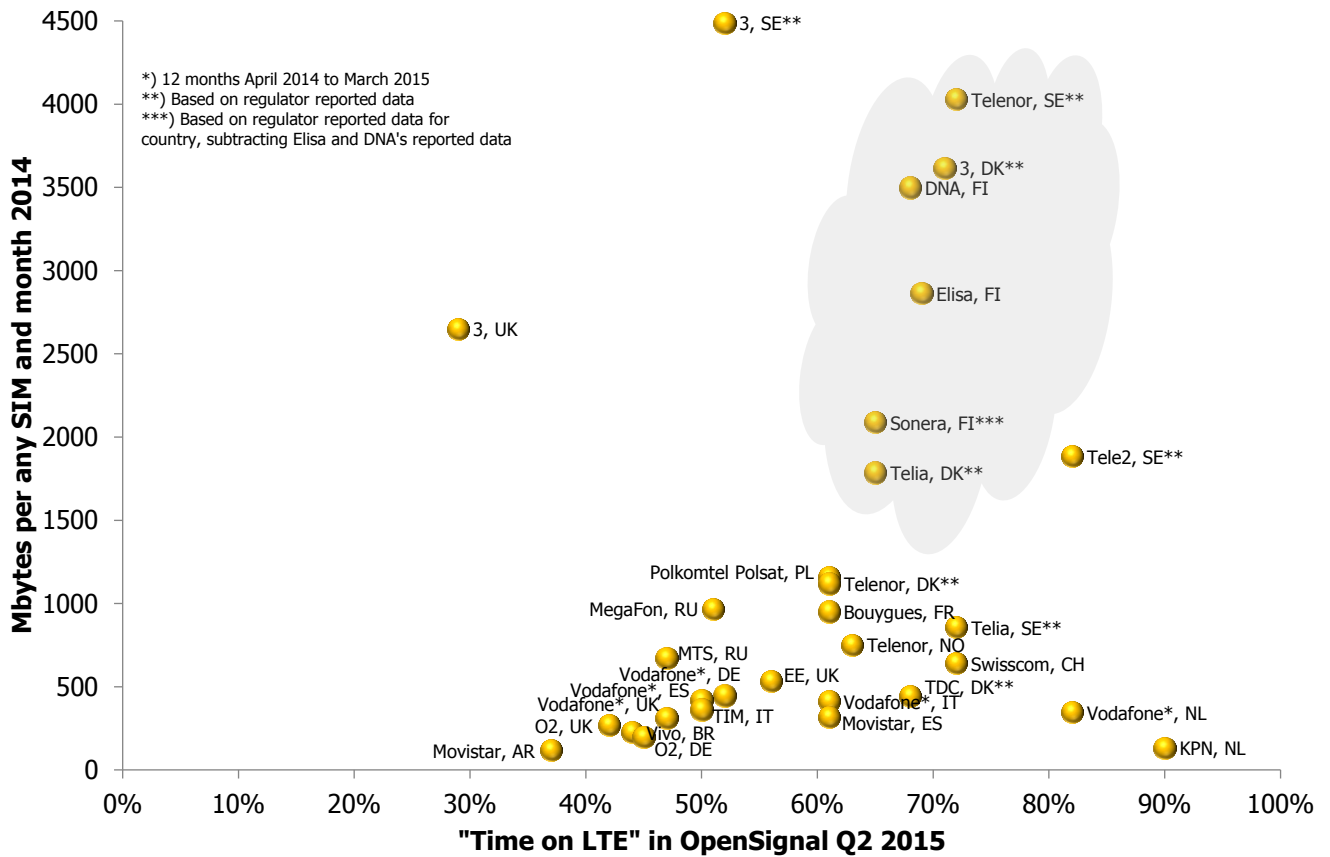


Figure 5. Mobile data usage vs. 4G LTE coverage

For the operators in the highlighted cloud, there seems to be some correlation between higher usage and higher 4G coverage. But it's also easy to find a few cases showing the opposite: **3 Sweden** has the highest

⁷ OpenSignal's values aren't always statistically perfect but have still often proven to reflect the customer experience better than the [reported population coverage](#) figures of operators

usage of operator in this analysis, but the worst 4G coverage of the four Swedish operators. **3 UK** has the lowest 4G coverage in the UK, yet significantly higher usage than the other three. **KPN's** 4G coverage is the highest in this sample, but KPN's customers hardly used any data.

