

Mind the Gap

*Demystification of the so-called
'connectivity investment gap'*

PAPER

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Demystification of the so-called ‘connectivity investment gap’

On 12 July 2023 the European Commission (EC) stated¹ that there is an overall ‘investment gap’ of at least €174 bn to reach its 2030 Digital Decade policy objectives of 1Gbps in every home and 5G coverage all over the EU. They distil this “gap” from a very informative and well researched study for the EC by WIK Consult, which is referred to in that same Commission statement. Except, WIK did not characterise the figure of €174 bn as an investment gap in its study; instead this was treated as the totality of investment necessary to reach the Digital Decade connectivity objectives, noting that the majority of this funding will be covered by market forces. The WIK Consult report further identified a potential need for public funding of €40 bn for fixed networks with an additional €2.7 bn for mobile.

In addition to the erroneous presentation by the Commission of the WIK report, we consider that the calculations by WIK Consult have resulted in an over-estimation of the amount of investment needed and the associated “funding gap”. This is due to the use of European Commission statistics that do not always accurately reflect the actual network roll-out situation in EU Member States. It also does not take into account some of the public funding that some countries, such as France, have already allocated and spent to achieve the Gigabit Society objectives and as a result have already filled some or all of the calculated ‘funding gap’. Our analysis explores the above in greater detail and demonstrates the following findings:

- The “investment gap”, as presented by the European Commission, is much smaller and can be largely covered via existing funding mechanisms.
- FTTH roll-out in individual Member States is going faster than Commission’s data shows. This means that connectivity goals are achievable, and any shortcomings are due to investment decisions.

We will first discuss how an over-estimation of the investment needed for FTTH lead to an over-estimation of the need for public subsidy. We will then discuss how the FTTH roll out is progressing differently across the individual Member States and has progressed faster than the data used by WIK Consult assumed.

¹ The WIK Consult study: Investment and funding needs for the Digital Decade connectivity targets, European Commission <https://digital-strategy.ec.europa.eu/en/library/investment-and-funding-needs-digital-decade-connectivity-targets>

Investment needs vs gap, market investments vs public subsidy

The investment picture outlined in the WIK-Consult study

In its study for the EC, WIK Consult assessed the amount of investment from 2023 onwards needed to meet the 2030 Digital Decade policy objectives. WIK assessed around €114 bn investment is needed to meet the fixed network 2030 target of 100% Gigabit capable networks with Fibre-to-the-Premises as technology of choice, and €33.5bn for the provision of “full 5G service”, thus resulting in €148bn required to reach EU Digital Decade 2030 targets, with additional €26bn for the main transport paths. This sums up to €174bn of needed investment. WIK Consult estimates that the private sector will invest between €120 bn and €157 bn. WIK refers to a public subsidy requirement of €32 bn when fixed and mobile roll out is combined versus a €40bn subsidy for fixed with an additional €2.7 bn for mobile when the roll out is not combined. An approach deploying 5G Fixed Wireless Access in (some) rural areas, reduces the investment burden to € 108 bn and the need for public subsidy to €29 bn. WIK consult notes that €19 bn of these €40 bn are already covered by EU funds through the Recovery and Resilience Fund and the regional development funds ERDF and EAFRD².

WIK carefully -and correctly- avoided using “investment gap” in its own terminology. In their report the words “investment gap” only show up in references to the titles of other studies. There is good reason for this. An investment gap points to a needed investment, which is not covered by market or committed public resources. Contrary to what the European Commission’s statement implies, much of the investment needed for 2030 is already covered by market forces with public subsidies available from EU, national and regional funds for areas where the costs are higher than the market will provide.

The second part of this memo will assess in more detail the figures put forward by WIK Consult.

The concept of ‘investment gap’ was likely introduced by the EIB

The question then arises on how the confusion over the notion of an investment gap has come into existence. The words ‘investment gap’ first appeared in a 2018 study “Reaching the objectives of the Gigabit Society: Assessment of the investment gap” by the European Investment Bank. The EIB study aimed to calculate the total investment needed to achieve the European build-out target.³

² See page 8 of the WIK Consult study.

³ The Gigabit Society aimed at 100mbps reaching all European households by 2025 and Gigabit connectivity reaching all main socio-economic drivers. <https://digital-strategy.ec.europa.eu/en/library/connectivity-european-gigabit-society-brochure#Objectives>

The investment gap for public funding to reach the targets of the DAE and the EGS is ca. EUR 254 bn.

