

The EU Gigabit Connectivity Package and How It Will Hurt the Internet

Act, Recommendation and Questionnaire

22 mei 2023, Rudolf van der Berg

The region with best connectivity will be the region with best innovation.

Mr. Horshkov, Deutsche Telekom

The EU Digital Decade Goals

Better connectivity for better lives

Digital Decade Policy Programme 2030

All Union end-users should be able to use gigabit services provided by networks at a fixed location deployed up to the network termination point. Moreover, all populated areas should be covered by a next-generation wireless high-speed network with performance at least equivalent to that of 5G. All market actors benefiting from the digital transformation should assume their social responsibilities and make a fair and proportionate contribution to the public goods, services and infrastructures, for the benefit of all citizens in the Union.

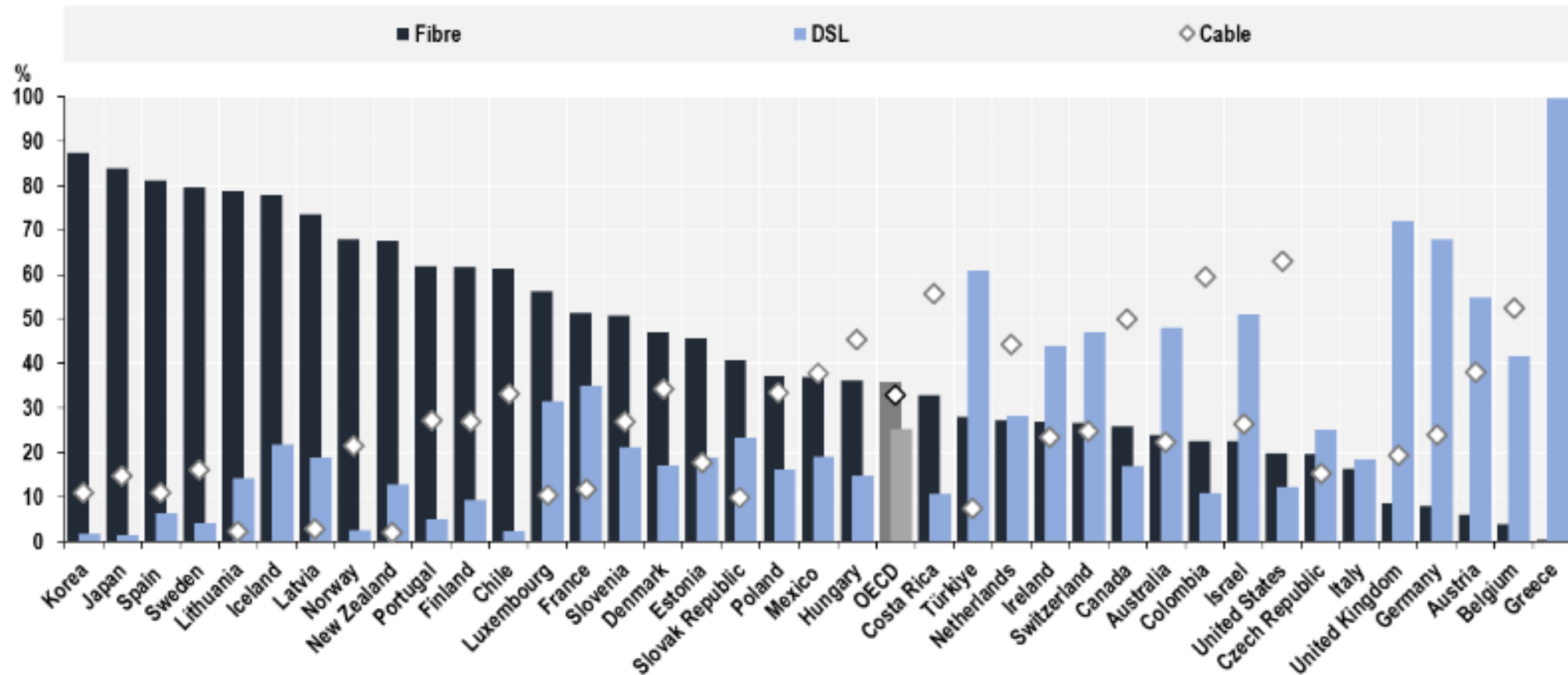
Digital Decade Policy Programme 2030 – Targets

