

Ensuring the Universal Availability of TLC VHC Networks in the EU in the context of the national recovery and resilience plans

Applicable rules and models of intervention for public and private funding (Co-investment, public/private Financing, RRF)

by

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In line with the requirements set at EU level, the digital transformation, together with the green transition, will be the crucial driver for the initiatives that the European Member States are taking in the context of their national Recovery and Resilience Plans. In fact, the recovery package for Europe approved last year, the Next Generation EU (NGEU), requires Member States to assign to digital transformation at least the 20% of the resources they will obtain from the Recovery and Resilience Facility (RRF). Among the areas of intervention for the digital sector, connectivity, which means ensuring coverage and take-up of Very High-Capacity Networks (VHCN), plays a major role.

This should be read in conjunction with the connectivity targets set by the European Commission's Communication *2030 Digital Compass: the European way for the Digital Decade*, adopted on 9 March 2021¹, which seek to ensure that “all European households (whether in urban or rural areas) will be covered by a Gigabit network, with all populated areas covered by 5G.” Despite the acceleration in the VHCN coverage and take-up rates, over the last years, in all EU Member States², in many of them this objective cannot be reached solely through private investments, hence public funding becomes essential, at least in less served areas.

¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions *2030 Digital Compass: the European way for the Digital Decade* – COM (2021) 118.

² See the latest *Digital Economic and Social Index (DESI)* for an overview: [https://digital-agenda-data.eu/charts/desi-see-the-evolution-of-an-indicator-and-compare-breakdowns#chart={"indicator":"desi_1b2_vhcnc","breakdown-group":"total","unit-measure":"pc_hh","ref-area":"EU"}](https://digital-agenda-data.eu/charts/desi-see-the-evolution-of-an-indicator-and-compare-breakdowns#chart={)

However, public funding should be used only when strictly necessary, as declared several times by the European Commission. Therefore, public intervention must not crowd out private investment and must not cause unnecessary market distortions. To this end, there are a number of rules to be respected in order to avoid that public funding is assigned contrary to the public interest and in a manner that benefits only the recipients to the detriment of their competitors. The aim of these rules is to improve the compatibility between the interests of private investors and the public interest to achieve a ubiquitous coverage of VHCN without excessively resorting to public funding (a resource that must be allocated in a selected and rigorous manner, given the sovereign debt growth caused by the measures taken by national governments to tackle the pandemic, mitigate its impact on households and businesses, and finance the recovery of the economy).

The European legal system, as is well known, endows the Commission with adequate powers and tools to monitor the compliance with these rules by Member States wishing to use public resources (from the RRF or other sources).

Therefore, it is important, on the one hand, to assess the rules applicable to the use of public funding and its interplay with private investment and, on the other, to discuss how to improve the VHCN coverage with private investments by evaluating potential forms of cooperation between private operators, which can reduce the need for public funding.

The first part of this paper will focus on the rules and the guidelines currently applicable at EU level when Member States wish to have recourse to public resources (especially those coming from the RRF) to reach the above connectivity targets.

The second part will analyse how private companies can cooperate – in compliance with the antitrust rules - in order to extend their geographic reach and increase the profitability and the sustainability of private investment, hence reducing the usage of public funds, with a particular focus on the case of cooperation between vertically integrated incumbent operators and wholesale-only new entrant operators.

I

The use of public funds to boost VHCN connectivity and State aid rules

1.1 The National Recovery and Resilience Plans for very-high-capacity networks (VHCNs)

By the end of April 2021, EU Member States have submitted to the European Commission their **national recovery and resilience plans**, outlining how they intended to use the resources of the Recovery and Resilience Facility to finance projects in different areas and notably in **the digital sector** (to which they are obliged to allocate at least 20% of the total amount they receive).

Financing the deployment of new electronic communications infrastructures capable of delivering VHC performances in areas left aside by private investments falls within the initiatives that EU Member States can pursue to support the digital sector. However, as coverage and investment levels vary from country to country, **not all EU Member States have prioritised aid to electronic communications infrastructures** among their plans to allocate the RRF for the digital sector.

Let us consider three examples here, those of Italy, Spain and Germany.

Italy, which is the greatest recipient of RRF resources, has submitted the most ambitious plan at EU level.

Pursuant to the **Italian National Recovery and Resilience Plan** (*Piano Nazionale di Ripresa e Resilienza*, PNRR) recently approved by the European Commission and the Council³, **6.7 billion euro will be allocated for the deployment of new** electronic communications infrastructures and in particular of **Very-High-Capacity Networks (VHCNs)**, as defined by the European Code of Electronic Communications (EECC)⁴

³ <https://www.consilium.europa.eu/en/press/press-releases/2021/07/13/council-gives-green-light-to-first-recovery-disbursements/>

⁴ DIRECTIVE (EU) 2018/1972 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 *establishing the European Electronic Communications Code*, Art. 2(2): “‘very high capacity network’ means either an electronic communications network which consists wholly of optical fibre elements at least up to the distribution point at the serving location, or an electronic communications network which is capable of delivering, under usual peak-time conditions, similar network performance in terms of available downlink and uplink bandwidth, resilience, error-related parameters, and latency and its variation; network performance can be

and the related BEREC guidelines⁵. The government expressly refers to **FTTH/P** networks (Fiber To The Home/Premises, consisting entirely of fibre up to the premises of the end user), **FWA** (Fixed Wireless Access, consisting of fibre up to a base station and a wireless connection for the “last mile”) and **5G**.

As indicated in the PNRR, the objective is to "*bring Gigabit connectivity ('Italia a 1 Giga' Plan) to approximately 8.5 million households, businesses and entities in grey and black NGA areas where a market failure is demonstrated, aiming for full technological neutrality and leveraging the best solutions available, both fixed and FWA. The plan also includes coverage of around 450,000 real estate units located in remote areas (so-called scattered houses), which were not included in the previous public intervention plans; "*

considered similar regardless of whether the end-user experience varies due to the inherently different characteristics of the medium by which the network ultimately connects with the network termination point.”. Recital 13 clarifies the meaning of “distribution point at the serving location” for both fixed and wireless networks: “[...] In the case of fixed-line connection, this corresponds to network performance equivalent to that achievable by an optical fibre installation up to a multi-dwelling building, considered to be the serving location. In the case of wireless connection, this corresponds to network performance similar to that achievable based on an optical fibre installation up to the base station, considered to be the serving location.[...]”.

