State aid to broadband: primer and best practices

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“In the 21st century, the social and economic development of every country on earth will depend on broadband” (ITU, Build on Broadband)

Introduction

In 2010, European governments allocated national and European funds worth almost 2 billion EUR to developing high-speed and very high speed broadband networks (7). Even more far-reaching plans are currently being defined in many European countries to achieve the ambitious goals set in the Europe 2020 Strategy (5) and the Digital Agenda. (6) To reap all the benefits of widespread broadband deployment (7), these initiatives redefined the European goal of ensuring universal broadband coverage for all citizens by 2013, so that, by 2020, (i) all Europeans should have access to much higher internet speeds of above 30 Mbps and (ii) at least half of all European households should subscribe to internet connections above 100 Mbps.

Estimates indicate that to achieve the first objective, up to €60 billion of investment would be required, and up to €270 billion for the second (8). Such investments would have to come primarily from commercial operators. However, due to the economic characteristics of the industry, private investment alone will not suffice to attain such ambitious coverage goals. Governments will have to step in with the smart (and pro-competitive) use of public funds (9) to extend high-speed and very high speed, next-generation access network coverage to areas in which market operators are unlikely to invest on commercial terms.

It is important to underline at the outset that public funds have to be used cautiously in a sector such as electronic communications, which has already been fully liberalised, and in principle, they should be complementary to and not substitute for private investment. State intervention should as far as possible limit the risk of crowding out private investment and of altering commercial investment incentives and should not therefore distort competition.

In other words, the goal of achieving ambitious infrastructure development targets needs to be qualified in the sense that there should also be effective competition between and on these infrastructures. Effective competition will help to maximise consumer welfare (10), in the form of lower prices and a wider range of better services for European citizens and companies. Several examples suggest that smartly-used public funds can lead to wider coverage, increased competition, more investment and better end-user prices in this sector (9).

The conditions in EU State aid rules on the granting of public funds are there to ensure that only pro-competitive interventions take place in this sector. The European Commission’s approach is codified in the Broadband Guidelines (10) of 2009. These are based on well-established Commission case practice, developed since 2003 to correct market

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(7) See IP/11/54

(10) The Digital Agenda (in Key Action 8) calls Member States “to use public financing in line with EU competition and State aid rules” in order to meet the coverage, speed and take-up targets defined in Europe 2020.


failure in the case of lack of basic broadband networks. The Guidelines extrapolate the fundamental tenets and apply them to the new area of very high speed, fibre-based Next Generation Access (NGA) networks, in which market failure has the potential to be substantially more serious, due to the economic characteristics of NGA networks\(^{(1)}\).

The Guidelines are an important pillar of the Digital Agenda, and aim to create legal certainty for public and private stakeholders by providing a clear and predictable framework on the role of State aid in this sector. After the Guidelines were adopted, there was a noticeable improvement in the design of national/regional aid measures, as well as accelerated treatment of notifications submitted for Commission assessment under State aid rules. This allowed the Commission to adopt a record number of decisions\(^{(2)}\). Between 30 September 2009 (publication date of the Guidelines) and 31 January 2011, the Commission assessed and approved 30 broadband measures and authorised the use of more than €2.2 billion of pro-competitive public funding\(^{(3)}\).

The conditions of the Broadband Guidelines have been explained in detail in a previous article\(^{(4)}\). In this article, we will therefore focus more on our experience with various types of public intervention in different countries, while providing a brief explanation of some basic concepts frequently used in State aid regarding broadband decisions. We will then highlight a number of best practices leading to transparent and pro-competitive public intervention.

### Some basic concepts

Different countries have different approaches to broadband deployment. This section aims to introduce some basic concepts underlying public intervention to support such projects. That said, the task of simplifying complex concepts comes at a cost, and at times, may result in a loss of accuracy and precision.

#### General objective of public intervention

In the Broadband Guidelines, a distinction is drawn between so-called basic broadband networks and very high speed, so-called next generation access (NGA) networks. It is useful to clarify that distinction for the purpose of applying the Guidelines:

1. **Basic broadband** services can be delivered over several different technology platforms, such as xDSL, cable, mobile, wireless and satellite solutions. In its decision-making practice, the Commission uses the benchmark of at least 2 Mbps download speeds\(^{(5)}\) at affordable prices to consider a certain Internet access service as “basic broadband”.

