

**DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INNOVATION
COMMITTEE ON DIGITAL ECONOMY POLICY**

Working Party on Communication Infrastructures and Services Policy

Financing Broadband Networks of the Future

Outline

13-14 April 2023

This document provides an outline for the 2023-24 PWB report on “Financing Broadband Networks of the Future”, developed by the Secretariat and the Chair of the WPCISP, Bengt Mölleryd.

Action requested: the WPCISP is invited to discuss and approve the outline. Delegates are invited to send written comments by 5 May. Based on the outline, a draft report will be prepared for the November CISP meeting.

This document is a contribution to IOR 1.3.1.6.4 of the 2023-2024 Programme of Work and Budget of the CDEP.

Mr Maximilian Reisch; maximilian.reisch@oecd.org

Ms Verena Weber; verena.weber@oecd.org

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Financing Broadband Networks of the Future: Outline

Introduction

1. “Money makes the world go round” – and connects it. Be it to reach the currently unconnected, be it to upgrade existing broadband networks to enable next generation access: money is needed to foster inclusive access to high-quality connectivity. What unites governments and societies today is the recognition that this ubiquitous and inclusive access to broadband connectivity is a necessity for further digital transformation, economic growth and productivity. Based on this general agreement, the question for OECD countries is how to ensure adequate and long-term financing of broadband connectivity. The answer to this question determines how broadband networks will evolve and the coverage and quality they can provide.

2. The diversity and hence complexity of the financial landscape around connectivity infrastructure and services has constantly increased. While, for a large part of the 20th century, single entities in OECD countries had a monopoly in infrastructure and services, the liberalisation of markets has not only led to different players with a range of different business models, but also to different levels of infrastructure and service provision. This, in turn, corresponds to multiple different ways to finance communication infrastructure and structure its ownership.

3. The report takes account of this increasing diversity and analyses current trends in financing broadband networks and their implications for the future of connectivity infrastructure and services. It first looks at the private sector and the main traditional players in providing broadband connectivity: how are communication operators investing in networks and how are they doing financially? One important change on the balance sheets of some operators have been recent divestments of parts of their infrastructure to tower companies. These, in turn, keep growing in OECD countries and invest in passive, but more recently also in active communication infrastructure. The report examines this development and takes a closer look at these transactions and the investments and financial situations of tower companies. Another group of players that actively contribute to broadband infrastructure are publicly listed tech companies. While their business includes important investments in other parts of the digital ecosystem, this report aims at shedding light on their overall network investments and role in financing the networks of the future. Outside the purely digital ecosystem, financial asset providers such as private equity companies or pension funds have shown an increasing appetite in financing broadband networks across several countries of the OECD. One common denominator of these investments is that they target the deployment of wholesale access networks, thus changing the overall structure of the connectivity ecosystem. This is especially the case in rural and remote areas as well as for fibre backbones in certain countries. What is driving the increasing interest of the financial industry in the connectivity ecosystem? What implications does this engagement have?

4. Just as the financial topography of the private communication sector is changing, the public sector plays an increasing role as an investor in broadband networks, and this not only through recent economic recovery packages. Several OECD countries currently engage in funding connectivity infrastructure, in particular in areas where private actors are not closing connectivity gaps and in situations where the quality of connectivity is deemed as insufficient. The report takes stock of public funds, including recovery packages and examines how money provided by them has been spent. Finally, a last section of the report looks at selected measures to adjust the policy and regulatory framework to enable investments in the communication sector.

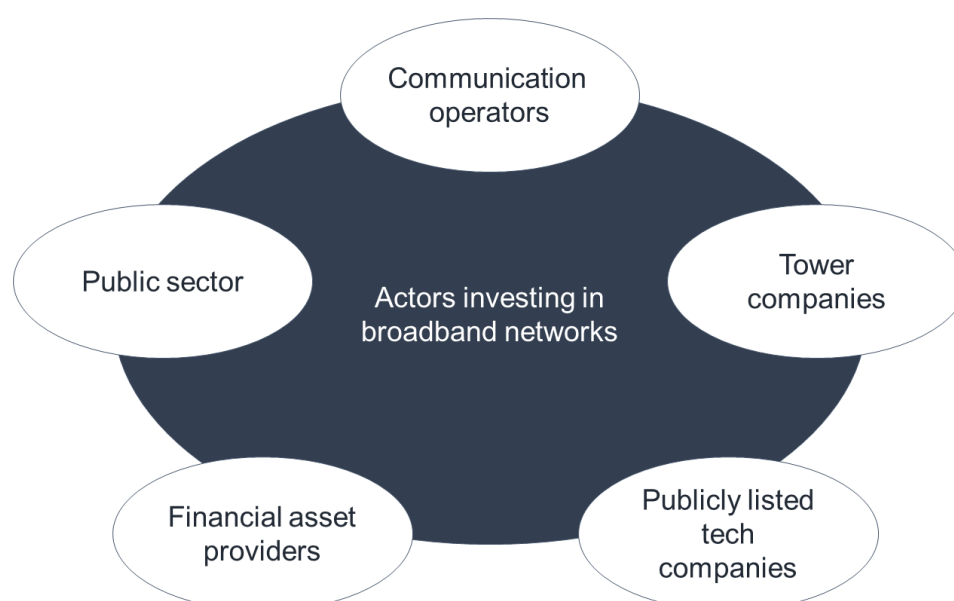
5. The following paragraphs outline the main sections of the report and provide a short overview of the main actors examined, the analysis planned and associated potential data constraints.