⁵ BEREC GUIDELINES *on Very High Capacity Networks (BoR (20) 165)*. They were adopted, in accordance with Article 82 EECC, to provide guidance to national regulatory authorities (NRAs) ‘on the criteria that a network is to fulfil in order to be considered a very high capacity network, in particular in terms of down- and uplink bandwidth, resilience, error-related parameters, and latency and its variation’. As indicated in Par. 18 of the Guidelines, “[...] any network which fulfils one (or more) of the following four criteria is a very high capacity network:

Criterion 1: Any network providing a fixed-line connection with a fibre roll out at least up to the multi-dwelling building.

Criterion 2: Any network providing a wireless connection with a fibre roll out up to the base station.

Criterion 3: Any network providing a fixed-line connection which is capable of delivering, under usual peak-time conditions, services to end-users with the following quality of service (performance thresholds): a) Downlink data rate ≥ 1000 Mbps; b) Uplink data rate ≥ 200 Mbps; c) IP packet error ratio (Y.1540) $\leq 0.05\%$; d) IP packet loss ratio (Y.1540) $\leq 0.0025\%$; e) Round-trip IP packet delay (RFC 2681) ≤ 10 ms; f) IP packet delay variation (RFC 3393) ≤ 2 ms; g) IP service availability (Y.1540) $\geq 99.9\%$ per year.

Criterion 4: Any network providing a wireless connection which is capable of delivering, under usual peak-time conditions, services to end-users with the following quality of service (performance thresholds 2): a). Downlink data rate ≥ 150 Mbps; b) Uplink data rate ≥ 50 Mbps; c) IP packet error ratio (Y.1540) $\leq 0.01\%$; d) IP packet loss ratio (Y.1540) $\leq 0.005\%$; e) Round-trip IP packet delay (RFC 2681) ≤ 25 ms; f) IP packet delay variation (RFC 3393) ≤ 6 ms; g) IP service availability (Y.1540) $\geq 99.81\%$ per year”

Spain will instead **focus** the vast majority of its 4 billion plan to the financing of **5G infrastructures**. This should not surprise, as the country has one of the greatest coverage of fibre networks in Europe.

The goal of the Spanish government is to ensure, by 2025, 5G coverage to the 75% of the population and to make the country a strategic hub in Southern Europe also in terms of cross-border digital infrastructures: for this purpose, Spain and Portugal will jointly spend part of the RRF funds allocated to them to finance common projects, including those for the interconnection of networks, data infrastructures and submarine cables.

As far as 5G is concerned, Spain intends to finance, by July 2024, the coverage of areas with a population of up to 20.000 inhabitants, which corresponds to the 69% of the total population. It has been reported⁶, however, that the European Commission has expressed some doubts on such plan, in particular with regard to the identification of targeted areas and 5G performances. As explained below, in paragraph 3, the former relates to the principle of market failure, while the latter to the principle of step change. It appears that the European Commission, on the one hand, is not convinced that all areas with a population between 10.000 and 20.000 inhabitants can be considered as market failure areas, as private investors may have enough incentives to invest there. On the other hand, 5G, at least in its initial version, would not seem to ensure the required step change in areas where 4G networks already exist. If confirmed, such doubts would raise crucial questions on the viability of 5G for end users and business connectivity as an alternative to fixed networks.

Germany, instead, will not make use of the RRF to finance electronic communications infrastructures, as it has **already planned** to do so by using **national and regional resources**, via a program that the European Commission approved in November 2020. The German “Gigabit plan” will complement the previous plan of 2015, which was targeted to white areas, and will concern grey and black NGA areas, as defined in paragraph 1.3, with a total investment of 12 billion Euro (6 coming from the Federal Government, 6 from the Länder).

Despite falling outside the framework of the RRF, the German plan represents a relevant precedent that will influence the European Commission’s approach in the evaluation of other national plans for the financing of electronic communications infrastructures, as explained below, in paragraph 3.

⁶ <https://www.expansion.com/empresas/tecnologia/2021/05/03/609042aa468aeb3c388b460c.html>

1.2 Public intervention models to manage PNRR funds and the relevant State Aid rules

While waiting for their update, which is expected in the first quarter of 2022, the EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks (hereinafter, the "**BB Guidelines**")⁷, which date back to 2013, provide **the rules that Member States shall follow to finance the deployment of broadband networks** (and beyond).

Last December (with a subsequent update in **March 2021**), the Commission recalled the BB Guidelines rules through a specific **Template**⁸ addressed to the Member States, which also contains references to the precedents at national level and indications on the approach that the Commission will maintain **in examining the national projects to publicly fund the new networks as part of their national recovery and resilience plans**.

The **relevant models** are above all the monetary allocation (also called "Gap funding") and the direct intervention, in which the management of the network is entrusted to public or private entities. Typical broadband support interventions are summarized in Annex 1 to the BB Guidelines, fully replicated in the following box.

TYPICAL INTERVENTIONS FOR BROADBAND SUPPORT

In its case practice, the Commission has observed certain most recurrent funding mechanisms used by Member States to foster broadband deployment, assessed under Article 107(1) TFEU. The following list is illustrative and not exhaustive, as public authorities might develop different ways of supporting broadband deployment or deviate from the models described. The constellations typically involve State aid, unless the investment is carried out in line with the market economy investor principle (see Section 2.2).