1. a digitally skilled population and highly skilled digital professionals, with the aim of achieving gender balance,
2. secure, resilient, performant and sustainable digital infrastructures,

all end users at a fixed location are covered by a gigabit network up to the network termination point, and all populated areas are covered by next-generation wireless high-speed networks with performance at least equivalent to that of 5G, in accordance with the principle of technological neutrality;

3. the digital transformation of businesses
4. the digitalisation of public services

Leading Innovation: Spain, Sweden, Portugal, France! Lacking connectivity: Greece, Austria, Germany and Italy!



<https://www.oecd.org/digital/broadband/broadband-statistics-update.htm>

European Commission is worried: 10% may not get Gigabit

At first sight the proposals look logical

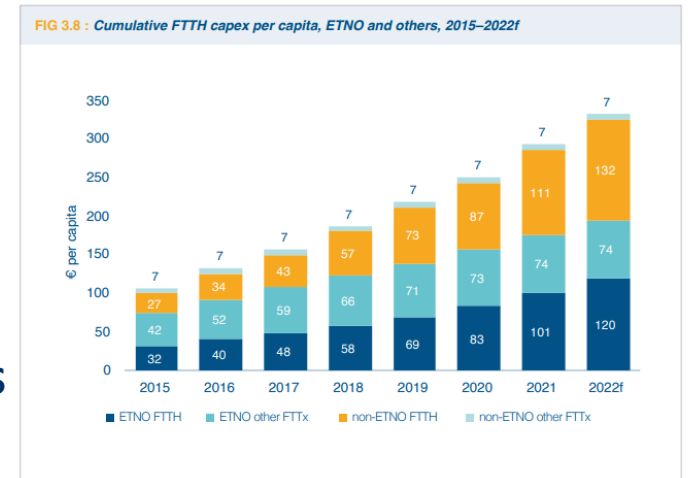
- Gigabit Infrastructure Act: Let's make it easier to roll out networks!
 - Successor to the Broadband Cost Reduction Directive
 - Act, so no national implementation to muck it up as with directive
 - Single portal for permits
 - Access to public infra, ducts, joint digging etc.
- Gigabit Recommendation: Who needs to give access to their network and how?
 - Commission wants to give guidance, so that the rules are uniform
 - Under which conditions can regulators regulate?
- Gigabit Questionnaire: How do you see the future of the connectivity sector
 - Technological and market developments: impacts on future networks and business models for electronic communications
 - Fairness for consumers
 - Barriers to the Single Market
 - Fair contribution by all digital players

EU proposals to make gigabit connectivity available for all by 2030 (or to make incumbents life easier?)

- Gigabit Infrastructure Act: Proposals that won't make roll out of FTTH and 5G easier; but will cost European municipalities a lot!
 - Magic single information portal, for all your FTTH/5G permit applications (sounds good??)
 - Also required of municipalities who are already done with major roll out
 - Hold-on! 3 month standstill to promote joint roll-out → Incumbent can frustrate altnets!
- Gigabit Recommendation: Guidance for regulators on how to regulate big telco's
 - Hold on! No regulation if there is a prospect of infrastructure competition!
- Consultation on the future of connectivity: A Questionnaire aimed to point at Big Tech as a source for investment and to make big telco bigger in name of a Single Market
- Don't trust me, but read the reaction of BEREC

The Questionnaire doesn't want answers

- Mixes infrastructure (5G, fiber) with unrelated services (blockchain, geolocation) (consumers pay for)
- Thinks only ETNO members invest. ETNO says its members invest less than alternative operators!
- Wants a single market with pan-European firms, which we have, but didn't result in pan-European offers
- Doesn't ask for hard data, but only relative percentages, making it incomparable.



Source: Analysys Mason, 2022

Livebox Max Fibre



Jusqu'à 2 Gbit/s 1800 Mbit/s Wifi 6E,
jusqu'à 3 Répéteurs Wifi

Une connexion et un wifi premium pour se
divertir et partager avec sérénité

34,99 €/mois

pendant 12 mois puis 54,99 €/mois

Engagement 12 mois

Tester l'éligibilité

Surely the questionnaire can't be that bad?

