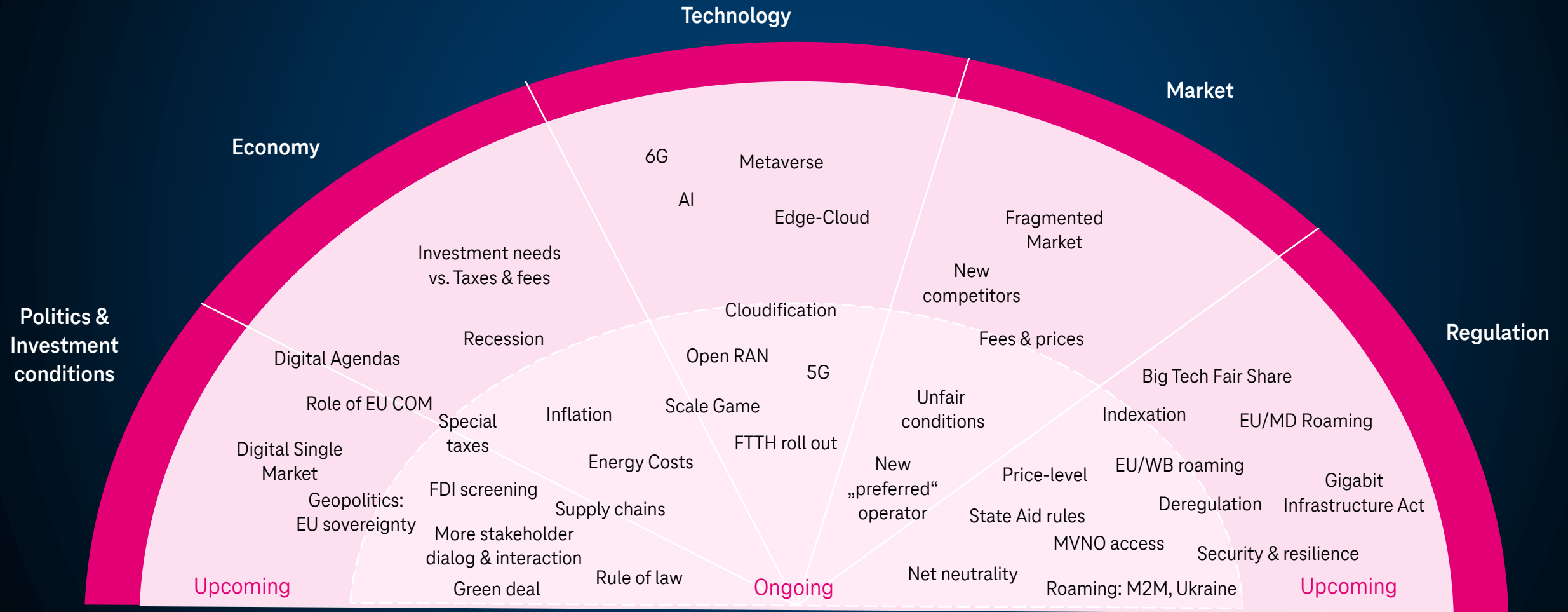


Trends and Challenges of the European Telco Market & Regulations

Mark Vasić | Struga, North Macedonia | 26.05.2023



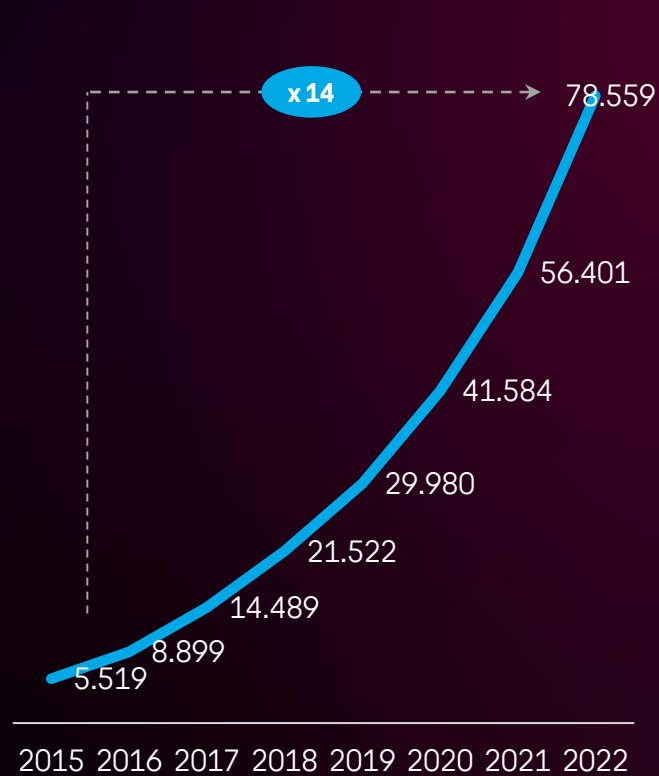