2. In the current definition, and subject to future technological and market developments, **NGA networks** are fixed fibre networks, typically FTTx solutions capable of providing at least 40 Mbps download speeds or advanced cable networks based on Docsis3.0 standard, capable of providing at least 50 Mbps download speeds.

#### Broadband infrastructure elements

Whether used to fund the deployment of basic or NGA networks, State aid can be granted either to build a complete end-to-end broadband infrastructure, or just to fund certain segments of the broadband value chain. Broadly speaking, we can differentiate the parts of the broadband networks both vertically and horizontally.

From the vertical point of view, we can distinguish:

1. **Passive infrastructure elements**: typically ducts, manholes, street cabinets or, in some cases, dark fibre. The passive infrastructure is basically the physical infrastructure of the networks. In particular, for NGA network rollout, passive infrastructure elements are considered the most significant part of total investment costs\(^{(6)}\). For this reason, it is commendable that many European countries have adopted administrative measures to map existing ducts and other passive elements and/or to facilitate their use for


\(^{(2)}\) See communications of the Commission in MEMO/10/31 and IP/11/54.

\(^{(3)}\) In line with the announcements of the Member States, the amount of public funding earmarked for broadband development is expected to increase further. The European Commission is also planning to focus several of its financial instruments to achieve the goals of the EU2020/Digital Agenda: inter alia structural and regional funds (such as ERDF, ERDP, EAFRD, TEN, CIP) and possibly credit enhancement (backed by the EIB and EU funds).


\(^{(5)}\) In line with the recommendations by the ITU-T Telecommunication Standardization Sector, Recommendation I.113

\(^{(6)}\) They could consist up to 70-80% of the total (greenfield) investment costs. See for instance WIK Consult study for Vodafone, “Fibre Competition: Is Europe on the Right Track?” Available at: http://www.vodafone.com/content/index/about/about_us/policy/news/fibre_competition.html.
Horizontally, telecommunication networks can also be divided into three main parts.

(1) **Backbone (or trunk networks):** very high capacity, long-distance networks typically connecting major cities, gathering together and transporting data traffic from backhaul networks. This part of the network seems to attract a significant amount of private investment and so far, no need for public intervention has been reported.

(2) **Backhaul (or regional, or middle-mile networks):** backhaul networks are intermediate networks between backbones and access networks. They connect municipalities, and gather together and transport data traffic from access networks.

(3) **Access networks (or last mile/kilometre):** the last part of the network reaching the end-user premises. A broadband network can only be as fast as its last kilometre: this part of the network determines what types of broadband service the end-users can get, and this is the area in which the largest investments are likely to be required for NG A networks to replace existing copper lines with fibre.

### Public intervention models in the EU

On the basis of the significant case practice of the Commission (17), different patterns of State intervention seem to emerge. Until a few years ago, State aid schemes were, with few exceptions (18), small, localised projects initiated by a region, typically in a handful of countries (such as UK (19) or Italy (20)). In more recent times and with the recognition of the pivotal importance of broadband development for social and economic development, more and more national broadband strategies have been designed which explicitly plan to use public subsidies with the dual objectives of bridging the existing (basic broadband) digital divide and accelerating NG A investments.

Due to considerable differences in geographical topology, population density, telecommunication landscape, competitive conditions, constitutional systems and financial means, national broadband strategies vary across countries. For instance, due their high population densities, favourable topologies and relative degree of competition, Belgium, Denmark, the Netherlands and Luxemburg have so far not deemed it necessary to use State aid to extend broadband coverage. In other countries (e.g. Finland), support to basic broadband has not been considered necessary (as universal basic broadband coverage could have been achieved by market forces complemented with regulatory measures), so public funds have only been used to achieve the goal of universal NG A coverage (21). Besides these examples, most EU countries have resorted to some kind of public intervention (including State aid) to achieve both universal basic broadband coverage objective and to accelerate and widen NG A roll-out.