- Question 40 is about how much networks invested to handle traffic growth. Question 42 then asks how much this exceeded the planned investments! No negative value!

42. Indicate how much the share of network investments that you indicated in response to Q40 has exceeded the investments you planned, including when they depended on regulatory obligations (e.g. radio spectrum), over the last 5 years.

For fixed network investment costs:

- 0 - 20%
- 21 - 40%
- 41 - 60%
- 61 - 80%
- Over 80%

For mobile network investment costs:

- 0 - 20%
- 21 - 40%

EU Telcos can't handle traffic anymore

Want to get rid of transit (and peering) and move to telephony model of
Sending Party Network Pays

OTT costs EU Telcos €40B/year!



4,13 EUR ▲ +0,01 (+0,15%)

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••• HOME / COMMUNICATION ROOM / BLOG / THE UNSURMOUNTABLE COST OF OTT'S TRAFFIC FOR EUROPE

The unsurmountable cost of OTT's traffic for Europe

Delivering OTT traffic over EU telecom networks results in €36 bn to €40 bn annual cost to telecom providers. OTTs contributing to these costs could help meet growing demand, boost EU GDP and employment, and advance to achieve EU's twin digital and green transition.

<https://www.telefonica.com/en/communication-room/blog/the-unsurmountable-cost-of-otts-traffic-for-europe/>

ETNO want €35 billion per year from Big Tech

The results produced by Frontier are shown below:

Network type	Incremental costs ²⁵	Total costs ²⁶
Fixed networks	€ 2-6 bln	€ 8-10 bln
Mobile networks	€ 13-22 bln	€ 28-30 bln
TOTAL	€ 15-28 bln	€ 36-40 bln

Exhibit 2.5: Total and incremental OTT-driven costs for EU telcos [Source: Frontier Economics]

- Simple math: Capex is €55B/year. Big Tech is 60% of bytes, so Big Tech needs to pay.
- Capex is including FTTH and 5G roll-out.. So they want someone else to pay for Capex, but keep the return on investment for 30 years.

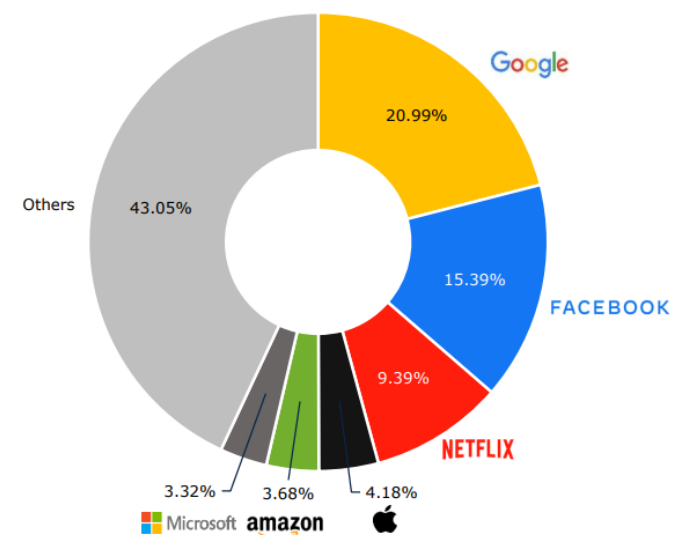


Exhibit 2.2: Global traffic share of OTTs, 2021 [Source: Axon based on Sandvine¹⁸]. Note: The players specifically highlighted in this exhibit are the same as in Sandvine's report.

BT: 1 Terabit/s extra costs us £50M!