1. *Monetary allocation* (gap funding (1)): In the majority of cases examined by the Commission, the Member State (2) awards direct monetary grants to broadband investors (3) to build, manage and commercially exploit a broadband network (4). Such grants normally involve State aid within the meaning of Article 107(1) TFEU, as the grant is financed by State resources and gives an advantage

⁷ COMMUNICATION FROM THE COMMISSION EU *Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks* (2013/C 25/01)

⁸ *Guiding template: Measures to support the deployment and take-up of fixed and mobile very high capacity networks, including 5G and fibre networks. Link to European Flagship: Connect* (hereinafter, "Template"), adopted by the Commission to guide EU Member States on how to use the resources of the Recovery and Resilience Facility (RRF) to finance the deployment of new VHCNs in line with EU State Aid rules.

to the investor to conduct a commercial activity under conditions which would not have been available on the market. In such cases, both the network operators receiving the grant and the electronic communication providers seeking wholesale access to the subsidised network are beneficiaries of the aid.

2. *Support in kind*: In other cases, Member States support broadband deployment by financing the roll-out of a full broadband network (or parts thereof) which is subsequently put at the disposal of electronic communication investors which will use these network elements for their own broadband deployment project. This support can take many forms, with the most recurring being Member States providing broadband passive infrastructure by carrying out civil engineering work (for instance by digging up a road) or by placing ducts or dark fibre (5). Such forms of support create an advantage for the broadband investors who save the respective investment costs (6) as well as for electronic communication providers which seek wholesale access to the subsidised network.

3. *State-operated broadband network or parts thereof*: State aid can also be involved if the State, instead of providing support to a broadband investor, constructs (parts of) a broadband network and operates it directly through a branch of the public administration or via an in-house company (7). This model of intervention typically consists of the construction of a publicly owned passive network infrastructure, with a view of making it available to broadband operators by granting wholesale access to the network on non-discriminatory terms. Operating the network and granting of wholesale access to it against remuneration is an economic activity within the meaning of Article 107(1) TFEU. The construction of a broadband network with a view to its commercial exploitation constitutes an economic activity according to case law (i.e. State aid within the meaning of Article 107(1) TFEU can already be present at the moment of the construction of the broadband network) (8). Electronic communication providers seeking wholesale access to the publicly operated network will also be considered aid beneficiaries.

4. *Broadband network, managed by a concessionary*: Member States may also fund the roll-out of a broadband network, that remains in public ownership, but whose operation will be offered through a competitive tender procedure to a commercial operator to manage and exploit it at the wholesale level (9). Also in this case, as the network is constructed with a view to its exploitation, the measure may constitute State aid. The operator managing and exploiting the network as well as third-party electronic communication providers seeking wholesale access to the network will also be considered aid beneficiaries.

(1) ‘Gap funding’ refers to the difference between investment costs and expected profits for private investors.

(2) Or any other public authority granting the aid.

(3) The term ‘investors’ denotes undertakings or electronic communications network operators that invest in the construction and deployment of broadband infrastructures.

(4) Examples of gap funding are Commission decisions in Cases SA.33438 a.o — Poland — *Broadband network project in Eastern Poland*, SA.32866 — Greece — *Broadband development in Greek rural areas*, SA.31851 — Italy — *Broadband Marche*, N 368/09 — Germany — Amendment of State aid broadband scheme N 115/08 — *Broadband in the rural areas of Germany*.

(5) Commission decisions in Cases N 53/10 — Germany, *Federal framework programme on ducts support*, N 596/09 — Italy — *Bridging the digital divide in Lombardia*, see also N 383/09 — Germany — Amendment of N 150/08 *Broadband in the rural areas of Saxony*.

(6) Civil engineering costs and other investment in passive infrastructure can constitute up to 70 % of the total cost of a broadband project.

(7) Commission decision in Case N 330/10 — France — *Programme national Très Haut Débit*, which covered various intervention modalities, inter alia one in which the *collectivités territoriales* can operate their own broadband networks as a ‘regie’ operation.

(8) Case T-443/08 and T-455/08 *Freistaat Sachsen v Commission* (not yet published).

(9) Commission decisions in Cases N 497/10 — United Kingdom, SHEFA — 2 *Interconnect*, N 330/10 — France — *Programme national Très Haut Débit*, N 183/09 — Lithuania, RAIN *project*.

Of all these models, only the one called "gap funding" envisages, in hindsight, the granting of public funds to private companies that retain full ownership of the infrastructure assets. In all other cases, private companies may result beneficiaries of the public intervention, but the ownership of the assets is public.

This is the main reason why choosing a “gap funding” model in a competitive environment implies that public funds must be assigned to private companies through public tenders, without exception, and requires openness and transparency of the procedure to be fully guaranteed, in order to minimise the market distortion resulting from the public intervention.

In the following paragraphs (and especially in paragraph 1.4) we will examine some spurious hypotheses arising in some Member States, such as the idea of directly assigning public funds, without a public tender, to consortia of private co-investors, as a way to define ex-ante the share of public funding to be perceived by each player, as well as the contribution of each player to the national objective. As further explained below, this may result in anticompetitive outcomes. Likewise, the joint participation of competing firms to a tender raises serious competition concerns and should be avoided, unless necessary to satisfy the tender requests.

However, as we will highlight in the second part of this paper, a number of models of cooperation between the players may be compatible with competition rules, being also, at the same time, beneficial for the market and capable of contributing to the achievement of public objectives. But this conclusion is true, to be precise, when the funding is solely private. When funding consists, in whole or in part, of public resources, even through the participation in a public tender, competition rules must be applied, with the limits that are analysed in the following pages.

1.3 Rules, conditions and procedures for the allocation of public funds to private companies

When the infrastructure is not built directly by the State, but by private companies (including those publicly owned), public funds must necessarily be assigned through **tenders**⁹, whose compatibility with **EU State Aid and public procurement law** needs

⁹ As provided by the Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 *on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, which is referred to by the BB Guidelines*, par. 78(c): “Competitive selection process: Whenever the granting authorities select a third-party operator to deploy and operate the subsidised infrastructure, the selection process shall be conducted in line with spirit and the principles of the EU Public Procurement Directives. It ensures that there is transparency for all investors wishing to bid for the implementation and/or management of the

to be previously verified, as was the case for the Italian Ultra-Broadband Plan (Piano BUL) for white areas.