In all of these cases, the Commission applies the Broadband Guidelines to assess the compatibility of projects with the internal market. The following sections describe the most recurring types of public intervention assessed by the Commission.

(17) More than 70 broadband measures have been assessed under the EU State aid rules. The list of Commission decisions and the Commission decisions referred in this article is available at: http://ec.europa.eu/competition/sectors/telecommunications/broadband_decisions.pdf.


(21) In the case of Finland, commercial operators will provide NG A coverage in 95% of the country, but according to the Finnish government, only via public funds can be the remaining 5% of the population covered.
Aid to roll-out access (last-mile) infrastructures

This is probably one of the most common type of intervention in the basic broadband field, with public funding being used to roll out the missing last-mile infrastructure. In some countries, it is conceived as the primary target for public funding (\textsuperscript{23}).

Once the white (or white NGA areas) are clearly identified, the granting authorities launch a competitive tender procedure to select an operator that will receive public funds to build the missing infrastructure. The advantage of this solution is that end-users receive a “turnkey” solution: retail services from the selected operator. Its disadvantage is that only one technology receives funding and only one operator benefits directly from the aid measure. However, the open tender requirement and the access obligations attached to the granting of State aid limit the distortive nature of the subsidy. In addition, as a result of public intervention, more competition will take place, thanks to the wholesale services obligations.

Aid to roll-out backhauls/regional network

Generally speaking, the practice of the Commission shows that in this segment of broadband networks, there is often market failure. Sizeable areas of Europe are totally uncovered by backhaul networks, or the infrastructure is out-dated and inadequate (i.e., not built with optical fibre and suffering from severe capacity limits). The rollout of fibre-based backhaul networks is also an indispensable prerequisite for any future NGN network deployment. Therefore many public authorities direct available funds into backhaul network deployment (\textsuperscript{26}) to pave the way for both basic and NGN roll-out.

Moreover, since backhaul networks are able to support different types of technology platforms at the access level, operators can offer end-users whatever access technology they prefer or can afford (\textit{inter alia}, xDSL, cable, mobile, wireless, FTTH solutions). Thus, such intervention not only indirectly benefits several technologies and operators, it also stimulates infrastructure-based competition.

The Broadband Guidelines of 2009 do not specifically address the case of backhaul networks. However, according to the logic of the Guidelines, for the reasons explained above, possible distortions of competition resulting from the deployment of subsidised backhaul networks have to be assessed both at the level of basic broadband networks and at the level of NGA networks. On the basis of the Commission’s practice, three scenarios could be considered:

i. A subsidised backhaul network is deployed only in areas where there is no (optical fibre) backhaul infrastructure available (and no broadband retail services are offered at minimum 2 Mbps at affordable prices) (\textsuperscript{27}). These areas are characterised by total market failure; therefore the distortion of competition is considered minimal.

ii. A subsidised backhaul network is rolled out in such a way that the access points of the network are sufficiently close to the end-user premises (e.g. less than 1.5 – 2 kms \textsuperscript{28}), allowing the latter to benefit from NGA-type networks and services. This type of intervention can be considered as support to an NGA infrastructure within the meaning of the Broadband Guidelines, and can thus be authorised in white NGA areas. This scenario concerns mostly rural areas and may not be automatically applicable to urban zones.

iii. A subsidy is granted to deploy a backhaul network crossing areas with different characteristics in terms of availability of infrastructure at backhaul and/or access level. In such a case, first of all, each area has to be identified as white, grey or black, from the basic broadband and from the NGA point of view. On the basis of such thorough mapping, the backhaul network can be rolled out (and made available for access) in each area, according to its characteristics. For instance, in areas where an existing basic broadband access infrastructure is already available, but no operator has plans to invest in NGA networks, the new backhaul network could be used to give access to NGA infrastructures (FTTH solutions or DOC-SIS 3.0 cable), provided that the other conditions of the Broadband Guidelines are respected (\textsuperscript{29}).

The same reasoning applies when public authorities want to open up (wholesale access) a network constructed to link up and provide services only to public entities (schools, libraries, clinics). Typically, the provision of broadband services to the public

\textsuperscript{23} See for instance cases from Germany, such SA32021 Broadband in rural areas of Saxony or N299/2010 Broadband scheme of Bavaria.