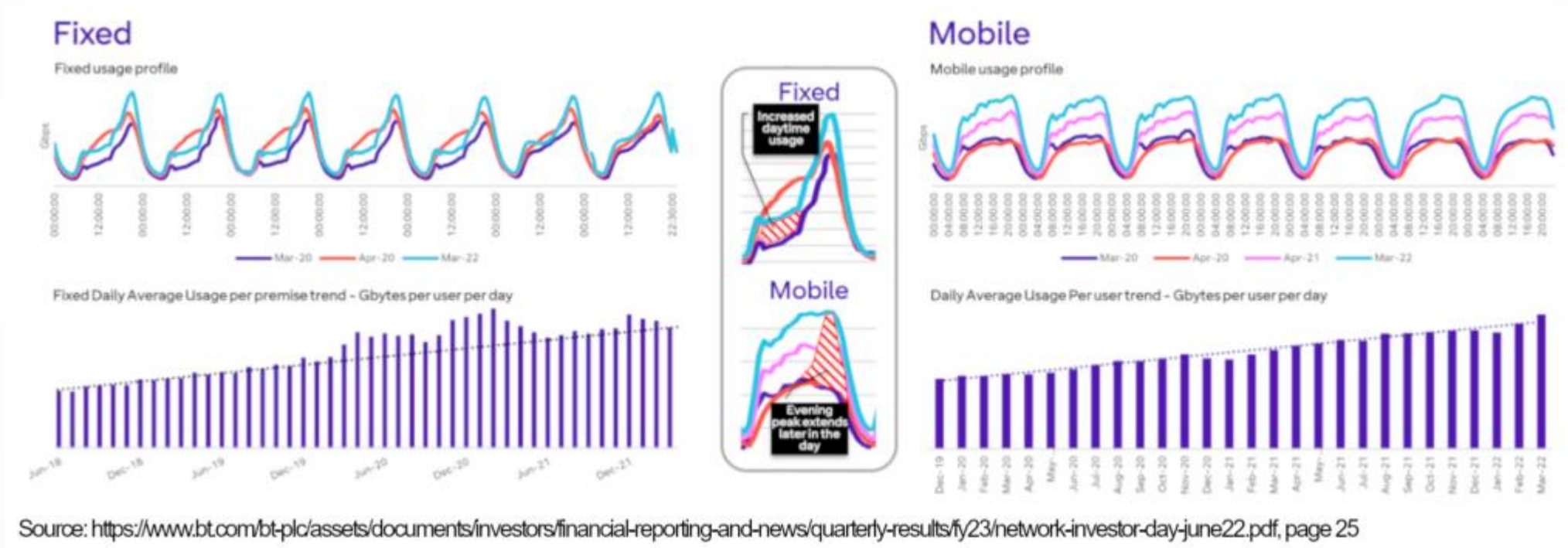
▲▲ Every terabyte of data consumed over and above current levels costs about £50m
BT's Marc Allera

“Every Tbps (terabit-per-second) of data consumed over and above current levels costs about £50m,” says Marc Allera, the chief executive of BT’s consumer division. “In the last year alone we’ve seen 4Tbps of extra usage and the cost to keep up with that growth is huge.”

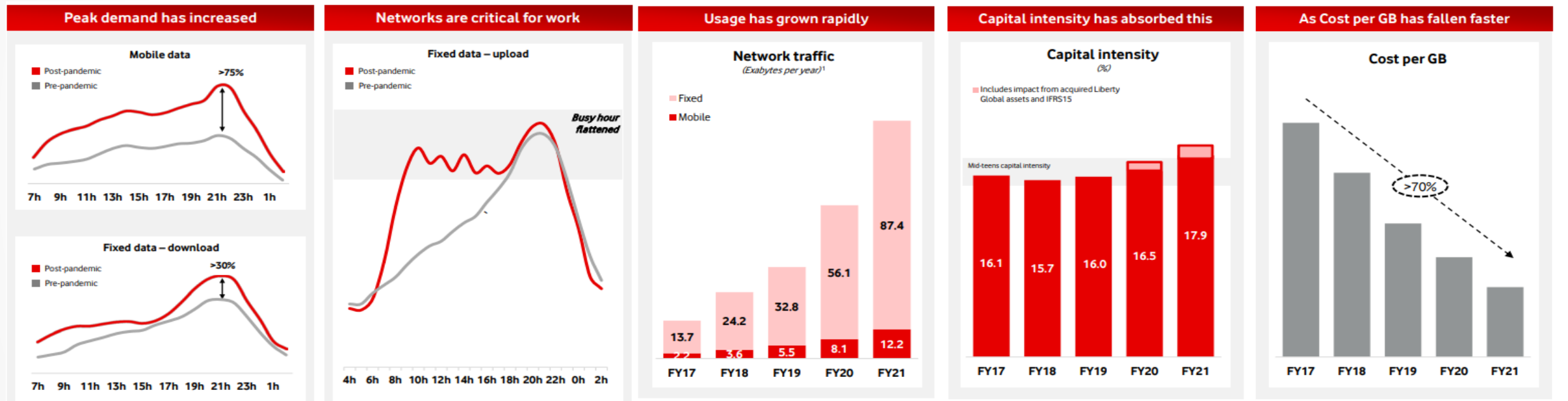
An overwhelming majority of day-to-day usage, up to 90%, is