Obviously, there's a delay between building 4G coverage and seeing the final result of it. Customers first need to understand that they have 4G coverage, secondly that they need it, thirdly source a 4G capable terminal (and, in some cases, a 4G subscription) and finally start using it.

So if 4G coverage isn't a strong driver for high mobile data usage, what is?

Effective price per Mbyte vs. usage

Figure 6 plots the *total* mobile service revenue per Mbyte⁸ against the average mobile data usage per country.

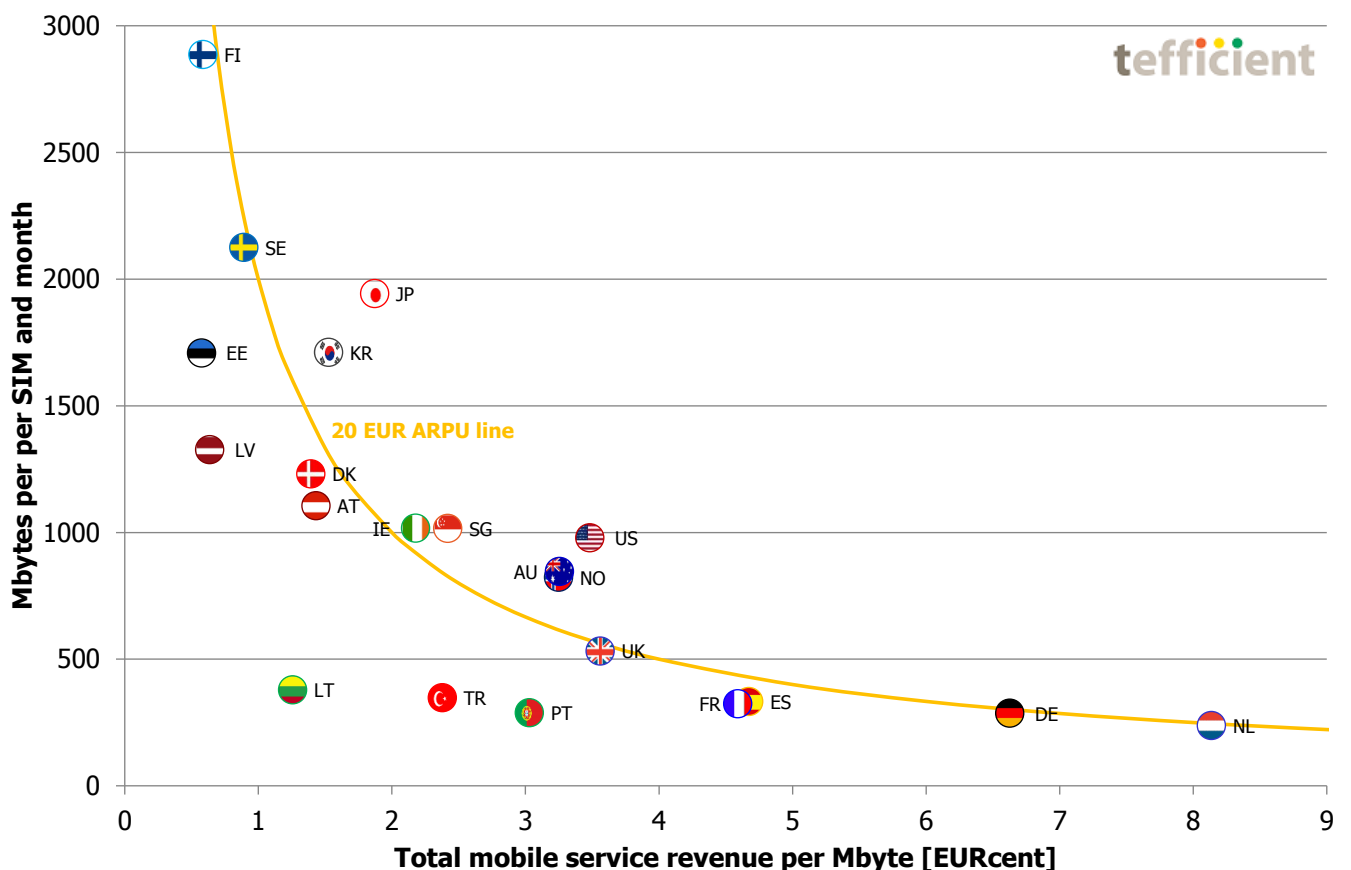


Figure 6. Comparing total mobile service revenue per Mbyte with mobile data usage

⁸ Attributing zero value to voice and messaging – which is also how most mature operators have priced service bundles when voice and messaging is unlimited, but data capped on volume

The **Netherlands** is still the country where the effective revenue per Mbyte is the highest⁹ – **14 times** higher than in **Estonia** and **Finland**, the two neighbours with the lowest effective revenue per Mbyte.

Germany is another very expensive mobile data market (11 times Estonia/Finland). Similar to the Netherlands, mobile data usage is very low.

The yellow line in Figure 5 shows **how to make 20 EUR** of monthly service ARPU. Countries above that line have higher service ARPU than 20 EUR, countries below a service ARPU lower than 20 EUR. Generally speaking, countries with a lower overall cost level – Estonia, Latvia, Lithuania, Turkey and Portugal – are below the line. Even though ARPU is lower, it might thus represent the same share of wallet for the average customer.

Based on Figure 6 we yet again conclude that the primary explanation for high mobile data usage is a low effective price per Mbyte: **Bigger data buckets lead to a lower price per Mbyte which increases usage.**

⁹ The effective revenue per Mbyte in Belgium would likely be yet higher, but the Belgian regulator hasn't yet reported 2014 traffic stats