\textsuperscript{24} The Commission has assessed backhaul measures from, \textit{inter alia}, Italy, Spain, Lithuania, Ireland, Estonia.

\textsuperscript{27} See for instance Commission decision in case N183/2009 RAIN project, Lithuania.

\textsuperscript{28} Construction of a backhaul networks can be considered as an “NGA-type of infrastructure” if the access point is at max. 2 kms distance from the end-user premises. Taking into account the economic realities of rural areas, such definition allows end-users to benefit from cost-effective NGA networks and guarantees that new services will be considerably superior to existing ones. See Commission decision N62/2010 High-speed Broadband Construction Aid in Sparsely Populated Areas of Finland.

\textsuperscript{29} See for instance Commission decision in case N407/2009 Xarxa Oberta, Spain.
administration does not constitute State aid within the meaning of Article 107 TFEU, as long as the public entities do not engage in economic activity (28). Conversely, allowing third-party commercial operators to use the public network to extend their own coverage and services would constitute a selective advantage to them, and would therefore be considered State aid. Such a form of subsidy could be considered compatible if the public administration network is opened to third-party operators on the same conditions described for the three scenarios above.

Aid to passive infrastructure elements

Broadband roll-out, especially NGA deployment, can also be supported by granting aid at the lowest level of the telecommunication infrastructure value chain, with the aim of reducing investment costs. Civil works (such as digging in the public domain, construction of ducts) are deemed to constitute a significant part of investment costs for constructing an NGA network. Moreover, ducts (with sufficient space) opened for access to different operators could encourage infrastructure-based competition. Beyond the cases described in the Broadband Guidelines as falling outside the notion of State aid (29), whenever public authorities undertake civil works to the advantage of the telecommunication sector, then: a) the intervention can take place only in such areas where there is no comparable infrastructure available and b) all the compatibility conditions set out in the Guidelines have to be fulfilled (30).

Best practice in State aid measures

Regardless of the type of public intervention devised, all aid measures have to comply with the general compatibility criteria set out in paragraph 51 of the Broadband Guidelines and, where applicable, with the specific compatibility criteria set out for NGA networks (in particular paragraph 79). Drawing on the Commission’s experience, the following sections provide a best-practice primer on how these criteria can be fulfilled.

General compatibility criteria

Detailed mapping and coverage analysis: Detailed mapping of currently-available broadband infrastructures is the first and fundamental step needed to identify areas affected by market failure and thus to verify whether and where State aid is actually justified. This verification should be carried out in two steps: first, the public authorities should carry out a market analysis to identify existing broadband networks and services in the targeted areas, so as to identify areas lacking adequate broadband infrastructure. The choice of minimum territorial unit is left to the discretion of the granting authority. Mapping can be done per postcode, per municipality, per local-exchange area (31), etc. Second, the results of the market analysis, including the identified targeted areas as well as the subject of the measure (NGA/basic broadband/backhaul network/etc.) should be open for public consultation. Best practice in public consultations includes publication of the details of the measure on a prominent webpage to which adequate publicity is given, and enough time for stakeholders to submit their comments. If an operator raises concerns on the planned State aid measure during this process (e.g. due to existing investment plans), the granting authority should analyse the concerns in detail (32). Aid can only be granted if, as a result of such market analysis and consultation with stakeholders, it is concluded that there is no comparable broadband offer provided or expected to be provided by the market in the targeted area in the next three years. To further increase transparency, after an operator is selected through an open tender procedure, the granting authorities should publish information on the winning bid, the selected operator, the exact areas to be covered, the timeframe for investment to take place, the proposed technological solution(s), the aid amounts and/or aid intensity of the measure (33).