<https://www.theguardian.com/business/2021/oct/10/squid-games-success-reopens-debate-over-who-should-pay-for-rising-internet-traffic-netflix>

Dear investors, Gigabytes don't matter, Gigabits do! (BT)



Vodafone: We didn't have 50% traffic growth. Over 2-3 years it was 70% (mobile), 30% (fixed)! Capex was stable and costs down!



<https://investors.vodafone.com/sites/vodafone-ir/files/2021-06/vodafone-technology-investor-briefing-presentation.pdf>

KPN: Dear Regulator, 6Mbps and 21% traffic growth is enough!

- KPN did a voluntary wholesale offer to Dutch Regulator. It initially included 4 Mbps, which was raised to 5Mbps per sub peak traffic with 21% growth after ISPs objected.
- 21% increase now means that it's 6Mbps as per 1-1-2023
- Access seekers still complain, because no costs for KPN associated with traffic and they pay €1,39/month

3. Transport tarieven

Maandelijks tarief voor transport naar LWAP

Transportkosten per klant

€ 1,39 per aansluiting

Bovenstaande tarief geldt per lijn zolang het gemiddelde verkeer per lijn onder de drempelwaarde blijft.

Deze drempelwaarde is in 2023 6,05 Mbit/s en deze wordt jaarlijks verhoogd met 21%.

Additioneel tarief voor het surplus boven de drempelwaarde

€ 0,52 per Mbit/s per aansluiting

<https://www.kpn-wholesale.com/w3/file?uuid=1b3142d4-37d9-4461-b546-66cc983fdb0b&owner=a7c50efb-c547-48a2-99c7-81c55be15337&contentid=26544>

Economists hired by telcos will say transit and peering is stupid

If we look at consumer welfare, we also find tier-1 academic research in a working paper by [Toulouse School of Economics](#). It states that, if done right, a fair contribution “can lead to lower overall prices and higher consumer welfare”.

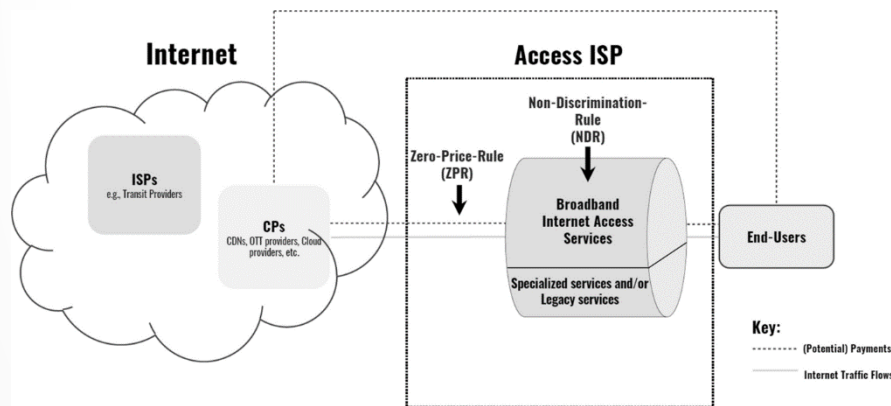
Fair cost sharing: big tech vs telcos*

Bruno Jullien[†]

Matthieu Bouvard[‡]