The tenders must be **open to all interested operators, must be non-discriminatory, must be technologically neutral¹⁰ and should safeguard competition at retail level.**

An essential requirement for the tenders is the prior completion of a precise **mapping¹¹** of the intervention areas. Such mapping serves the purpose to avoid, on the one hand, the financing of networks in areas where networks capable of providing performances above a certain threshold are present or planned with private investments. On the other hand, the mapping is aimed at identifying all market failure areas, where public funding is needed.

Crucial is the accuracy of private players statements about their medium-term investment plans (3-5 years), as public funding should be granted – as we have above stressed - only in the areas being left aside by private players.¹²

More specifically, the areas subject to intervention under the plan will be:

a) the **grey NGA areas¹³**, i.e. those areas in which only a single NGA network (i.e. capable of providing at least 30 Mbps, but less than 100 Mbps in download) exists or is planned in the next 3 years; and

b) **black NGA areas¹⁴**, i.e. those areas in which at least 2 NGA networks, as previously defined, exist or are planned in the next 3 years. In both cases, as mentioned,

subsidised project. Equal and non-discriminatory treatment of all bidders and objective evaluation criteria are indispensable conditions. The competitive tender is a method to reduce budgetary costs, to minimise the potential State aid involved and at the same time reduces the selective nature of the measure insofar as the choice of the beneficiary is not known in advance. Member States shall ensure a transparent process and a competitive outcome and shall use a dedicated central website at the national level to publish all on-going tender procedures on broadband State aid measures.”

¹⁰ *BB Guidelines*, par. 78 (e): “Technological neutrality: As different technological solutions exist to provide broadband services, the tender should not favour or exclude any particular technology or network platform. Bidders should be entitled to propose the provision of the required broadband services using or combining whatever technology they deem most suitable. On the basis of the objective tender criteria, the granting authority is then entitled to select the most suitable technological solution or mix of technology solutions. In principle, universal coverage of larger target areas can be reached with a mix of technologies”

¹¹ *BB Guidelines*, par. 78 (a)

¹² In Italy, Infratel, the competent in-house company of the Italian Ministry of Economic Development, recently updated the national mapping, on which the plan “Italia a 1 Giga” will rely.

¹³ *BB Guidelines*, par. 76. See also *Template*, par. 64-65

¹⁴ *BB Guidelines*, par. 77. See also *Template*, par. 72

in order to proceed with the allocation of funds, a **market failure**¹⁵ must be proved, i.e. the unavailability, at present or in the near future, of private investments for the deployment of networks capable of providing performances above a certain threshold (i.e. 100 Mbps download speed and 50 Mbps upload speed, but higher thresholds are often chosen by the national governments). The latter parameter will probably be raised to 1Gbps download speed and 200 Mbps upload speed¹⁶ with the forthcoming adoption of the new BB Guidelines¹⁷.

A fundamental principle that is expressed by the BB guidelines is, furthermore, the so-called "**step change**"¹⁸. This means that the aided project shall bring a **significant improvement** compared to networks present or already credibly planned to be deployed.

"Significant investments" exclude mere upgrades of active elements of the infrastructure (such as software upgrades); they must consist of substantial infrastructural interventions. As indicated in the Template, as far as **grey NGA areas** are concerned, the Commission requires **at least a doubling of the download speed and a significant increase in the upload speed** compared to the existing or already planned infrastructure¹⁹. For **black NGA areas**, the Commission notes that public funding can be justified to finance the deployment of a network capable of reliably providing **performances at least 3 times higher** than those of existing or already planned networks (such as 300 Mbps symmetrical, i.e. both in terms of download and upload), **upgradable to 1 Gbps symmetrical**²⁰. In any event, very stringent step change requirements should be fulfilled (especially for the performance required for the upload).

As regards the possibility of financing **4G/5G and 5G FWA networks**, the Template sets the conditions that must be respected to **avoid distortions of competition between fixed and mobile networks**, providing Member States with three alternative solutions:

- i) restricting the use of the funded 4G/5G network to not include FWA services,

¹⁵ *Template*, par. 65 and 72

¹⁶ These parameters have been adopted in the BEREC guidelines on VHCNs of October 1st 2020, in order to qualify a network as fixed VHCN

¹⁷ The timeline for their adoption has not been clarified yet.

¹⁸ *BB Guidelines*, par. 51, 76, 83-85. *Template*, par. 62, 65, 71-73, 78-79

¹⁹ *Template*, par. 65

²⁰ *Template*, par. 72

ii) limiting public funding to the net cost of mobile activities only, allowing the use of the funded network for FWA only where operators pay a market price,

iii) allowing the public funding of FWA, but only where **the step change requirements set for fixed networks are met**²¹; the step change requirements appear highly demanding for FWA infrastructures, which may meet these requirements only in less dense areas and using portions of 400-600 MHz of spectrum.

²¹ *Template*, par. 79. More specifically:

1. to restrict the use (by both the beneficiary or an access seeker) of the new 4G or 5G network to not include 4G or 5G advanced fixed wireless; or
2. to demonstrate that no aid is transferred to the use of the network for 4G or 5G advanced fixed wireless purposes (by the beneficiary or an access seeker). This can be ensured e.g. by ensuring the operator using the network for 4G or 5G advanced fixed wireless purposes pays a market price for this use of the network and by limiting the public funding only to the net cost (including the cost of capital) of the 4G or 5G mobile activities, to be identified based on a clear separation of accounts. CAPEX (and related depreciations) used both for 4G/5G mobile and 4G/5G advanced fixed wireless would have to be allocated between the two on the basis of relevant allocation keys; or
3. to demonstrate that the aid transferred to the use of the network for the provision of 4G or 5G advanced fixed wireless (by the beneficiary or an access seeker) will meet State aid compatibility conditions for support for fixed networks (as above described). To this end, the mapping and public consultation exercise must include also the fixed networks present or planned, and the 4G or 5G advanced fixed wireless solution in question must deliver a significant improvement (i.e. a step change) compared to what can offer the fixed present or planned infrastructure identified based on the mapping and public consultation. For instance:
 - i. Supporting the use of the network for 4G or 5G advanced fixed wireless in white NGA areas (areas where there is no present or planned infrastructure able to support speeds above 30 Mbps download) would follow the rules applicable to support for fixed broadband in white NGA areas, provided that the supported 4G or 5G advanced fixed wireless solution can reliably provide a sufficient step change compared to basic fixed networks in place (e.g. at least a doubling of download and upload speed).
 - ii. Supporting the use of the network for 5G advanced fixed wireless in grey NGA areas (areas where there is one infrastructure able to support speeds above 30 Mbps download present or planned) would follow the rules applicable to support for fixed broadband in grey NGA areas, provided that the supported 5G advanced fixed wireless solution can reliably provide a sufficient step change compared to the NGA network in place or planned (e.g. at least a doubling of download and upload speeds). Therefore, if intending to support 5G advanced fixed wireless to connect households in grey NGA areas where there is no present or planned infrastructure able to support speeds above 100Mbps download, this may only be possible if the 5G advanced fixed wireless solution can provide a sufficient step change, e.g. by ensuring at least 200Mbps symmetrical speeds.”

It is worth recalling that on **7 July 2021** the Commission published a **Staff Working Document**²² containing an evaluation of the **current BB Guidelines** (hereinafter, “Staff Working Document”), in the framework of their review process.

While the Commission confirmed that the **thresholds for public intervention should be updated in line with the most recent connectivity objectives at EU level** (the *Gigabit Society for 2025* and *the Digital Decade for 2030*), as well as the EECC and the Green Deal, the Staff Working Document also contains remarkable considerations concerning the different technologies that can be financed.

The Commission recognizes that **FTTC/VDSL should be distinguished from FTTH, DOCSIS 3.1** (an upgraded version of coaxial cable networks) **and g.mgfast** (an upgraded FTTB, consisting of fibre up to the building or in close proximity and copper for the vertical part), which are the **only technologies currently appearing to be able to provide 1Gbps download speeds**.

5G FWA may also be able to provide the same speeds, especially if latency is further improved, but *“the capabilities and reliability of this technology are likely to remain below that of FTTH or equivalent, making it a solution that is most appropriate for remote areas or households in sparsely populated districts”*²³.

This is irrespective of the fact that, in the same document, the Commission confirmed that 5G FWA should be considered as **a fixed network**, hence separated from 5G and other mobile networks²⁴.

Further guidelines have to be expected as far as the public financing of **mobile infrastructures** is concerned. The Template already provides some indications, although its main focus, as well as the one of the current BB Guidelines, is on fixed networks. It has to be highlighted, anyhow, that the principles of **“market failure”** and **“step change”** also apply to the public financing of mobile networks²⁵. In this case the pragmatic application of these principles by the Commission envisages at least a “double generation upgrade”: where only 2G networks are present or planned in the next 3 years, State aid can be granted to 4G or 5G networks, while where 3G networks are present or planned in the next 3 years, only 5G networks can be publicly financed. Where 4G networks are already present, no State Aid can be granted to mobile networks, including 5G.

²² Commission Staff Working Document *Evaluation of the State Aid rules for broadband infrastructure deployment* (SWD(2021) 195 final)

²³ *Staff Working Document*, p. 25

²⁴ *Staff Working Document*, p. 26

²⁵ *Template*, par. 78

Overall, a step change is ensured when the aid entails **new and significant structural investments** in the mobile networks, such as the deployment of fibre backhauling to replace microwave links, going beyond the simple upgrade of active components of the networks (such as software). Therefore, **fibre backhauling can always be funded through State Aid, if a market failure is proven.**

Regarding the **business models that can be financed**, a distinction must be made between grey NGA areas and black NGA areas. In **grey NGA areas**, beneficiaries of State aid can be all operators regardless of their business models. However, the BB Guidelines provide that, in the context of a tender, **the wholesale-only model** shall be assigned **additional points**²⁶, while, where the beneficiary is **vertically integrated** (such as Orange, Deutsche Telekom, TIM, Telefonica, etc.), **adequate safeguards** must be put in place to prevent any conflict of interest, undue discrimination towards access seekers or content providers and any other hidden indirect advantages²⁷. The BB guidelines therefore recognise the greater guarantees that the wholesale-only model offers in terms of openness of the network to all interested operators, which allows to a greater extent competing operators to provide, through the financed network, competitive services to end users at reasonable prices.

In **black NGA areas**, on the other hand, **public funding can be granted only to wholesale-only networks**²⁸. In some countries, the wholesale-only model has even been imposed for the public financing of networks in rural (white) areas.

As mentioned above, the BB Guidelines are currently being reviewed and the adoption of the revised guidelines is expected in the first quarter of 2022. In addition to the upgrade of the intervention thresholds, as the Commission confirmed in the Staff Working Document, clearer rules are expected to be provided on the following areas²⁹:

- ✓ deployment of mobile infrastructure;
- ✓ demand-side measures such as vouchers;
- ✓ private extensions (i.e. for a situation when an operator uses its own resources to connect to the state-funded infrastructure to provide services outside the area for which the original aid was granted);
- ✓ the implications of the Green Deal;

²⁶ *BB Guidelines*, par. 80 (b)

²⁷ *Ibidem* footnote 16

²⁸ *BB Guidelines*, par. 84 (b); *Template*, par. 72

²⁹ *Staff Working Document*, p. 83

- ✓ wholesale access obligations;
- ✓ technical issues (e.g. how to define wholesale prices; how to conduct mapping and public consultation; how to take into account the impact of nomadic users when assessing the possibility for a mobile network to provide NGA services).

