BUSINESS at OECD | Business and Industry Advisory Committee to the OECD

Market Structures in the Evolving Connectivity Ecosystem

Ensuring a Competitive Landscape for Innovation in Connectivity Infrastructure

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Introduction

Over the past years, there has been a significant change in the connectivity landscape. Today in addition to traditional telecom operators, new players, including technology firms, content and application providers, for example, are now also stakeholders in this ecosystem. The evolution of the ecosystem is redefining market structures, investment strategies, and the way connectivity services are delivered.

Ongoing technology advances and investment, together with demand and innovation driven by end-users, have delivered continued change in the digital communications networking and services industry. It is important to recognize and understand how these technological and investment trends, together with the demands and innovations coming from end user stakeholders in these networks, are reshaping connectivity.

As highlighted by OECD ongoing work addressing these issues[1], developments in the connectivity ecosystem reflect emerging business models, development of new services and evolving market composition. Transformation of the connectivity ecosystem brings tremendous opportunities for economic growth and social development. Businesses are now able to leverage digital infrastructure in unprecedented ways, fostering new economic models and enabling greater innovation across industries.

For example, the complementarity of cloud computing, artificial intelligence and telecom networks is unlocking new efficiencies and service models that foster productivity across sectors, making connectivity more flexible, scalable, and responsive to evolving demands. Likewise, as AI and other emerging technologies continue to advance and robust computing and digital infrastructure become available for all, these opportunities also could present challenges potentially requiring significant investment to sustain deployment, innovation and adoption and resilience.

In this context it is also important to consider what questions arise for policy makers and regulators, and in particular for those primarily focused on regulatory remit and competition. Impacts on business models, investment levels, technology development, and network access are just a few of the important elements to consider.

A policy approach that fosters innovation and reduces regulatory burdens while maintaining long-term investment sustainability is key to foster inclusive growth, innovation and technological progress.

This discussion paper provides an overview of the current state of play market structures of the evolving connectivity ecosystem, including perspectives of diverse business stakeholders, as well as recommendations for policymakers and future OECD work on this important issue.

[1] OECD report Financing Broadband Networks of the Future, OECD, June 2024.

A Competitive Landscape for Innovation in Connectivity Infrastructure

Competition is a driving force behind our dynamic and innovative connectivity ecosystem as the sector continues to undergo profound transformation, with innovation, investment, and greater competition continuously reshaping the landscape. This evolution requires careful consideration to ensure that competition remains robust, investment is sustainable, and regulatory frameworks are fit for purpose.

For Example:

- **Regulatory frameworks and investment:** It is important that regulatory frameworks foster competition, investment and innovation to ensure that connectivity ecosystems are open and sustainable in the long run;
- **Market integration:** Mergers and acquisitions are reshaping national and international markets, often with the goal of achieving cost efficiencies, improving service offerings and guaranteeing sustainable investment. A more integrated connectivity market can enable greater investment in next generation networks, foster innovation and drive better, more accessible and consumer friendly services;
- **Increasing interplay across stakeholders, including between terrestrial and non-terrestrial operators** introduces innovative approaches to delivering connectivity. Increasingly, terrestrial operators, satellite companies are simultaneously competing and forming new partnerships. This trend may require revision and modernisation of current regulatory models

In this rapidly changing environment, it is important that regulatory frameworks support innovation, competition and investment. A flexible, predictable, transparent approach that enables competition, prevents distortions, fosters innovation, is needed. Such approaches are also required to advance broader strategic objectives of OECD countries, such as increasing competitiveness, resilience and security, as well as supporting network development that fosters long-term investment in transformative technologies.

As business models and connectivity markets continue to evolve it is equally important to recognize and address the distinct issues and challenges faced by different business stakeholders.

The following section outlines key issues and recommendations from different business stakeholders in the connectivity ecosystems, for consideration by policy makers.