Trends & Challenges 2023/2024



Europe's telecom revenues declining ...

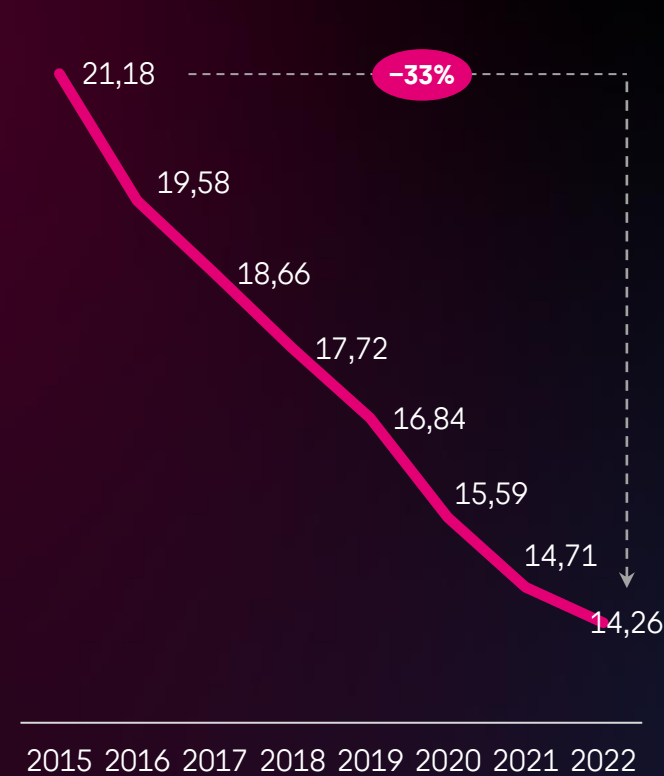
Mobile data traffic

Western Europe, Petabyte (PB)