1.4 The co-investment model for the deployment of TLC infrastructures and its effectiveness for private investment

The co-investment model has so far found **little or no application** for interventions supported or incentivised **by public funding**. This model, on the other hand, is not infrequently used for the deployment of infrastructures with **exclusively private financing**: for years, in several European countries, there have been **commercial agreements** signed between two or more operators for the joint deployment, or for separate deployment with reciprocal access or for the co-financing of TLC infrastructures. In some countries, co-investment models have even been imposed by the national regulator.

On the basis of these examples and in the light of the need to accelerate the deployment of VHCN infrastructures by providing regulatory incentives, **the new European Code (EECC)** has included, among the recommended and incentivised models, **a specific form of co-investment ex Art. 76³⁰**, intended to favor a sustainable long term competitive outcome in co-investment cases with the participation of incumbent (SMP) operators.

Pursuant to Article 76, **undertakings which have been designated as having significant market power (SMP)** in one or several relevant markets and hence are subject to regulation (typically incumbents) **may offer commitments to open the deployment** of a new VHCN **to co-investment with other operators**: these very high capacity network must consists of optical fibre elements up to the end-user premises (FTTH) or base station (FWA).

Where such offer complies with a long series of conditions indicated in Articles 76 and 79 and in Annex IV to the EECC³¹, the national regulatory authority (**NRA**) **can make the commitments binding and not impose any regulatory obligation** as

³⁰ Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 *establishing the European Electronic Communications Code*, Art. 76

³¹ *Ibidem* footnote 19, Artt. 76,79 and Annex IV

regards the networks subject to co-investment. The aforementioned **conditions** include openness to any requesting operator for the entire lifetime of the network, transparency, good faith and the safeguarding of the competitive position of both co-investors and operators who do not participate in the co-investment. Furthermore, the conditions of the proposed co-investment should “*allow other co-investors which are providers of electronic communications networks or services to compete effectively and sustainably in the long term in downstream markets in which the undertaking designated as having significant market power is active*”.

Although to date there is no example of a co-investment agreement pursuant to Art. 76 EECC in Europe³², precisely due to the complexity of the conditions envisaged for its approval, it is clear that **this model was introduced to encourage private investment** by facilitating agreements between competing operators and, therefore, **to avoid resorting to State aid**.

On the other hand, even before the introduction of the model envisaged by the EECC, co-investment agreements have always had the objective, for the contracting operators, to combine capacity and economic resources to deploy new networks in the absence of sufficient incentives to invest individually or to develop interesting commercial synergies, in any case **without** having to resort to **public funding**.

However, all the above does not exclude the possibility that the co-investment model may be taken into consideration and proposed in the context of public tenders for the deployment of infrastructures to be built with the aid coming from the PNRR. Obviously, the rules illustrated in the previous paragraphs would apply for the allocation of such aid.

No direct allocation of public funding would therefore be possible in favour of private companies, even if they participate in a co-investment/financing project. Public funding should still be allocated through **tenders that must be open to all interested operators, transparent, non-discriminatory, technologically neutral and such as to safeguard competition on the retail market**.

It may be that two or more operators submit in the tender a joint offer, based on the **co-investment model** or other suitable models, such as a temporary consortium between companies. But this offer will have to compete with those of other non-consortium operators and will not, as such, enjoy special privileges.

³² We leave aside the FiberCop case, in Italy, which is still being reviewed by AGCOM and AGCM, in order to verify, inter alia, if it complies with the conditions of Article. 76 EECC

In such case, moreover, **the competent authority** should assess the ability of the operators who submit a joint offer to participate to the tender independently; and **should verify whether the joint offer** (both in the form of a consortium or co-investment) **does not represent an expedient to circumvent the risks arising from competition.**

If, for example, the two main infrastructural operators at national level become associated, the risk that the joint participation agreement would be censored is significant, as the agreement may probably be considered as an *overabundant consortium*, i.e. a way to escape the competitive confrontation between the main players by coordinating their respective positions. Therefore, it is possible, if not even likely, that such co-investment or consortium may be excluded from participating to tenders for the allocation of public funds.

In any case, and even regardless of this last hypothesis, agreements between operators in view of the participation to a tender for the allocation of public funding would be subject to an evaluation aimed to verify that they do not amount to **anti-competitive agreements**, which are prohibited by Art. 101 TFEU³³.

An example can be represented by **Portugal**, where in the past **public funds have been assigned to "consortia" of private companies through tenders.**

This happened in the framework of a plan concerning white areas, which were divided into several parcels, and tender rules allowed the assignation of public resources **only to operators operating exclusively in the wholesale market.** Therefore, in order to compete, the incumbent and the other vertically integrated competitors had to establish new joint-ventures operating exclusively in the wholesale market, while maintaining company ties with them and financially supporting them for the private part of the planned investments (the public part corresponded to 70% and was attributed by way of gap funding, i.e. to compensate for the funding gap). It hardly needs to be stressed that **such joint ventures do not correspond to the definition of wholesale-only operator introduced more recently by the EECC**, according to which:

- a) all companies and business units within the undertaking, all companies that are controlled but not necessarily wholly owned by the same ultimate owner, and any shareholder capable of exercising control over the undertaking, do not have activities in any retail market for electronic communications services provided to

³³ Art. 101 of the Treaty on the Functioning of the European Union, which prohibits agreements between undertakings which have as their object or effect the prevention, restriction or distortion of competition within the internal market.

- end-users in the Union and therefore have only activities, current and planned for the future, in wholesale markets for electronic communications services;
- b) the undertaking is not bound to deal with a single and separate undertaking operating downstream that is active in any retail market for electronic communications services provided to end-users, because of an exclusive agreement, or an agreement which de facto amounts to an exclusive agreement³⁴.

³⁴ Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 *establishing the European Electronic Communications Code*, Art. 80.

II

How to avoid inefficient duplications of investments in VHCNs: merger, co-investment, commercial agreements between operators

Private operators, including vertically integrated incumbents and wholesale-only new entrants, have their own investment plans, which often entail the **duplication of networks**.

The presence of multiple networks is very positive for competition, since it allows companies to behave independently from each other.