October 2022

This research has benefited from the financial support of Orange



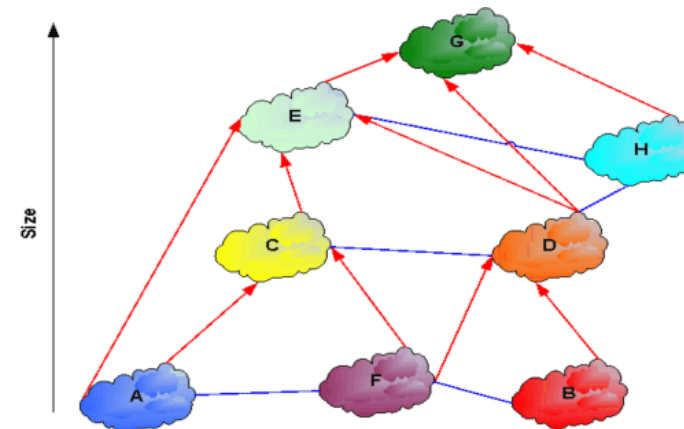
Rudolf Van Der Berg

Nov 17, 2022 · 27 min read · Listen



Updated: Request for retraction of “Netneutrality and high-speed broadband networks: evidence from OECD countries”, by Wolfgang Briglauer, Carlo Cambini, Klaus Gugler & Volker Stocker

²⁷¹ We are aware of some academic empirical evidence suggesting that net neutrality rules can exert a negative effect on network investments and other outcomes, although the scale of the impacts found and methodologies create some uncertainty about the probative value of these results (e.g. Briglauer W, Cambini C, Gugler K, & Stocker V, 2021, *Net Neutrality and High-Speed Broadband Networks: Evidence from OECD Countries*).



GSMA and ETNO: anyone who does more than 5% peak should pay! So roughly more than 1-3Tbps on big incumbents.

This calls for harmonized EU regulatory action, which we believe should be informed by the following principles:

Private investment

The achievement of the EU Digital Decade targets is expected to come mainly from private investment, rather than public funds. Today – with the annual telecom investment per capita in Europe being 50% less than in peer markets such as the United States (Analysys Mason, 2023) – the main problem of the EU is the lack of adequate incentives for private investment. Therefore, regulatory measures should address investment conditions, rather than increasing the size of existing public funds or universal service funds, which are often inefficient. We need a framework that re-establishes fairness in the relationship between Large Traffic Generators and telecom operators, so that we allow adequate prices for data transport services..

Obligation to negotiate

A contribution mechanism should be based on commercial negotiations enshrined in a framework that obliges the parties to negotiate, in good faith and based on common EU principles, a fair and reasonable contribution for traffic delivery.

Arbitration mechanism

If no agreement among parties is reached, dispute settlement mechanisms should be foreseen, with a third, neutral party adjudicating the negotiation based on EU guiding principles (e.g., final offer arbitration).

Targeted and limited scope

We propose a clear threshold to ensure that only large traffic generators (LTGs), who impact substantially on operators' networks, fall within the scope. LTGs would only be those companies that account for more than 5% of an operators yearly

average busy hour traffic measured at the individual network level. Other criteria could also be envisaged cumulatively to the 5%, such as the need of meeting the threshold in at least three EU Member States, to reflect the overall impact on European networks.

Exclusions

The proposal for a targeted and limited scope outlined above would prevent any unintended harm to innovation and competition. Smaller traffic generators would be exempt, for example actors such as public broadcasters, who also have an overarching social obligation to provide content to end users. Similarly, intermediaries like commercial content delivery networks (CDNs) should not be considered LTGs, but the traffic conveyed via such intermediaries should count toward the LTG designation threshold.

Beneficiaries

Competition in EU telecom markets should not be disrupted: all telecom companies who invest in infrastructure for connectivity – no matter big, small, traditional or challengers – should benefit from the new rules.

Transparency and accountability

The financial resources resulting from the new rules would correct the current imbalance and ensure that LTGs start to adequately contribute to the achievement of network roll-out, including in the context of the EU Digital Decade targets. Additional transparency and accountability measures could be foreseen to ensure that the resources are effectively invested in network deployment as well as improved capacity and efficiency of networks.