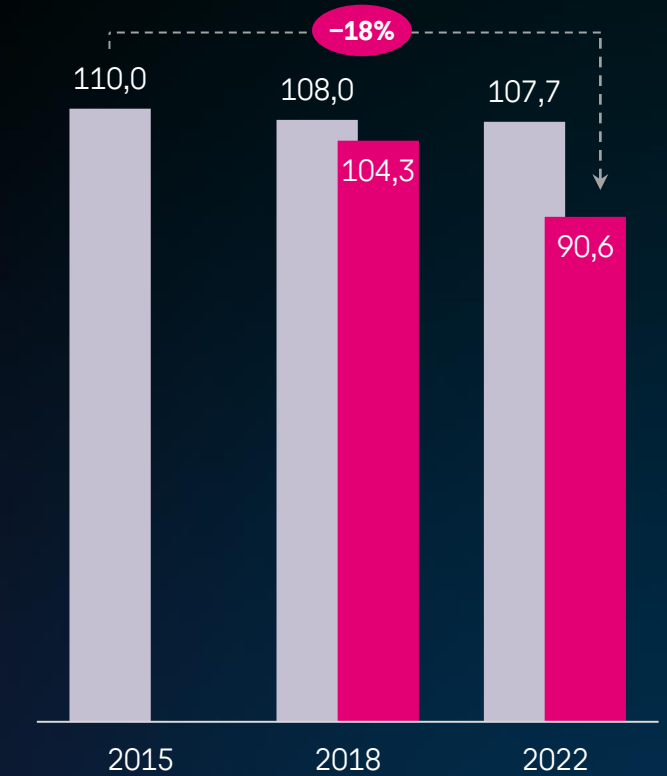
ARPU

Western Europe, €/contract/month



Mobile revenues

Western Europe, billion €



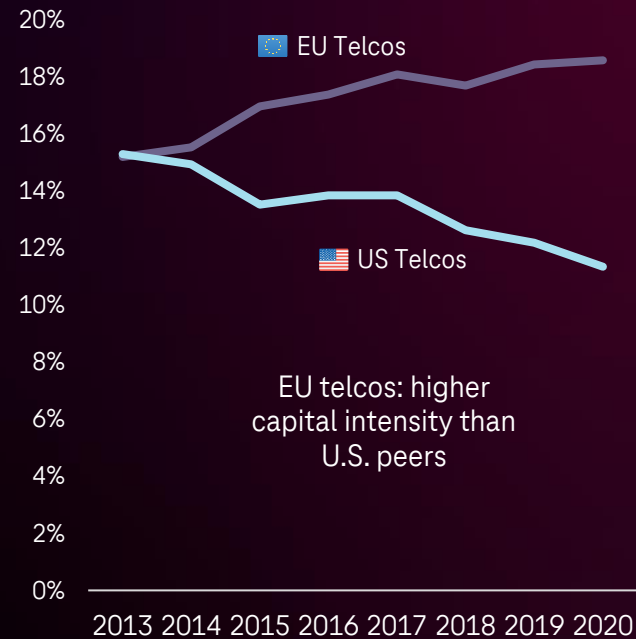
■ Nominal
■ Real values (adjusted for inflation)

... compromising EU telcos' ability to invest

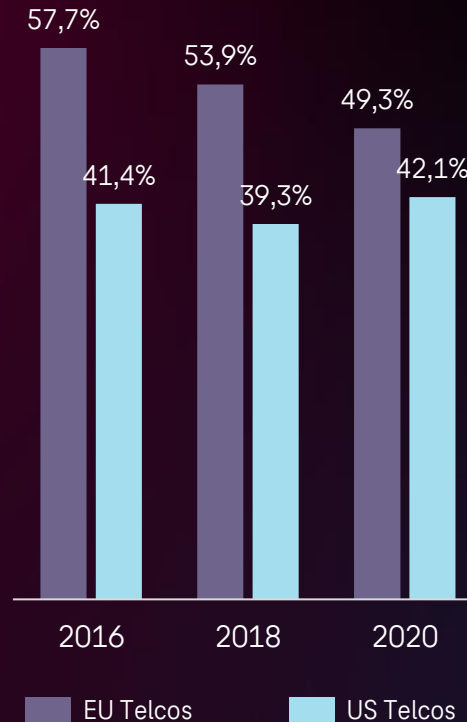
EU telcos: high capex in relation to revenue and EBITDA ...

... but higher capex per capita in the U.S.