Open tender process: The Guidelines refer to the principles of the public procurement Directives (34) to ensure that (1) no technology platform or

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(29) See Paragraphs 60 and 61 of the Guidelines. However, in reality such a situation is not common everywhere: telecommunication and utilities (electricity, water, etc.) use different ducts in many European countries, the ducts need to be buried at different depths; for security reasons, different distances need to be respected, etc.
(30) See for instance Commission decision in case N368/2009 Broadband support in Saxony, Germany
(32) 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. OJ L 134, 30.4.2004, p. 114–240. Although procuring telecommunication networks and services do not fall within the scope of the Public Procurement Directives, it is required that the selection procedures shall be in line with the principles of those Directives (such as openness, non-discrimination, sufficient publicity).
(2) operator is favoured when granting aid, (3) the most appropriate (technological, financial, etc.) solution comes up as a result of market forces and (4) the aid amount is reduced to the minimum necessary (“gap funding”). Because of the need to run an open tender process, in the broadband sector, aid amounts and aid intensities are usually only known ex post, i.e. after the tender process, and typically, also after the Commission decision. For the purpose of assessing the compatibility of the aid, the Commission analyses the tender documents which form part of a notified measure. Therefore, public authorities should not launch a tender without a prior State aid clearance: if the Commission comes to the conclusion that certain provisions of the tender documents are not in line with the Broadband Guidelines or other relevant Commission legislation, the public authorities may have to re-design and re-run the whole tender process in line with the EC rules, a rather costly procedure.

Most economically advantageous offer: The selection criteria shall be objective and cannot be designed so as to exclude certain technologies. Diverse award criteria (for instance, the amount of public funding required, the amount of private investment, geographical coverage to be achieved, the pro-competitive nature of the proposed technological solution, tariffs and affordability) would offer public authorities the possibility of differentiating between proposals, based partly but not only on prices, and to select the most advantageous offer.

Technological neutrality: It must be left to market forces, ideally in the course of the tender process, to let the most suitable technological platform (or combination of platforms) emerge. In many cases, one single technology may not be able to provide the requested coverage or would not be economically reasonable (36). A mix of different technological solutions is often the best way to maximise the coverage, given the limited public funds available (37). However, it is important to bear in mind that in this case too, the choice of technology in each targeted area should not be pre-determined by the granting authorities, but should be left to the operators to decide (again, via the competitive tender process). In certain cases, the principle of technological neutrality is also fulfilled when a specific technology seems to have been chosen ex ante. This is the situation regarding fibre-based backhaul networks and of NGA networks. In reality, at the current stage of market and technological development, to achieve the public interest objectives of (1) offering reliable and resilient backhauling services or of (2) allowing delivery of broadband access services with enhanced characteristics (NGA), the limited availability of suitable technologies limits the choice of the public authorities to fibre infrastructures. However, this situation may change in future, especially with regard to mobile services, and in that case, all comparable technologies may need to be put on an equal footing.

Use of existing infrastructure: Public authorities shall encourage the use of existing infrastructure to reduce the amount of aid needed and to avoid wasteful duplication. Existing infrastructure could consist of (1) a network that is already deployed and owned by the regional government itself; (2) other available passive infrastructures, for instance existing ducts along the road or railway network (3) infrastructure of existing operators (in the form of obtaining duct access, renting dark fibre capacity from them etc.); (5) other alternative infrastructure (sewers, manholes, etc.). Public authorities can incentivise operators to provide information on their existing infrastructure and map them in a central database to support private and public investment (38). At the same time, this condition should not end up favouring existing incumbents that have significant infrastructure in place, especially in cases where third parties may not have access to such infrastructure or inputs necessary to compete with an incumbent. It is for the granting authorities, together with the National Regulatory Authority, to assess whether third parties can obtain adequate access to the incumbent’s infrastructure and hence are able to compete in the tender procedure on a level playing field (38).

Wholesale access: A sine qua non condition for granting State aid is the obligation for the aid recipient to provide open wholesale access, regardless of

(36) Typically, this is the case of imagining a fully-fledged wired network to reach settlements comprising a few scattered households. Such households might be more efficiently reached by wireless, mobile, satellite or other alternative solutions. See for instance Commission decision in case N461/2009 Cornwall & Isles of Scilly Next Generation Broadband network.

(37) See, for example the case N466/2009 National broadband plan for rural areas in Italy in which the authorities designed a combination of backhaul infrastructure rollout and end-user direct subsidisation for the purchase of satellite equipment in the ultra-remote areas of the country.