The effect of an Internet Traffic Tax

Sending Party Network Pays is a mess (ask the telephone guy)

- SPNP used for telephone interconnection. You pay whatever the network at the end demands. Orange in NL at one point, raised termination fee to €0.25/min!
- Was supposed to be used for ISDN and 3G with telco charging based on service type!
- Termination is a monopoly, so fees are regulated. FTR and MTR well known in Europe
- High FTR/MTR = low usage and fraud. i.e. international calls to some countries.
- Under SPNP choice of transit provider is irrelevant. Terminating network determines transit network, route and costs!
- No reason for terminating network to optimise costs ie through local interconnection, caching, cdn etc.

Everybody will end up paying more, not just Big Tech

- Telcos are talking to broadcasters, newspapers, sports associations, governments and everyone else assuring them that only American Big Tech will have to pay!
- Your organisation (or who you invest in) won't be affected if you don't use or do business with: Alphabet, Akamai, Amazon, Apple, Meta, Microsoft, TikTok etc.!
- According to telcos CDN's are a way big tech bypasses the public Internet and escapes paying for costs (so those pay too) (Nonsense bc there is no private Internet!)
- Streaming (sports, TV) is a problem too (except when it's the telcos IP-TV platform)
- Small networks are too small to peer with big Telco, so they (already) pay

Stratix and Rudolf

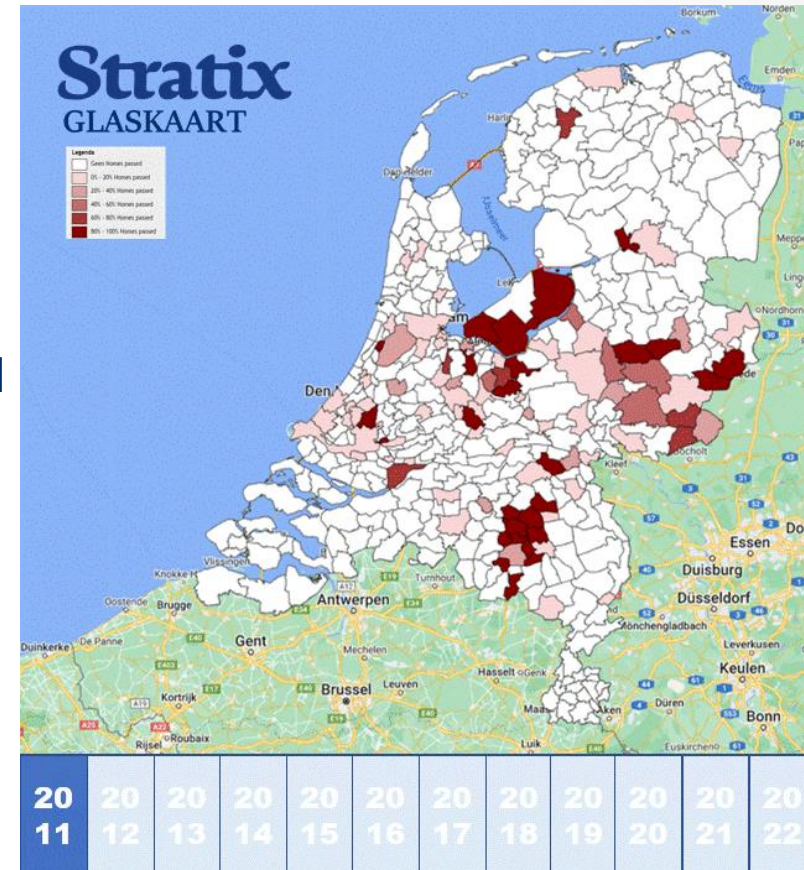
Discover what we can do for you

Stratix – independent consulting on network infrastructure and services

- Independent means – not aligned with specific telecom firms or vendors.
- Tactical and strategic advice on regulatory, financial and technical aspects of ICT
- Typical customers: Public sector, telecom firms, private sector and investors
- Solutions that work in long term for our customer and other stakeholders
- Support and promote ideas, for the good of society, even if there's no client (yet)
 - FTTH → business models, promotion of ideas and broadband maps
 - Govroam → Euroam in Dutch government
 - 112 over 4G → policy makers and sector unaware of issues with handsets and roaming
 - Internet interconnection ~ net neutrality ~ internet traffic