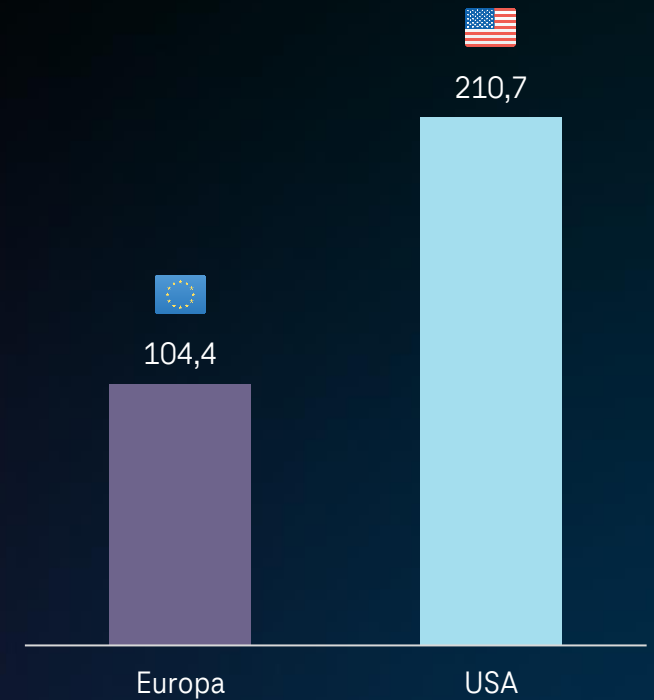
Investment in % of revenue



Capex in % of EBITDA



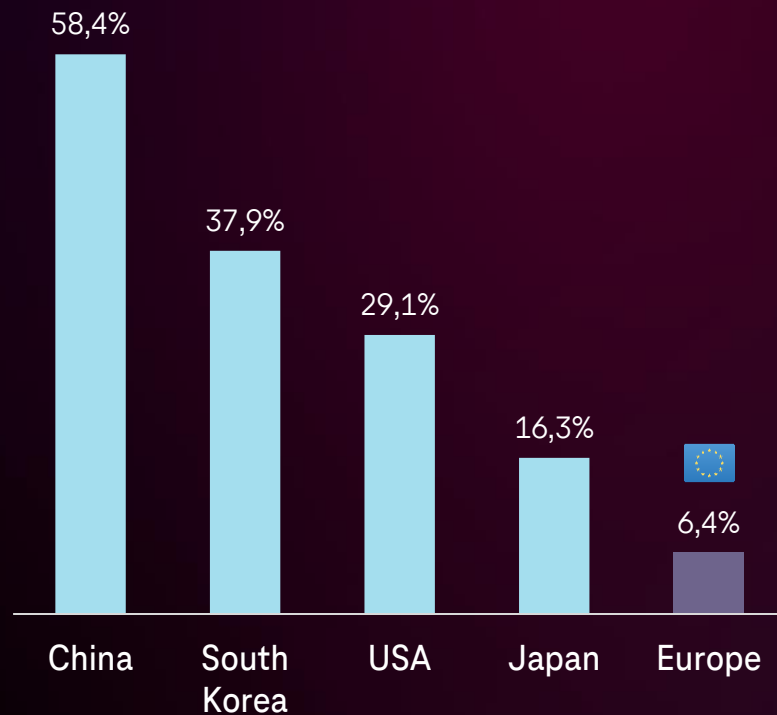
Capex per capita 2021, EUR



Result: sluggish network deployment in Europe ...

5G: Europe behind

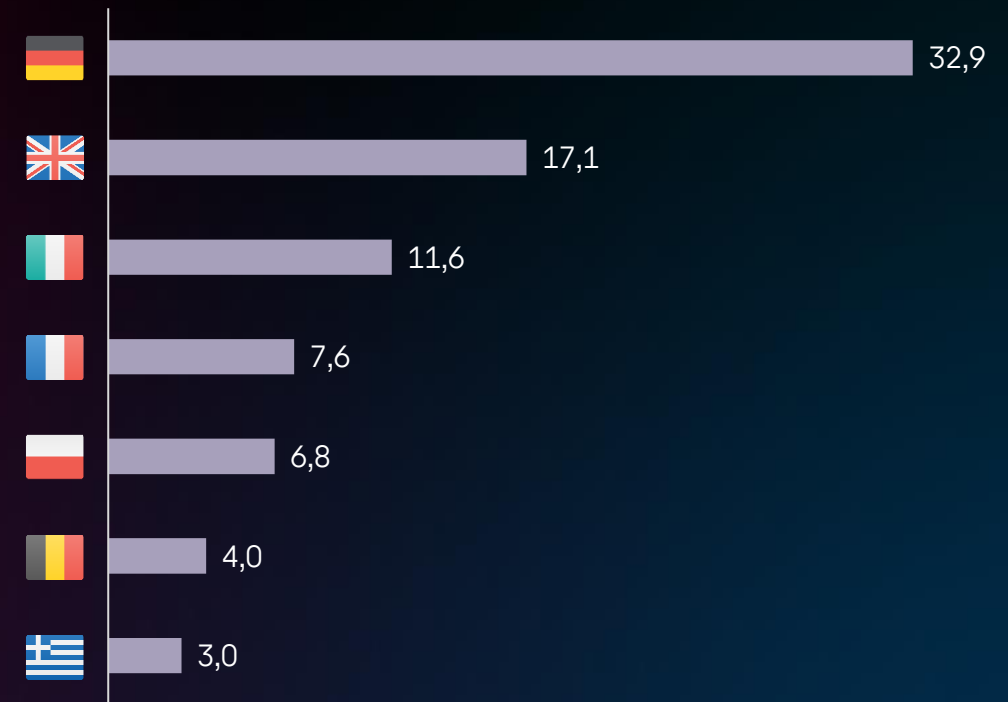
5G share of all mobile connections, Q1 2022



