Contribution by Telia Company in regard to European Commission exploratory consultation on "*The future of the electronic communications sector and its infrastructure*"

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Factors influencing electronic communications sector

Over the last decade, internet use has become from 'nice to have' to an essential feature of the daily life of European citizens and businesses. Digital transformation across all sectors of the economy will continue to influence demand for secure, resilient, high-capacity connectivity.

This ongoing digital transformation, coupled with adoption of new technologies, such as AI, AR/VR, blockchain and others, will drive the rapid increases in data traffic. According to new research[1], data consumption over telecommunications networks in Europe has grown at an annual rate of 25% since 2018, with the growth rates expected to be 20% for fixed networks and 25% for mobile networks in the period up until 2030. [redacted]

While digitalization is happening everywhere, the majority of data traffic in telecommunications networks originates from a small number of large content providers that account for approximately 50% of global traffic[2]. [redacted]The traffic that digital platforms generate today (particularly video traffic from which they earn advertising and subscription revenues) requires large investments by ECN providers to expand network capacity.

Going forward, trends such as increasing resolutions of video from SD to HD, 4K and 8K, increasing consumption of HD live-sports (especially on mobile handsets), increasing use of (short-form) video in social networks, Metaversation of use cases (e.g. consuming video, meeting others, attending concerts or shopping in the metaverse), AR/VR use cases, AI generated content, amongst others, will be the drivers of overall data consumption and demand for connectivity.

On the supply side, digitalization has been supported by a massive transformation of fixed and mobile telecom networks, from the prevalent copper and 3G-based solutions of the early 2010s, to much more advanced Very High-Capacity Networks ('VHCN'), including FTTH and 5G. And just as it has been in the past 10 years, the provision of connectivity to serve the growing societal demands will continue to be mostly financed through private investments, primarily by the traditional ECN providers.

However, traditional ECN providers face a growing investment challenge, even in regions where network deployment has so far been relatively successful, such as in the Nordics and Baltics.

Operators face significant investment needs to meet connectivity targets and improve quality for consumers, however they are unable to monetize these investments. Furthermore, spectrum auctions and other local regulatory interventions put new demands on the industry, which result in further substantial costs (e.g. roll-out coverage obligations, obligations regarding resilience, robustness, security etc.).

High overall debt leverage is increasingly a problem as interest rates have started to rise from historical lows. Return on capital employed (ROCE) has fallen over the past years to a level that is

[1] To be published during May 2023; research by Arthur D. Little, commissioned by ETNO and GSMA
[2] The Global Internet Phenomena Report by Sandvine, January 2023.

barely higher than (and in some cases lower than) the WACC of operators. The challenging economic situation of the sector is in part linked to the high degree of regulation and the market fragmentation in Europe. The EU has more than 100 MNOs compared to 3 nationwide MNOs in the US. This results in an average number of customers which is 23 times higher in the US than in the EU (110mio. vs 4.7 mio).

Retail prices for telecommunications services have been on a downward trend for a long time, despite the increasingly higher value connectivity brings to consumers. These low prices are good for end users, but they are short-sighted as they limit the sector's ability to grow at a time in which capital intensity is rising and compound the already existing investment challenge. This difficult market situation is further compounded by the requirement to maintain legacy infrastructure and high costs of operations.

Technological developments/challenges impacting the connectivity sector

We see three technological developments that will have the greatest influence on the sector: softwarization, disaggregation and intelligent automation.

The sector is in the midst of the transition from proprietary, closed, hardware-based 'black-box' systems to highly programmable, disaggregated and cloud-native networks running on standard hardware and software solutions. Becoming more software-based and data-driven, networks will also require a higher level of automation to manage the complexity that comes with such environment.

These technological advances provide an opportunity for traditional ECN providers to transform into providers of innovative connectivity platforms that can drive digitalization across all sectors of the economy. Managing this transition, however, will require investments in transformation on top of the already large network deployment investments and the existing difficulty to monetize those.

We believe that disaggregation of hardware and software will attract new players and new investment in different layers of the telecommunications stack (e.g., hyperscalers, IT players, neutral host providers, InfraCos/TowerCos). By entering parts of the "value chain", they will challenge the traditional ECN model and put further pressure on the ability of telcos to invest and build networks of the future. We believe these new entrants are likely to cherry-pick the attractive and profitable segments, while traditional ECN providers will continue to be obliged to serve the general demand, including the national security requirements.

The transformation in the telecommunication sector also poses a skills challenge. ECN providers require skills and capabilities in the areas of software, cloudification, automation, and disaggregation, where they are increasingly competing for talent with other players in the digital ecosystem as well as in other sectors of the economy. This poses particular challenges in small markets, where talent pool is limited, and requires scale and global hiring models to address.

Investment trends in the connectivity sector

Just as it has been in the past 10 years, the provision of connectivity to serve the growing societal demands will continue to be financed mostly through private investments, which will primarily come from the traditional ECN providers. However, traditional ECN providers face a growing investment challenge, even in regions where network deployment has so far been relatively successful, such as in the Nordics and Baltics.

Operators face significant investment needs to meet connectivity targets and improve quality for consumers, however they are unable to monetize these investments.

The investment challenge stems from several factors, including unfettered and unmonetizable traffic growth, highly competitive nature of markets, lack of scalability, and highly regulated nature of the sector and fragmentation in regulatory implementation across Europe.

Given these factors, we expect the investment trends to continue: while investment needs will continue to grow, the ability of the sector to invest – i.e. what it can afford to invest – will not fundamentally change from today's levels. It is difficult to forecast investment levels 10 years out, as capacity of any individual company to invest will depend on a variety of factors – business performance, macroeconomic trends like inflation, expectations of its investors as well as regulatory demands.

Policy solutions

The existing model in telecommunications means that ECN providers are highly regulated, face intense competition, and experience return on capital employed below the cost of capital, while the value primarily flows to players that generate significant traffic without paying for the network resources they use. The current system carries the risk that the large investments demands required to provide the necessary coverage and capacity and to maintain quality, driven among others by regulatory demands, will not happen or end-user prices will need to increase substantially to fund the investments.

Direct contribution to the development of networks from a limited number of content providers that generate the largest share of data traffic would help close some of the existing investment gap by enabling financially sustainable network investments, creating incentives on large content providers to efficiently generate and route traffic into ECN networks and having an overall positive effect on consumer welfare. We therefore believe it is one solution of many that merits consideration.

In our view, addressing the investment challenge in the telecommunications sector also requires a careful consideration of the entirety of regulatory framework for the sector, which has profound impact on how companies operate and the level of costs they face. A wholesale review of regulatory framework for the sector, including the EU approach to in-country consolidation, removal of ex-ante regulation and reducing fragmentation in regulatory implementation is necessary.

While there will be a need for public sector financing in hard-to-reach areas where commercial investment is non-viable, we do not believe that an EU fund would address the investment challenge in the sector. Furthermore, an EU level fund would make it difficult to allocate resources efficiently according to each market's needs. It also risks channeling funding to regions with limited network deployment to date. Finally, an EU fund may require a new extensive legal framework and related costly bureaucracy which, combined with governance risks, may cause delay in delivering investments.