Some recent work by Stratix that might interest you

- 5G and FTTH investment and stats – Maps, cost modelling, market analysis etc.
- Datacenters – objective facts and figures (Metropolitan Region Amsterdam), Belgian market (BIPT)
- Submarine cables –“How to lay a cable to the Netherlands” and market research
- State and future of Internet and Telecom Standards
- Connectivity in municipalities and regions; regulations, innovation, cooperation etc.
- Spectrum policy; digital microphones, dynamic spectrum management, private LTE and frequencies on the North Sea



My career: Internet traffic a major theme

- **Twente Uni – Master of Public Administration:** vice-chair Campusnet. (1994- 10Mbps/room, 1998 100Mbps!)
- **Dutch-German Internet Exchange (NDIX):** internet off-campus was €5K/2Mbps in 2001! (Booking.com left)
- **Ministry Economic Affairs:** First study on net neutrality, transit and peering in 2006. AT&T wanted payment for pipes!
- **LogicaCMG** SIM-cards and high traffic/switching costs for IoT. Promoted SIMs for large scale IoT → pushed GSMA to allow eSIM
- **OECD:** Initiated BEREC-OECD meeting on IP-interconnection (2011-2012). ETNO wanted Sending Party Network Pays. Stats on FTR/MTR
- **Stratix:** Cost elements 5G. Datacenter factcheck (energy, data growth). For municipalities 5G small cell regs and Gigabit Infra Act



What makes me tick?


- I love the Internet; how it works, the people that run it and what it made possible
 - The Internet Traffic Tax will kill the Internet and the innovation it brings
 - I thought we won 10 years ago, I don't like this zombie to come from the grave.
- My clients are hurt by bad policy resulting from desinformation, bad research and bad data
 - False data on internet traffic growth and datacenters leads to bad strategy of electricity grid
 - Bad data small cell antennae leads to bad regulations on 5G
 - Gigabit Infrastructure Act → Municipal Cost Increase Act

I've been trying (and apparently failing) to explain transit and peering for 20 years

- Ars Technica: <https://arstechnica.com/features/2008/09/peering-and-transit/>
- Blog <https://rudolfvanderberg.medium.com/>
 - Asked for retraction "Netneutrality and high-speed broadband networks", Briglauer et. al.
 - Deutsche Telekom breaking the Dutch Internet for its customers
 - Bad science on energy use of data (kWh/GB is nonsense)
 - Contact with economists on mistakes in modelling IP interconnection as two-sided market

Paid and unpaid work on Gigabit Package

- Paid:
 - Google blogs on how the internet works and is paid for
 - Industry Association for Korean debate (to be published)
 - Telecom Regulator (internal briefings)
 - Local governments (internet traffic growth, energy use, datacenters)
 - Dutch Association of Municipalities (Gigabit Act)
- Unpaid:
 - Speech at NLNOG (NL Network Operators Group)
 - Speech LINX 118 (London Internet Exchange)
 - Speech INEX (Irish Neutral Exchange)
 - Twitter,
 - LinkedIN,
 - podcasts etc.







internet lab. podcast

If we pay telcos they won't fix their networks. They'll just say, it's the other guy's fault. That's what they have been doing for the last 20/25 years. There's no reason to reward bad behaviour.

RUDOLF van der BERG
Partner
Stratix

Leaked EU Connectivity Document Sets off Alarm Bells





RUDOLF VAN DER BERG · FEBRUARY 21, 2023

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TAGS EU EUROPEAN COMMISSION INNOVATION INTERNET TRAFFIC TAX NETWORK INFRASTRUCTURE

Internet Traffic Growth Is Not Out of Control, and Nothing Like Telcos Want You To Believe





RUDOLF VAN DER BERG · NOVEMBER 28, 2022

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Fast Internet Doesn't Cost EU Telecom Operators Much at All


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Vastgemaakte Tweet

Rudolf van der Berg @internetthought · 14 dec. 2022

My ironic presentation at NLNOG on Big Tech vs Big Telco on #networkfees. Should Big Tech pay a #fairshare? Are Telcos #monopolists? How do telcos use internet #interconnection to squeeze money from research networks. #netneutrality



youtube.com
NLNOG 2022 - Rudolf van der Berg Big Telco vs Big Tech, or why telcos...

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