Overview of main actors investing in broadband networks

Key questions: How can the main actors financing broadband networks be categorised? What are their different roles?

6. This section will set the scene and provide an overview of main actors investing in broadband networks. It is proposed to focus on five important groups that invest in broadband infrastructure which also correspond to the following sections of the report (Figure 1). **Communication operators** take the heavy lifting in investing in fixed and mobile broadband networks, while **tower companies** have been on the rise. They have been growing across the OECD in recent years and invest in parts of the broadband infrastructure, as a direct consequence of divestments by traditional communication operators. In addition, and although not their core business, **publicly listed tech companies** have been developing own communication infrastructures, especially with respect to backbone connectivity. **Financial asset providers**, such as private equity firms, hedge funds or pension funds, are increasingly providing funds to invest especially in fibre wholesale access networks, not only changing the structure of the connectivity ecosystem, but also traditional ownership structures of broadband networks. Finally, the **public sector** plays an important role in both investing and enabling investments in communication infrastructure.

Figure 1. Main actors investing in broadband networks



Note: This typology is tailored to the actors studied in the context of this paper.
Source: OECD

Communication operators today

Key questions: *How have the financial positions and investments of operators developed since the 2019 OECD report on the operators and their future? How are operators structuring their business financially and what are respective implications?*

7. This section analyses network investments by operators and sets out financial data of communication operators of the past 15 years. This provides a broad indication of industry trends in continuation of the work undertaken in the report on the communication operators and their future (OECD, 2019^[1]). This section will look at revenue, investment and profitability indicators of wireless operators, wireline operators, cable & satellite companies. The indicators may include:

- Revenues
- Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)
- Earnings Before Interest, Taxes (EBIT)
- Return on Invested Capital (ROIC)
- Capital Expenditure (Capex)
- share prices (e.g. as Price/Earnings)

8. In addition, if available data allows for it, selected geographical breakdowns or spotlights may be provided, especially with respect ROIC in different markets, as well as CAPEX, revenues, and profitability. Delegates in particular from Business@OECD are invited to provide suggestions and data.

9. Some operators have recently been engaged in divestments of their infrastructure assets. For example, operators seem to increasingly give up their majority stakes in tower assets (Table 1). This section will furthermore examine questions around the rationale behind MNOs selling wireless towers and what these changes mean for communication operators.

Table 1. Stakes of selected communication operators in tower assets

Operator	Tower company	Number of towers	Countries	Operator stake
BT	MBNL	14 000	United Kingdom	50%
Deutsche Telekom	GD Towers	40 000	Germany, Austria	49%
Orange	Totem	26 882	France, Spain	100%
Telecom Italia	Inwit	23 000	Italy	15.4%
Telefónica	Telixus Towers	30 722	Argentina, Brazil, Chile, Germany, Peru, Spain	0%
Vodafone	Vantage Towers	82 000	Czech Republic, Germany, Greece, Hungary, Ireland, Italy, Portugal, Romania, Spain, United Kingdom	81.7% to be reduced to 40.9% by June 2023

Source: OECD based on LightReading (LightReading, 2022^[2])

Tower companies on the rise

Key questions: *What is the role of tower companies in financing infrastructure? How are tower companies structuring their business financially and what are respective implications?*

10. Reasons for tower companies and their investors to acquire infrastructure assets from operators include stable revenues backed by long-term customer contracts, predictable cash flows, strong operating margins and growing customer demand (OECD, 2019^[1]). In addition, demand for wireless services has been constantly growing. As a result, tower companies have been financially successful in recent years (Table 2). This section will undertake an analysis of financial indicators of tower companies. As for the communication operators, these indicators may include revenues, EBITDA, EBIT, ROIC, CAPEX and share price developments (P/E). This analysis will be conducted for publicly held tower companies, while a separate section will, among others, examine private equity companies, which are also increasingly entering the wireless tower business.