Perspectives From Business Stakeholders in the Connectivity Ecosystem

1. Telecom sector - terrestrial and mobile operators:

The telecom and mobile sector underscore that the global connectivity ecosystem is undergoing rapid transformation driven by an exponential growth in data traffic, the network of cloudification, the rise in AI-enabled services, and the emergence of new players in broadband markets such as LEO satellite service providers. This evolution has created deep interdependencies across the internet value chain and introduced new market dynamics that test the ability of traditional regulatory frameworks.

From this perspective, the sustainability of the connectivity ecosystem depends on a regulatory environment that enables continued private sector investment in the resilient physical networks that underpin all digital services and the broader connectivity ecosystem.

Policy and regulatory environments can either foster or limit investment capacities. However, an underinvested infrastructure is a structural barrier for secure, resilient, and high-quality connectivity and compute which is needed across all industries.

Telecom operators carry the majority of global network investment, having invested $109 billion annually (or 85% of total CAPEX) in mobile network infrastructure alone over the past 5 years. A regional breakdown shows the total investment in mobile infrastructure (networks and devices) amounting to $117 billon in Asia Pacific, $55 billion in North America, $38 billion in Europe, $19 billion in the Middle East and Africa and $15 billion Latin America.[2]

However, the industry faces structural challenges as there are low returns for telecom and mobile operators which raise questions about telcos' ability to sustain robust investment in capacity, coverage and speed of the networks to connect internet users with services.

In this context telecom stakeholders call for a whole-of-market, technology-neutral regulatory approach that ensures consistent principles are applied across all actors providing digital services, regardless of technology or business model. Such an approach should recognize the interdependence between network operators and digital platforms to ensure the sustainability of innovation in the connectivity ecosystem.

Scale and market structure are key issues. The telecom sector's success in achieving near-universal population coverage with broadband mobile networks now reaching 96% of people. demonstrates the importance of economies of scale. However, fragmentation in certain regions, notably Europe, where we count over 100 MNOs in 27 EU countries has limited the ability of operators to invest efficiently in resilient next-generation infrastructure. This issue is recognized in the Draghi Report, which notes that fragmentation makes the fixed costs of investing in networks relatively more onerous for EU operators and simultaneously makes it harder to capitalise on new technologies.

By contrast, more consolidated markets, such as those in Latin America, have achieved

[2] GSMA (2025), Mobile Infrastructure Investment Landscape https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/gsma_resources/mobile-infrastructure-investment-landscape/

greater investment capacity and innovation. Thus, telecom and mobile operators encourage a reassessment of merger and competition policies to reflect the capital intensity, long payback periods, and positive spillovers that characterise telecom sector investments.

In this context, a number of best practices are highlighted by telecom operators for consideration by OECD and national policy makers:

- **Adopt a whole-of market approach:** Regulators should apply consistent, technology-neutral principles across the internet value chain to ensure fair competition and efficient investment. This includes applying consistent regulatory provisions based on the type of service that is offered (rather than on the underlying technology) and to the characteristics, market relevance, and functional roles of the different players involved;
- **Promote investment sustainability:** Policymakers should design frameworks that incentivise adequate returns on investment to support next-generation network deployment and update ensuring resilience;
- **Enable scale:** Competition and merger assessments should take into account the capital-intensive nature of the telecom sector and the need for scale to fund infrastructure investment;
- **Reduce over-intrusive regulation and bureaucracy:** The industry faces an increasing amount of rules and regulations, be it in the field of consumer protection, net neutrality or data protection. Although the goals of such regulation are undisputed, simplification is necessary to reduce the burdens for new investments and innovation;
- **Support evidence-based policy:** The OECD should continue to develop comprehensive data-driven analyses that reflect the growing interrelations, asymmetries, and investment challenges across the digital ecosystem.

In summary, from the perspective of telco operators, integrating these perspectives into policy recommendations, the OECD can help ensure that market structures evolve in ways that sustain fair competition, innovation and long-term investment, thereby reinforcing the foundations of the global digital economy.