Expected private investments relevant for the DAE and EGS targets until 2025 amount to ca. **EUR 130 bn.**

→ **Cover (only) 33% of total investment needs**

→ **Investment gap: ca. EUR 254 bn**

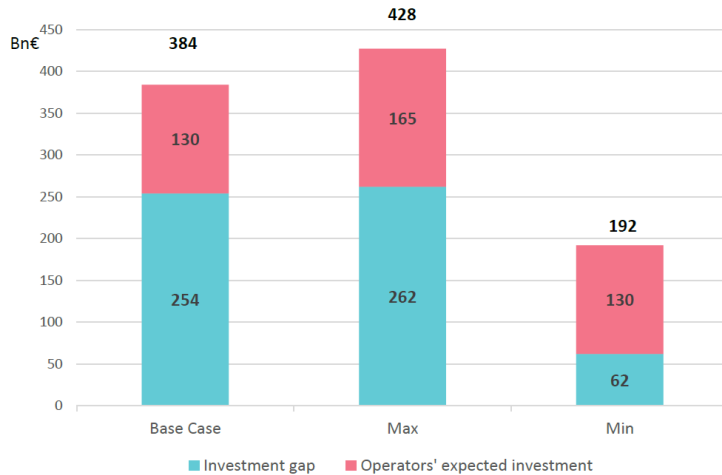
Alternative scenarios:

1. Max:

- FTTC in extreme-rural + max 5G quality
- Investment need: **+15% to EUR 428 bn**
- Private investments: **39%**
- Investment gap: **EUR 262 bn**

2. Min:

- Wireless technologies in all 3 rural geotypes + only 1m socio-economic drivers/enterprises
- Investment need: **-53% to EUR 192 bn**
- Private investments: **68%**
- Investment gap: **EUR 62 bn**



European Investment Bank Group

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Figure 1: Investment Gap (source: presentation "Unlocking investments in broadband networks in Europe", ITU 2020)

At the time, it estimated those total investment needs at between €384 bn and €428 bn, of which estimated the market would invest €130-165 Bn. The EIB concluded that the difference of €245 Bn between the needed investment and market investments, would have to be covered by public subsidy and it described this difference as the "investment gap". The Gigabit Society goals aren't as ambitious as the Digital Decade goals, but the EIB's estimate were still several times higher than those of WIK.

The calculations from the EIB differ from those made in the WIK Consult study, which we comment upon more thoroughly in Annex A to this paper. That said, just like WIK Consult but unlike the European Commission, the EIB did not use the term "investment gap" to refer to the entirety of the investments needed, but only refer to that part of the investment needs that would not be covered by market forces.

The roll-out of gigabit networks is faster than the EC statistics show

Broadband data points are often poorly comparable.

WIK Consult calculated for the EU with a model to assess the still required capital goods (FTTP and “full 5G”) to meet the set 2030 Digital Decade Policy targets.

For that purpose, it used the “Broadband Coverage in Europe 2013 – 2021” survey⁴, compiled by OMDIA and PointTopic for the European Commission. According to the authors, the source of the data is said to be National Regulatory Authorities and operators. This dataset is the same as used by the EIB and other analysts.

When we assess the data per country (for 2013-2021) contained in these files, we observe that the aggregated data at the country level is frequently lower than what has been reported by regulators and industry associations for those time periods. The data appears to be between 1 and 2 years behind on national and industry statistics.

The difference between the OMDIA and PointTopic survey and the most recent data can be explained by the difficulty these researchers face in compiling the dataset. The data on FTTH roll out, but also other broadband statistics aren’t collected in the same way in each EU country. This means that there is significant effort needed to collect and calculate the statistics, which may also mean that they are sometimes a bit behind with actual market data on roll out. Below, we provide a couple of illustrations of the factual errors contained in these statistics.

The Netherlands: 0.5 million FTTH connections ‘found’ by ACM are missing in the OMDIA/PointTopic data

Regarding the Netherlands, EC data says there are 4,1 million FTTH connections for 2021 and 2.8 million for 2020, whereas the Dutch regulator ACM reports 4.5 million FTTH connections for 2021 and 3.3 million for 2020. This difference of up to 0.5 million connections/year can be explained as follows. In the Netherlands, the regulator ACM did for a long time not collect data on FTTH roll out. It reported the number of subscribers to FTTH and did not count them as connected to FTTH if they still used VDSL, which meant that available fibre connections went uncounted if the household had a subscription on DSL or cable. When ACM started collecting data on roll-out it needed some time to integrate the data from smaller FTTH networks. When it did, it increased the number of FTTH connections for 2020 by almost half a million additional connections. The ACM data was subsequently updated to show 3.3 million for 2020, which is not reflected in the EC data.