The duplication of passive infrastructures, however, is often unnecessary in order to guarantee infrastructural competition³⁵, since companies can own and manage independent networks that share the same passive infrastructure, with overall positive effects on the end users, driven by the **reduction of the overall capital expenditure required**.

Moreover, the development of new infrastructure is subject to **production constraints**, e.g. since specialized workforce is required to build new infrastructure and the number of specialized workers is clearly not illimited. Therefore, the duplication of networks via the duplication of passive infrastructure entails the reduction of the workforce available to expand network coverage, in conflict with the public objective of achieving VHCN universal coverage as soon as possible.

Merger, co-investment and commercial agreements between operators could be used to reduce the inefficiency produced by the duplication of passive infrastructure.

2.1 Merger into a single company

In order to eliminate or limit the duplication of infrastructure and accelerate VHCN national coverage, a possible **merger between competing firms into a single company** has been the object of a public debate in Italy, lasting for many years. It has to be underlined that in no other European country there has been such a discussion.

³⁵ Passive infrastructures must be considered a separate but contiguous market to fixed network access markets, as defined by regulation.

In principle, such a merger is likely to produce, at the same time, **some positive and some negative effects in terms of efficiency and competition, whose balancing is not easy**. It would certainly have positive effects both on the speed of coverage and on the efficiency of the management of the access network (just one network to manage, instead of two). At the same time, a merger between the main players would eliminate or at least strongly restrict the infrastructural competition at national level, reducing the incentive to accelerate coverage and entailing potential inflationary (or non-deflationary) effects; incentives to discriminate the retail competitors may increase with respect to the present situation, but can be mitigated by appropriate rules on the governance of the entity resulting from the merger and on its relations with customer service providers.

In the Italian debate, **two alternative governance systems** were discussed: a merged entity under the control of the vertically integrated incumbent operator and a merged entity operating as a wholesale-only operator pursuant to Art.80 of the EECC (therefore with no ties to a retail operator).

In our view, it is clear that the control of the single infrastructure by a vertically integrated operator (or even only a significant participation of the same in the governance of the infrastructure company) would affect the procompetitive environment of the market, would alter the levelling of the playing field and would generate relevant incentives to discriminate against retail competitors and would in any case : for this main reason, it seems to be out of question that such a solution would be cleared by the competent Antitrust authorities³⁶.

Moreover, there would be a strong risk that the incumbent, absent any infrastructural competition, would not have the incentives to accelerate the rollout of VHCN, having instead the possibility to exploit the revenues coming from its copper networks and relative upgrades as much as possible.

On the contrary, a single network operating as a **wholesale-only operator**, being absent any incentive to discriminate against retail customers, can guarantee the efficient production of the access inputs and consequently translate the efficiency gains to the end users via retail competition: thus, this solution can assure both a faster national coverage and fair prices. Consequently, it would be easier to gain the Antitrust

³⁶See remarks by Agcom-Agcm, *Indagine conoscitiva sulla concorrenza statica e dinamica nel mercato dei servizi di accesso e sulle prospettive di investimento nelle reti di telecomunicazioni a banda larga e ultralarga* (delibera n. 1/14/CONS).

enforcer's clearance, following commitments that prices will be set at a level that guarantees a fair return on the capital employed, without any extra-profit.

In both cases, if we look at a concrete merger hypothesis, it must be considered that the clearance process of a merger between competing firms (in particular when one of the merging entities is represented by the network of the incumbent operator, which enjoys a super-dominance in both the retail and the wholesale market), requires **a very long time** (at least two years) and its outcome is highly uncertain. Even in the absence of a control by the incumbent operator of the merged company, the time required for clearance remains long and its positive outcome would at least entail significant remedies.

The time required and the high uncertainty of the outcome reduce the appeal of M&A, also because the current plans of competing firms (involving duplication of infrastructures) are already in progress and cannot be stopped or modified during the clearance process. A clearance could therefore be granted only after the infrastructural duplication has occurred, reducing even more the benefits and consequently the appeal of this kind of operations.

2.2 Cooperative agreements between operators

For all these reasons, alternatives to a merger into a single company deserve to be considered, in order to guarantee an effective interplay between private and public investment aiming at achieving the public VHCN coverage objective: other forms of voluntary cooperation without any regulatory relief for the incumbent and with no infringement of competition law should be envisaged and assessed.

The cooperation between private operators, which guarantees the availability of multiple networks sharing, in whole or in part, the same passive infrastructure, decreases the investment costs and therefore favours the acceleration of the national VHCN coverage. In other terms, an effective cooperation between private investors, entailing a reduction of infrastructural duplication, would be functional to the achievement of the public VHCN coverage objective.

The European Commission recognises that “**commercial agreements**, including agreements on wholesale access, co-investment agreements and reciprocal access agreements between operators, which have been entered on a lasting basis and are sustainable, have the **potential to improve competitive dynamics and may**

ultimately resolve competition concerns at the related retail market and therefore lead to deregulation of the wholesale markets”³⁷.

In all these cases, it has to be assessed, first of all, the viability of cooperative models **between vertically-integrated and wholesale-only operators** to accelerate the deployment of FTTH infrastructures in **areas entirely covered with private investments**, where there is **no need for public funding**, but only **to reduce production costs**, i.e. **avoid duplications** between infrastructures or to **share rollout costs**. This could happen, for instance, in Italy between TIM and Open Fiber, in the UK between BT and CityFibre, and so on.

In order to carry out such an assessment, the following aspects should be taken into consideration.

First of all, **the characteristics of the infrastructures owned by the two categories of operators**. Those owned by **wholesale-only operators** are most likely planned in a **greenfield** scenario, as normally wholesale-only operators do not own any legacy network. As their networks are planned to entirely consist of fibre from the outset, they usually require to be branched off through **fewer central stations**, as fibre networks can guarantee their performances to the end-users without requiring the same capillary presence of central stations (and cabinets) that is needed for copper networks. On the other hand, incumbent operators (which represent the main example of vertically-integrated operators) usually build fibre infrastructures in a **brownfield** scenario, by upgrading their **legacy networks**. This means that they are bound by the overall legacy structure (designed and built on the basis of the specific technical characteristics of copper), which includes a massive presence of central stations. This does not allow incumbent operators to maximise the benefits of fibre in terms of a more simplified network structure.