2. Over the Top (OTT) providers, content and application services:

Sustained investment and voluntary cooperation among ecosystem participants have long underpinned a thriving and innovative digital environment. Over-the-top (OTT) providers and content and application services make substantial, ongoing infrastructure investments, amounting to hundreds of billions of dollars annually in recent years in addition to generating the content that drives demand for connectivity services overall. For example, according to a major study by Analysys Mason, "The Impact of Tech Companies' Network Investment on the Economics of Broadband ISPs" (October 2022), OTT providers and content and application providers (CAPs) spent USD $883 billion globally on internet infrastructure during the period 2011-2021, including hosting, transport, and delivery networks that optimize performance for end users.3

These investments span the expansion of global data centers, advancements in codecs and compression technologies, the development of content delivery networks, and the deployment of subsea cables that bring content physically closer to end users. Indeed, AI contributes to revenue growth by for example enhancing customer service and enabling more personalized customer offers; within the network, AI improves traffic management, supports predictive maintenance, and enables self-healing

[3] The impact of tech companies' network investment on the economics of broadband ISPs (Analysys Mason), https://www.analysysmason.com/internet-content-application-providers-infrastructure-investment-2022.

capabilities, thereby reducing both operational costs and downtime.[4]

This collaborative and complimentary investment model among different stakeholders is a cornerstone of the internet's success, fostering innovation and efficiency across the ecosystem. Introducing untested regulatory or financial interventions that are not solving a clearly identified market failure will undermine incentives to invest, distort market dynamics, and raise costs for consumers. A balanced policy framework that recognises and reinforces a collaborative approach quo is therefore essential to preserving a resilient, competitive, and innovation-driven connectivity ecosystem. The content and information services offered by OTT providers and CAPs have driven the subscriber demand that incentivizes buildout of high-speed, high-throughput broadband transmission facilities.

Digital services attract end users by offering and increasing the supply of "killer apps" such as streaming video, online video games, and social media websites that often incorporate either or both of these media. The users of "killer apps" are willing to pay for higher-priced, premium-tier broadband services, like high-speed fiber to the home and "unlimited" mobile plans, in order to better enjoy these digital services.

In this context, a number of key issues are highlighted by OTTs content and application providers for consideration by OECD and policy makers:

- **Market led instruments** that ensure robust competition;
- Public policies that are **forward looking, evidence-based and adapted to the realities** of an interconnected and multistakeholder ecosystem;
- **Evidence-based policies**, which support the long-term development of connectivity and future technologies, that will support the ongoing digital transformation of our economies and societies;
- **Legitimate efforts to remove barriers** to investment in communications networks and services while refraining from applying legacy regulatory models to OTT service.

[4] Benoit Felten, Robert Kenny, William Webb, "*European Telecom Operators are well places to Meet Future Investment Requirements in Digital Infrastructure*", October 2025, available here.

Role of the OECD

As business models and technologies in the connectivity ecosystem continue to evolve, business stakeholders often hold differing perspectives on policy approaches. Nevertheless, *Business at OECD* members have identified several consensus points that should guide continued OECD work in addressing market dynamism within the connectivity ecosystem:

- **Multistakeholder – cross sector approach:** We encourage continued OECD evidence-based analysis on evolution of the connectivity ecosystem including perspectives of the relevant stakeholders across sectors;
- **OECD multidisciplinary approach:** The OECD, with its multidisciplinary approach should ensure engagement among the relevant committees in related to work to ensure a balanced and consistent policy approach;
- **Highlight relevant case studies:** Members encourage OECD to collect case examples, which illustrate the perspectives of various business stakeholders;
- **Consider the development context:** Examples from emerging economies, including consideration of regional approaches to connectivity innovation and investment can provide important perspective on effective policy approaches for evolving connectivity markets.

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