The result of these retroactive data corrections by ACM can be seen in the OMDIA/Point Topic report in the form of jump between 2020 and 2021 of 1.3 million connections, from 2.8 million in 2020 to 4.1 million in 2021. Through these issues with reporting, the WIK Consult study overlooked half a million FTTH lines (2.8 million instead of 3.3 million) and thus overestimated the funding need by almost half a billion.⁵ The estimates in Table 3-4 for the Netherlands of 1.4bn to reach full gigabit

⁴ Available at <https://digital-strategy.ec.europa.eu/en/library/broadband-coverage-europe-2021>

⁵ In addition, the EC data underestimates the number of homes connected to Docsis 3.1 because it reports a decline of these connections from 2020 to 2021 from 6.2 to 5.7 million, whereas these increased to almost 7 million.

coverage and €161 million in public funding appear to be roughly correct. The funding debate in the Netherlands focuses not on whether the investment will happen, but on whether the central government, regional or local government will pay for it from their budget.⁶

France: FTTH roll-out data and public funding amounts appear underestimated

A similar data effect can be seen in France, where since 2013 the French government pushes the roll out of FTTH in rural areas through the Plan Très Haut Débit ("THD"). Where the OMDIA/Point Top files estimate the number of FTTH covered households to be 18.3 million in 2021, the French regulator ARCEP states that by the end of 2020 there were 24.1 million and by the end of 2021 29,7M homes and businesses connected. It appears while the EC uses the ARCEP data, the data is 2 years behind the French statistics. This leads to a noticeable underestimation of the achieved FTTH deployment, just in a period when fibre deployment was happening at an astonishing speed: France connected 4-5 million homes per year from 2018 to 2022. Through the THD plan, the French government has set a goal to have 43 million homes and businesses connected by 2022 and is well on its way to achieve this goal, albeit maybe a bit later than initially intended ⁷. Its latest data in 2023 for just FTTH shows 36.1M connected locations.

To achieve its goals, the French government allocated €13.3Bn of public money in 2013.⁸The public funding identified for gigabit fibre in France in table 3-4 of the WIK report is €9,18Bn, which is lower than the amount effectively spent by the French government. It is surprising that the report does not mention the French Plan THD, its funding and the fact that it is almost finished. It is fair to ask whether France should at all be included in the € 40 Bn funding gap that WIK Consult identified.

Ireland: The public funding for the National Broadband Plan is not recognised in the estimates

The Irish National Broadband Plan will connect 569,000 homes and businesses through a combination of private and public financing. These are the homes and businesses that the government identified as unable to receive gigabit broadband without public initiative. Initially the plan was for over 800,000 locations, but the incumbent operator Eircom, announced that it would connect 300,000 locations without the need for public subsidy.⁹ This again means that the need for public subsidy of half a billion euro identified by WIK Consult for Ireland has already been filled.

⁶ The last 20-40K rural homes are estimated to require this level of public funding to be connected. Some regional governments, for example the province of Friesland, have already successful programmes to connect these homes. Some other provinces do not have such plan or have had issues with their implementation and financing. This means that even in a small country like The Netherlands, the solution for the identified investment gap is more granular and less unequivocal than what is presented in the report.

⁷<https://www.arcep.fr/demarches-et-services/collectivites/le-plan-france-tres-haut-debit-pfthd.html>

⁸ To cite "Pour répondre à ces objectifs, 13,3 milliards d'euros d'investissements publics sont prévus Pour équiper près de 43 millions de logements.", INFRASTRUCTURES NUMÉRIQUES ET AMÉNAGEMENT DU TERRITOIRE IMPACTS ÉCONOMIQUES ET SOCIAUX DU PLAN FRANCE TRÈS HAUT DÉBIT, Rapport du comité d'évaluation présidé par Pierre-Jean Benghozi, 2023 available at <https://www.strategie.gouv.fr/sites/strategie.gouv.fr/files/atoms/files/fs-2023-rapport-thd.pdf?v=1673860068>

⁹ For more background see the website of the National Broadband Plan <https://nbi.ie/the-national-broadband-plan/> and for more information on the status and dynamics see <https://www.bonkers.ie/blog/broadband-phone/what-s-happening-with-the-national-broadband-plan-here-s-where-we-are-right-now/>

Not all FTTH roll-out delays are similar, hence they should be approached differently