Table 2. Cumulative total stockholder returns on common stock of American Tower Corporation

	2016	2017	2018	2019	2020	2021
American Tower Corporation	100	137.69	156.03	230.69	229.6	305.1
S&P 500 Index	100	121.83	116.49	153.17	181.35	233.41
Dow Jones U.S. Telecommunications Equipment Index	100	123.05	133.55	155.24	158.83	231.68
FTSE Nareit All Equity REITs Index	100	108.67	104.28	134.17	127.3	179.87

Note: Cumulative total stockholder return of American Tower Corporation is contrasted with the cumulative return of the S&P 500 Index, the Dow Jones United States Telecommunications Equipment Index, and the FTSE Nareit All Equity REITs Index.

Source: (American Tower Corporation, 2022^[3])

Publicly listed tech companies invested in broadband infrastructure

Key questions: *What is the role of publicly listed tech companies in financing infrastructure? How are they investing in communication infrastructure?*

11. Technology companies (“tech companies”) have developed to some of the largest enterprises in the world. In addition, they are leaders in R&D expenditure. Apart from their respective core businesses, tech companies often have been expanding own communication infrastructures. To date, however, they have largely not become Internet Service Providers. This suggests that while they are extremely effective competitors in a number of fields, such as OTT services, traditional and new access operators maintain advantages in providing broadband access (OECD, 2019^[1]). This section examines the financial stake in communication infrastructure of the five biggest publicly listed tech companies in terms of market capitalisation in OECD countries which, as of February 2023 (investingnews, 2023^[4]), include:

- Apple (2.29 USD trillion)
- Microsoft (1.84 USD trillion)
- Alphabet (1.29 USD trillion)
- Amazon (1.05 USD trillion)
- Meta (390.62 USD Billion)

Financial asset providers investing in wholesale access networks

Key questions: *What role do financial asset providers such as private equity firms play in the communication sector? What implications has their engagement in the sector?*

12. Financial asset providers, such as private equity firms, hedge funds or pension funds, play an increasing role in providing funding for communication infrastructure and services. Large parts of these funds invest in fibre wholesale access networks, not only changing the structure of the connectivity ecosystem, often in rural and remote areas, but also the overall composition of investments going into the

deployment of broadband networks. Since the global financial crisis (i.e. 2007-2009), private equity firms, for example, have provided an estimated 10% of all infrastructure finance (Moonfare, 2022^[5]; Preqin, 2020^[6]). In 2020, financial transactions in communication infrastructure and services accounted for 35% of total private equity infrastructure deal value, up from 15% in 2019 (S&P Global, 2021^[7]). As of March 2021, a total of 528 funds with exposure to communication infrastructure and services were in the market to raise a combined targeted capital of USD 155.1 billion (S&P Global, 2021^[7]). This section examines the role of private equity companies in the communication sector.

13. Financial data for private equity companies is generally more difficult to obtain. Delegates are invited to provide contacts to the financial sector as well as proposals on potential ways to obtain data on these types of investments.

Public funding for broadband networks

Key questions: *How much funding of recovery packages has been spent on communication infrastructure? How has this money been spent?*

14. In response to the COVID-19 health crisis and to overcome existing connectivity gaps, many OECD countries have put in place recovery packages. These programmes have recognised the criticality of access to high-quality broadband by all segments of the population for economic recovery. While the wave of public funding, to a large part triggered by the COVID-19 health crisis, highlights the importance of communication infrastructure on the agenda of policy makers, the question is, how countries have decided to boost inclusive access to high-quality connectivity. This section will look public funds dedicated to the deployment of broadband networks, including recovery packages, in OECD countries and their approaches to allocating available funding to connectivity.

The role of public policy and regulation in financing infrastructure

Key questions: *How can the policy and regulatory framework be adjusted to allow for continued investments in broadband networks?*

15. Just as the communication sector undergoes high-paced developments, the role of public policy and regulation in enabling inclusive access to connectivity is evolving constantly. This section will examine the importance of adequate policies and regulatory frameworks to enable investment in the communication sector and identify the principal elements to optimise the domestic environment to attract investments.

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