Source: ETNO / Analysys Mason

FTTH: Massive need for expansion

Million households yet to be covered with FTTH, September 2022

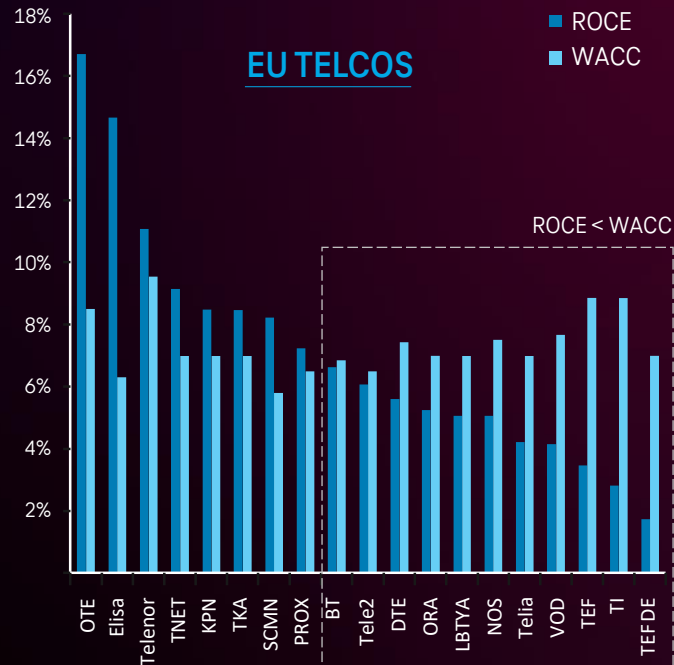


Source: FTTH Council Europe, IDATE

... and a European telecom sector in decline

EU telcos: capital costs often not covered ...

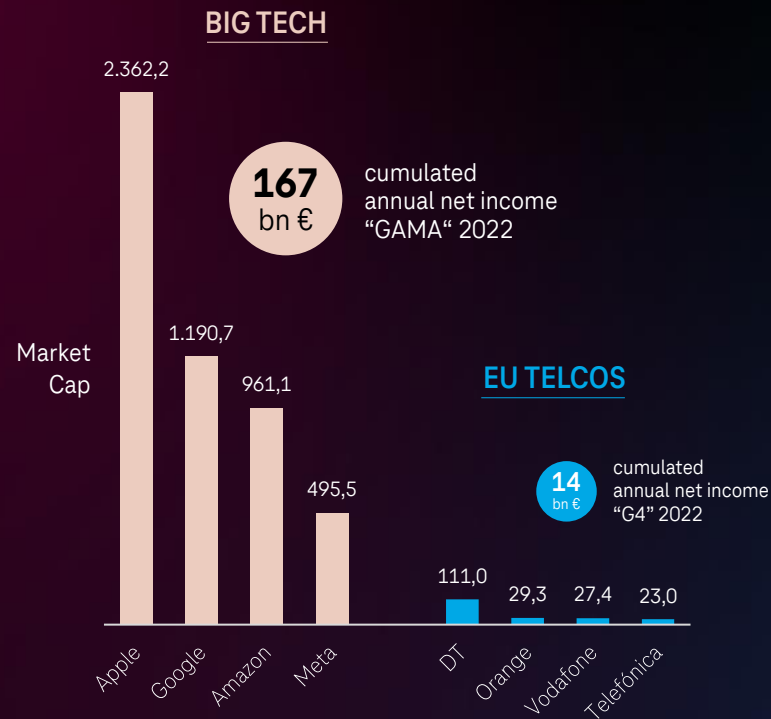
Return on capital employed (ROCE) vs. weighted average cost of capital (WACC), 2021



Source: Barclays, June 2022

... low market valuation ...