The estimates of how many homes still need to be connected and how much the investment will be, omits to consider the reason why those homes aren't connected yet. As outlined above, France will reach the goals before the deadline. Spain too will have little to no problems reaching the goals, because it has the highest FTTH penetration rate in Europe (albeit recognizing that the few last homes to be passed may be costly). The main reason why homes in Germany aren't connected with FTTH yet, is because the FTTH roll-out started later, as VDSL was widespread and offered for a long time rather decent quality (roll-out started after 2020 when competitive pressure from FTTH-networks and alternative firms became stronger). The same can be said for Belgium where most homes have access to both VDSL and cable-based networks of relatively good quality. The incumbent VDSL and incumbent cable operator in the different regions had therefore less incentive to invest in FTTH. They started rolling out FTTH only in this decade. In our view, the roll-out delays in Belgium or Germany do not require the same approach as - potentially more financially burdensome - delays in other countries.

Conclusion

There is no EU wide investment gap of €174Bn - the real 'funding gap' requires a granular approach.

The above analysis shows that the €174bn investment, that WIK Consult calculated as needed to achieve the EU2030 Digital Decade connectivity goals, does not constitute an investment gap as the European Commission declared in its announcement.

Further, investment gap of €40 bn identified by WIK appears still overestimated and does not take into consideration all information on national and local initiatives. It is particularly questionable to see countries like France or Ireland included in the investment gap estimations.

What causes the remaining gaps, can be very specific to the country or region and often does not require an EU-wide approach. Whether public funding may be needed is often best assessed at national or regional level. Not all countries have seen similar growth in number of homes connected as France, but across the EU the investment in new network deployments is accelerating. The 2022 data of Omdia and Point Topic for the EC shows 11.8 million new FTTH connections from 2021 to 2022 with a total 107.7 million¹⁰ The FTTH council estimates 114 million FTTH connections in September 2022.¹¹ With almost 200 million households in the EU, this is a significant step towards the EU2030 Digital Decade goals, and with such a pace it might actually be feasible to achieve them.

What our review shows is that the European Commission inaccurately refers to an investment gap of €174 bn. Investment is needed, but even the WIK Consult estimates appear overestimated (due to some errors in underlying stats). Furthermore, for such investments to be efficient, one must consider data on the local situation to identify where the goals may not be achieved and what the true cause is. The market for investment in FTTH has been very fluid, with many new entrants, but also with incumbents changing their position when the investment by competitors in FTTH eroded their market share. Governments (on national, regional and municipal levels) have been able to stimulate market investment and provide funding for rural FTTH, which means that many of the potential funding gaps have already been covered. There are still many homes to be connected, but it does seem possible to achieve the set connectivity goals by 2030 in most countries and regions across the EU.

¹⁰Broadband Coverage in Europe 2013–2022, <https://digital-strategy.ec.europa.eu/en/library/broadband-coverage-europe-2022>

¹¹FTTH/B Market Panorama in Europe, Update September 2022, FTTH Council and iDate, <https://www.ftthcouncil.eu/knowledge-centre/all-publications-and-assets/1707/european-ftth-b-market-panorama-2023>

Annex A

EIB study “Reaching the objectives of the Gigabit Society: Assessment of the investment gap”

In its 2018 report, The EIB expected the necessary investment to be between €384Bn-€428Bn by 2025. This is double of what WIK expects. It is also expected that the private sector could only cover €130-165 Bn for those 7 years.¹² This is similar to what WIK estimated the private sector could invest. This would leave a gap of €245 bn for which public subsidy would be needed, which is 6 times more than what WIK estimated.

Some of the difference between the two estimates can be explained by the EIB estimate being based on pre-2018 data, pre-Brexit and when next-generation broadband was less prevalent. It can also be related to the fact that the EU statistics underestimate the actual state of the market by almost 2 years (see higher up). This is particularly relevant, because the major investment in FTTH in many countries started after 2015. The EIB estimate is pre-Brexit and therefore includes the investment in the UK. Still, the EIB estimate of the investment needed is significantly more than what WIK identifies.

The difference is caused by the EIB assuming that to deliver the Gigabit Society targets, an investment in infrastructure of €126 Bn to achieve 100Mbps broadband by 2020 is needed. That is not the case, because the upgrade to 100Mbps has been achieved throughout the EU with the replacement of routers and modems and not infrastructure investment. In some rural areas

investment in new network infrastructure was necessary to achieve the goal of 100Mbps. The new networks in such areas are generally built using fibre capable of 1Gbps and more. Therefore, this estimate for infrastructure upgrade should be considered redundant. The EIB estimate of the remaining €257 bn investment to roll out Gigabit and 5G from 2020 to 2025 is more in line with what WIK estimates, if the UK is included.