(38) For instance, Germany has started to draw up a map (Infrastruktur-Atlas) to identify infrastructure that can be reused – the information is provided by the operators on a voluntary basis. Available at: http://www.bundesnetzagentur.de/cln_1932/sid_36A07B74A782DAA6BCB14427FC8B773D/DE/Sachgebiete/Telekommunikation/Infrastrukturatlas/infrastrukturatlas_node.html.

(39) Until now, only one Commission State aid decision (out of almost seventy) has been challenged before the General Court, on the grounds that the selected (incumbent) operator did not provide the necessary access products to its competitor that would have allowed the latter to make a competitive bid. See Court case T362/2010.
the presence of significant market power. In return for receiving taxpayers’ money, the selected operator must give back part of the benefit thus received in the form of increased competition, as opposed to the scenario had it invested solely its own resources. Abandoning such a condition would perhaps require less aid from the granting authorities as the selected operator would be able to rely on monopolistic rents to fund the network rollout. Although in the very short term there may be a trade-off between requesting better/more access products and the need to lower investment costs (and hence State aid), in the long term, only effective competition is able to maximize consumer welfare. Allowing monopoly rents means higher costs for consumers and society in the medium/long run. State aid cannot be used as a tool to support the creation of local monopolies, and the design of the access products is one of the crucial criteria for a successful State aid scheme.

**Price benchmarking:** The pricing of wholesale access products is crucial for the success of a State aid measure: high wholesale prices would prevent market entry of third party operators and hence reduce competition, or wrongly-set pricing could distort incentives for alternative operators to move up the “ladder of investment”. Therefore an effective and continuously-revised price benchmarking mechanism (to reflect continuous price decreases) advised by the NRAs requires close attention.

**Claw-back mechanism:** Although granting authorities may experience difficulties in obtaining relevant data from the operators selected, proper monitoring of the implemented State aid scheme is essential (particularly if EU funds are also used) for the granting authorities to be able to intervene if the selected operator does not fulfil contractual obligations and to claw back public funds if overcompensation occurs. Most granting authorities use the average rate of return in the industry as a benchmark and share any extra profit above that in proportion to the original aid intensity of the measure, thus preserving the profit incentives of the subsidised operator.

**Specific compatibility criteria for NGA networks**

Since the potential distortion of competition could be higher, measures supporting the roll-out of NGA infrastructures in areas where any basic broadband infrastructure already exists (i.e. all areas which are non-white) require additional conditions to be fulfilled.

**Access obligations:** The access obligations imposed on the chosen operator include access to both passive and active infrastructure level for at least seven years, without prejudice to any similar regulatory obligations that may be imposed by the NRA. The subsidised network has to be designed in a way that guarantees that several alternative operators have access to the subsidised infrastructure at all levels. The supported infrastructure will have to offer sufficient access to ducts, shall have sufficient dark fibre capacity, as well as access to cabinets, and active access products. In the case of NGA networks, besides the above-mentioned trade-off between lower investment costs and the access obligation, an additional argument may be put forward, that in low-density areas, access to the passive level will not result in additional competition, since it may not be economically feasible to create an alternative network. In the absence of counterfactuals and to avoid pre-empting the outcome of market forces, the Broadband Guidelines require that as a quid pro quo for benefiting from public funds, the new network should be opened at as many levels as possible, thus allowing market forces to decide which access products suit them best.

**The role of the National Regulatory Authorities (NRA):** The role of NRAs is important in relation to aid granted for NGA network rollout. In setting the conditions for wholesale network access, public authorities are requested to seek the expert advice of the NRA, especially since NGA network rollout began only recently and access products are not yet fully designed or available. It is good practice in some countries to also seek the opinion of the National Competition Authority. In the Commission’s experience, NRAs have shown varying degrees of involvement (and willingness) regarding State aid schemes. In well-designed projects, members of the NRA are part of the team designing the State aid measure, or provide guidance on how to set the access conditions in the most appropriate way. In other cases, the NRA helps the granting authority to solve disputes between access seekers and the operator of the subsidised infrastructure. If the NRA raises serious doubts on the design of an aid measure, this should ring a warning bell for the granting authority and the Commission as to the overall beneficial effect of the aid measure. Fortunately, more and more NRAs now recognise that they can perform their role in

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(41) This is consistently done in Italy, for instance.