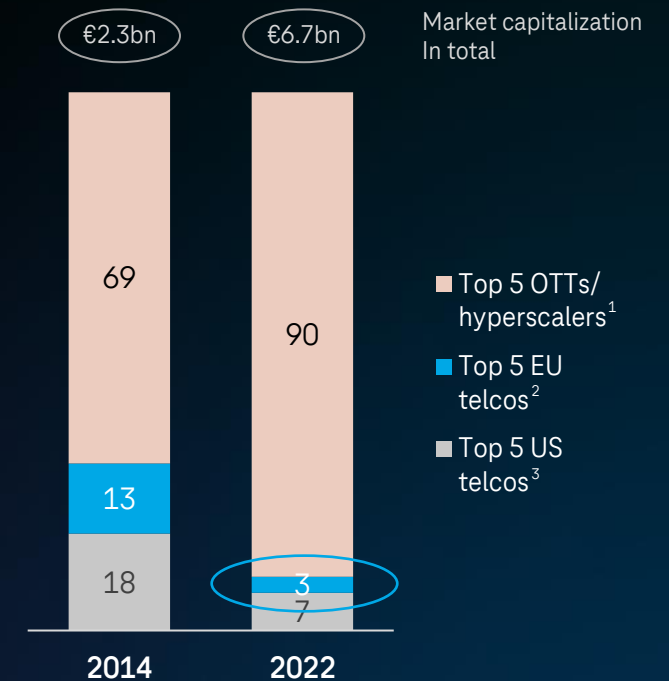
Market capitalization & net income 2022 (billion €)



Source: Bloomberg, updated 31.03.2023

... and continuous loss of significance

Share of market capitalization, telcos vs. big tech, in %



¹ Apple, Microsoft, Alphabet, Amazon und Meta

² i) Vodafone, Deutsche Telekom, Telefonica, BT Group and Orange in 2014;

ii) Deutsche Telekom, Vodafone, Swisscom, Orange and Cellnex in 2022

³ T-Mobile, Verizon, AT&T, BCE und Telus in 2014 and in 2022.

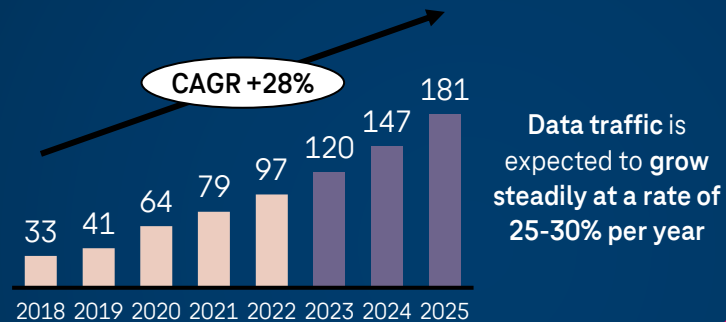
Source: McKinsey, Februar 2023

Fair Share: Why are we discussing it?

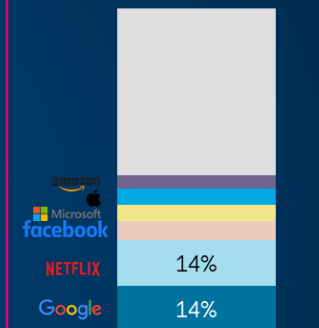
EU-Commission has introduced a consultation on the future of the electronic communications sector and its infrastructure to elaborate on a fair contribution by the largest traffic generators to the network costs

Rapidly increasing data traffic ...

Worldwide volume of data traffic¹ (in Zettabyte)



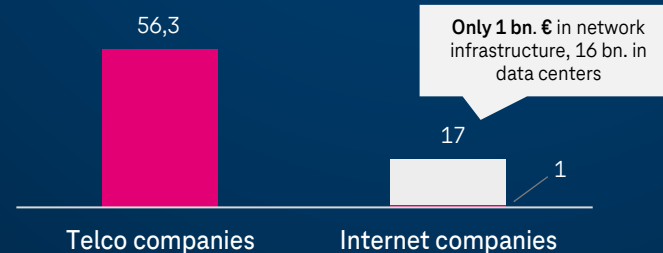
... caused by a few big tech companies



>50% of all internet traffic is caused by 6 tech companies²

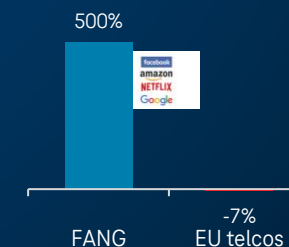
Telco companies are investing massively in network infrastructure ...