¹² The study and the underlying model aren't publicly available. However, the results have been presented by the EIB at a meeting of the ITU. "Unlocking investments in broadband networks in Europe", Harald Gruber ITU Regional Regulatory Forum for Europe, 30 November 2020, https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2020/RRF/Session%202_Harald%20Gruber_ITU%20301120%20%281%29.pdf

The EIB assumes a comparable private sector investment to WIK. The higher total investment by the EIB combined with the same private sector investment results in estimates of the necessary public subsidies to be five times larger. The over-estimation of the investment need by the EIB looks very similar to the total investment as estimated by some of the other studies.

The required investments to reach the build-out targets as agreed by European policy makers amount to EUR 384 bn until 2025.

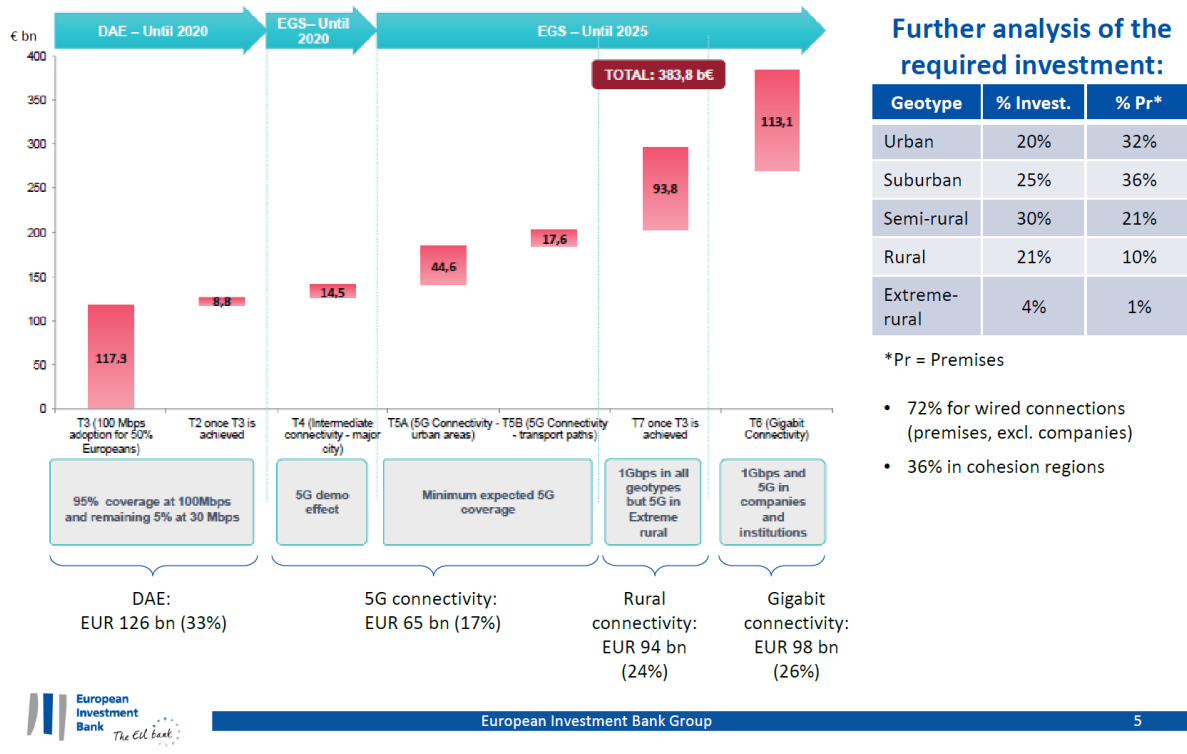


Figure 2: Required investments (source: presentation "Unlocking investments in broadband networks in Europe", ITU 2020)

* This paper contains the views of Stratix. Stratix would like to thank Microsoft for their financial support, and DOT Europe for their endorsement.

About Stratix

Stratix is an independent research and consultancy company specialised in communication infrastructures and services. For 30 years we have been focusing on sectors where ICT networks play an important role: telecommunications and media, but also energy, scientific research and real estate.

Stratix is not affiliated with service providers, suppliers or any other organisation. Its structure and business model guarantees the quality of our work and fast, flexible solutions.

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