Conclusion

Operators in **Finland, Sweden, Japan, Korea** and **Estonia** (in that order) continue to have the customers with the highest mobile data usage in the world.

The good news is that in most markets, usage continues to grow at high speed; the average usage growth was **58%** in 2014. Turkey tops with 103%.

At the same time, markets like the **US, Singapore** and perhaps even Portugal and Germany show signs of saturation. Particularly for the US, the trend shift is obvious: In 2013, mobile data usage grew 128%. In 2014, usage grew **20%**.

With a monetisation model predominantly based on data volume, it is tempting for operators to make sure that every Mbyte costs and brings in good margin by keeping bucket sizes down and prices up. The US might however soon be an example of when that monetisation strategy backfires. Customers aren't without alternatives. Cablecos are – in e.g. the Netherlands and Belgium, but now also in the US – providing their customers with access to **public Wi-Fi**. In addition, there are a few **Wi-Fi first** services for mobile being introduced – best example being Google's **Project Fi**.

We're not suggesting that mobile operators should go back to unlimited data¹⁰ unless it is sold with a premium, but we believe operators need to **become more generous when it comes to bucket sizes** – also on lower price points – to avoid that their customers develop a Wi-Fi first behaviour. Alternatively, if mobile data is seen as too expensive to produce in significant volumes, incorporate the operator's own public Wi-Fi as an integral element in any mobile data plan.

¹⁰ Finnish operators are facing a growing issue as they aren't able to monetise the quickly growing data volume – instead they can only monetise on a "thirst for speed" which might be difficult once the step from 3G to 4G has been taken by most customers