Investments in digital infrastructure, 2021, bn. €

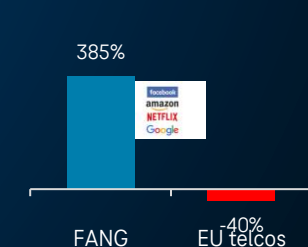


... but internet companies are the beneficiaries

Revenue growth 2015-2021



Market cap 2015-2021



¹IDC, Statista, 2023

²Sandvine, 2022/23

European telcos must invest in fibre optic and 5G expansion, while investing in future technologies

Ambitious targets with high investment requirements

EU Digital
Agenda 2030

Gigabit for everyone, 5G everywhere

High
investments
requirements

- EU Commission: **€174 billion investment gap across Europe** to achieve digital targets by 2030 Germany: FTTH coverage approx. 26% (EU-Ø 56%)

Challenges

- Stagnating growth, yield weakness
- Rising interest rates, inflation

Trends for telco networks of the future

Network Cloudification

Software & Automation Software Defined Networks (SDN), Open Gateway (API based), Network as a Service

5G Mobile Edge and Network Slicing

Network innovations that enable advanced applications such as Metaverse & XR

Open RAN & virtualized RAN

Open and virtualized network architecture based on interoperable interfaces

Resilience

Strengthening network security, sovereignty and control, sustainability and energy efficiency

EU Commission: High-performance, resilient network infrastructure and a fair contribution from all market participants is needed.

New virtual worlds will put under even more **intense pressure** the **connectivity infrastructure** which is needed to allow all these developments to happen.

The current situation, exacerbated during the Covid pandemic, shows a **paradox of increasing volumes of data being carried on the infrastructures but decreasing revenues and appetite to invest** to strengthen them and make them resilient.

The current **economic climate** sees **stagnating rewards for investment** and **increasing deployment costs** for pure **connectivity infrastructure**.

In Europe, **all market players benefiting from the digital transformation should make a fair and proportionate contribution** to public goods, services and **infrastructures**, for the benefit of all Europeans.¹

Thierry Breton
Commissioner for the Internal Market



The amount of data exchanged and harvested is **larger than ever and will increase**.

The metaverse and virtual worlds, the rapid move towards **cloud**, the use of **innovative technologies** online are making this even more evident. **Increasing volumes of data on the infrastructures** need to be met through **adequate returns and appetite to invest, especially for mobile networks**.²

Ursula von der Leyen
President of the European Commission



¹ 14.09.2022

² 22.12.2022

Fair Share regulation necessary to ensure negotiations on equal footing

🎯 Address market failure

- Today: unregulated markets for IP connectivity
 - large internet companies use market power in digital services to exert bargaining power in commercial negotiations on data transport
- 
- Asymmetries in the IP market must be addressed in order to ensure fair negotiations.
 - Market based solution remains the target – but there is a need for regulation to ensure negotiations at eye-level

⚖️ Essential elements

Telco proposal

Targeted scope

Limited to largest traffic originators

Negotiating mandate

Non discriminatory, every operator can initiate

Fair and reasonable prices

Obligation to agree on reasonable prices (fair and reasonable)

Dispute resolution mechanism

mandatory dispute settlement va competent authority

Commitments & Accountability

Direct payments to be used for network deployment

What are now the Take aways?

Stop the free riding of the Big Techs

Don't expect a free lunch

Don't intervene too much

Enable Scale Game, realize the common regional market & get prepared for EU's single market

Use the Power of the collaboration
(Digital Summit, Roaming, Cyber Sec...)

Transpose the European framework
(EECC, GIA...)

Create regulatory/legal predictability

Every Denar can only spent once – promote investments