Such a fundamental difference in terms of **architecture** between the networks owned by wholesale-only operators and those owned by incumbents represents a relevant obstacle in a merger scenario, but may also disincentivise cooperation between the two, producing for both **important diseconomies**. In any case, any coordination in operational activities must be based on solutions that mediate between the opposing interests, in order to balance the diseconomies of the various partners.

The interests of alternative operators should also be evaluated, as they may claim to benefit from the same connection quality they are presently enjoying, especially when

³⁷ Commission Recommendation of 18.12.2020 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018.

they rely on the **native fiber infrastructure of wholesale-only operators**, as it allows them to reduce costs and to offer more reliable connections.

The two architectures may also differ in terms of availability of fibre. **Wholesale-only operators**, as they need as many clients as possible to sustain their business, **would normally offer more dedicated space to alternative operators** (i.e. **20 GPON**, like Open Fiber in Italy) without any technical restrictions, while incumbents would most likely restrict the number of fibre splitters, possibly due to the lower amount of optical fibre available in their primary networks. This may as well lead alternative operators, relying on the networks of wholesale-only operators, to activate contractual clauses in order to maintain the same advantages after the potential conclusion of a cooperation agreement between the wholesale-only operators and the incumbents.

Therefore, in case the two operators wish to jointly design a new network in an urban scenario, the following crucial issues should be faced in order to ensure the efficiency of competitors:

- a) The number and location of the exchanges;
- b) The location of the cabinets on the territory;
- c) The poor reusability of the incumbent's primary network, where it follows the footprint of the legacy copper network.

Anyway, in order to accelerate the coverage envisaged by the operators separately, it is necessary to avoid as much as possible the duplication of infrastructures (i.e. the construction of two physical infrastructures that reach the same premises), through the most extensive possible deployment of infrastructural elements that can be used by both parties.

The alternatives to proceed in this direction can be summarised as follows:

- i. **Co-investment agreements**, through which the parties share more or less extensive portions of the investments to be made;
- ii. **Commercial agreements**, through which one of the two parties buys from the operator who build the network services or structural rights on its infrastructure (for example, one or more GPON networks).

Of course, such agreements would not have any (de)regulatory effects for the SMP operators concerned, unlike those concluded ex Art. 76 EECC.

2.2.1 Co-investment agreements

Co-investment agreements may be envisaged in areas outside the scope of public funding, including grey and black NGA areas characterised by a market failure, where the co-investment allows to overcome the market failure without requiring public funds.

Co-investment agreements may take different forms, including the co-ownership of the infrastructure or long-term risk sharing through co-financing or through purchase agreements. For instance, a purchase agreement may well be in the interest of a retail operator which is not interested in investing in VHCN Networks but is interested in the sale of retail VHCN Services.

However, if co-investors are all active in wholesale markets, they need to own and manage their own network in order to provide services to retail operators.

Therefore, a co-investment between wholesale-only operators and vertically-integrated ones would seem to be viable only where both operators would own their respective infrastructures and, as a result of the co-investment, both maintain full autonomy to decide their own commercial policies. The typical example would be represented by the **sharing of digging operations**, or even the joint design of the new networks, which would then be connected to the central stations of each party following their respective architectures.

These forms of co-investment would still encounter the abovementioned difficulties arising from the diversity of the architectures used by the two categories of operator. Therefore, a strong operational analysis would be required, as the choice on the areas and the conditions of the co-investment agreement would affect the competitiveness of the offers that each party is able to make.

A second best solution may be represented by forms of **reciprocal access to infrastructures** belonging to a single operator **through rights of structural character (i.e. IRU)**: for example, an operator A that invests in city X sells one or more complete GPONs to operator B and operator B would do exactly the reciprocal in city Y. In this case, each party would optimise its own architecture and would obtain the necessary infrastructure to complete its offer on terms of reciprocity. As a consequence, operator A and operator B would be able to compete among them in all cities.

2.2.2 Commercial agreements

Commercial agreements may allow a party to access the competitor's infrastructure on terms of reciprocity, with the possibility to resell it to its customers. In this case

access to the infrastructure is not negotiated through rights of structural character (IRU), which allow full autonomy to the buyer, but is based on a per-unit price structure, often together with volume discounts or “take or pay” agreements.

Compared to co-investment models, commercial agreements of this kind don't modify the structure of the wholesale market and therefore have no effects on the competitiveness of the market, since the price/cost structure of the infrastructure owner binds all users, including the competitor who uses this option: for this reason, such agreements are subject to a careful scrutiny by the regulatory authorities.

That is why this kind of agreements is of little interest to infrastructural investors, but it can be used to supplement co-investment agreements to cover less profitable areas.

III Concluding remarks

The achievement of public policy objectives (in this case, the national VHCN coverage) depends on the effectiveness of the interplay between private and public resources.

If private investors devote private funds to the duplication of infrastructures (as Telecom Italia is doing in a relevant number of black areas already covered by Open Fiber), this would concentrate in the most profitable areas all the specialised workforce, reducing the availability of workforce necessary to build VHCN networks through public funding.

A hypothetical merger between competing networks in principle guarantees the maximum level of coordination and the minimum duplication of infrastructures. In this direction, the only solution that may be viable is the one consisting in a wholesale-only merged entity, with no ties to retail operators. Even in this case, the timing of the complex clearance process may not be effective to eliminate the duplication of infrastructures already planned and expected to be completed in the meantime.

In the short term, in order to avoid the duplication of infrastructures in areas not subject to public funding, the most effective solution among the abovementioned ones certainly appears to be that of reciprocal co-investment, as a result of which each party would own an autonomous infrastructure.

A possible alternative (or complement) may be represented by the deployment of infrastructures in different areas, with an "exchange" of complete GPON networks and spare dark fibre via commercial agreements.