(40) See for instance, a guidance provided by the Swedish regulatory authority, PTS to granting authorities: http://www.pts.se/upload/Overigt/Internet/Bredband2010/riklinjer_bredbandsstod_landsbygd_2010-09-16.pdf.

(4) For instance, increasing wholesale prices by 10% can have a significant impact on the critical market shares for entrants and their competitive coverage. See WIK Consult study for Vodafone, reference in footnote 16.
keeping the electronic communications markets open and maintaining competition better if their core activity relating to the application of sectoral regulation is accompanied by active involvement in State aid measures.

**Effective and full unbundling:** The NGA network architecture that will benefit from State aid should provide for effective and full unbundling and thus satisfy the different types of network access that operators may seek, including active and passive access products on an open wholesale basis. In the NGA area, effective and full unbundling projects are not yet systematically available, or may be currently under design (6), so the networks benefiting from State aid will either be operational when those access products are available or will otherwise play a pioneering role in devising adequate access products. While fully respecting the principle of technology neutrality, to allow for full and effective unbundling, the Broadband Guidelines express their strong preference for the deployment of multiple-fibre lines that are able to host both P2P and PON technologies and are therefore considered to be conducive to long-term competition. In this respect, while fully respecting the principle of technology neutrality, the granting authorities have strong leverage to promote pro-competitive network architectures, for instance, by rating such bids higher in the context of the open tender procedure.

### Remarks on successful designs

“**In a few years’ time, broadband access will be so cheap that we won’t even know if we are online or not**” Gerd Leonhard, media futurist

On the basis of the Commission’s experience in assessing State aid broadband projects, the following factors can lead to a successful basic broadband or NGA deployment project.

- A State aid measure is more effective when it is part of a more comprehensive (national) broadband strategy, containing not only a vision on how to develop the infrastructures, but also a clear action plan on the complementary demand and supply-side measures, administrative, regulatory and simplification initiatives with the common objective of increasing broadband penetration and coverage and supporting competition.

- Full transparency as regards the aid measure, together with the active involvement of all stakeholders (commercial operators, the NRA, local authorities, etc.) in the design of the projects is crucial to find the right balance between commercial incentives and the public interest.

- The availability of adequate fibre backhaul networks in each region is a fundamental prerequisite for any broadband development.

- In the vast majority of cases, given the economics of networks, widespread (or even universal) broadband coverage can only be achieved via the use of a mix of technologies.

- Aid limited to passive infrastructure elements could support the NGA roll-out of several operators.

- Public ownership limited solely to passive infrastructure elements could be a good way to benefit all market operators in a non-discriminatory way. At the same time, the distortion of competition arising from such intervention could be limited, since public companies do not compete directly in the core activities of the telecommunication operators (wholesale and retail service provision).

- To create a competitive market for broadband, with lower prices and a higher level of services for the end user, granting authorities should support crucial pro-competitive features, in particular: full and effective wholesale access to the subsidised networks and network architectures conducive to long-term competition (such as multiple fibre deployment, point-to-point infrastructures).

The Broadband Guidelines aim to make public funding of broadband infrastructure a “smart investment”, that is, an investment that not only contributes to and incentivises infrastructure development, but also favours the creation of a more open, competitive landscape in electronic communications – perhaps making their regulation easier in future too.

In addition to the objective of low prices, as Leonhard puts it, “good broadband access should be so ubiquitous that it will not make a difference if we are in a small village or in a big city”, and broadband access should be offered on different competing platforms so that “it won’t even matter what technology we are using”. Smartly-designed State aid measures could contribute to achieving these aims.

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(6) For instance, Ofcom accepted enhanced bitstream-type of access (VULA) in the UK on BT’s optical fibre network (also taking into account e.g. BT’s functional separation). The European Commission has accepted telecoms regulator Ofcom’s proposal to order BT to provide ‘virtual’ access to alternative operators on the basis that such access should be only a transitional measure, and full fibre unbundling should be imposed as soon as technically and economically possible.