

Agenda

Advancing economics in business

All go for NetCo? How a co-investment model could boost NGA roll-out

The European Commission's 'Digital Agenda for Europe' envisages substantial new investments in telecoms assets, particularly next-generation access infrastructures. Telecoms regulation has thus far focused on outcomes, rather than investments. Based on Oxera's recent report for Vodafone, we explore whether there is an economic case for a model where several operators co-invest in fibre-access infrastructure

The revised European Framework Directive for electronic communications imposes a duty on national regulatory authorities to 'promote efficient investment and innovation in new and enhanced infrastructures'.¹ While other regulated network industries, such as energy, water and rail, have long-standing investment objectives, this is the first time that such an EU-wide investment duty has been imposed on telecoms regulators, and comes at a time when the European Commission's 'Digital Agenda for Europe' envisages substantial new investments in telecoms assets, particularly next-generation access (NGA) infrastructures.²

The Digital Agenda specifies a target for Internet coverage at speeds of over 30Mbps for all EU citizens by 2020, with half of EU households subscribing to connections at speeds of over 100Mbps—implying new investment of up to €268 billion, as estimated by the European Commission. The current regime has not delivered such investments thus far, and is unlikely to do so by 2020. While networks are being upgraded in some countries, the current investment plans are generally not in line with the EU targets in terms of bandwidth or network topology.

The European Commission has recently indicated that it is willing to consider innovative regulatory approaches and models in order to promote investment in NGAs. One aspect of the current proposals is to revisit pricing principles, making the roll-out of fibre services more attractive by gradually lowering the access prices for legacy copper networks.³ There has also been extensive discussion of co-investment and risk-sharing between providers, and other innovative regulatory and investment models.⁴

This article focuses on whether there is an economic case for a co-investment model, and, if so, how the model could be implemented so that it delivers net benefits to all stakeholders, including the incumbent, entrants and consumers.

How a co-investment model could address the underinvestment problem...

While the term 'co-investment model' seems to feature frequently in the debate surrounding telecoms investments, and the model has been supported by the European Commission,⁵ there seems to be a degree of confusion about what is meant by it. The model presented by Oxera—referred to here as 'NetCo'—is one of the most detailed propositions put forward thus far. It is based on insights from cross-sector precedents, and draws on principles of economics and finance.

Under NetCo, the co-investment vehicle would be a structurally separate commercial network entity mainly supplying passive fibre access and primarily owned by its participant-operators (service providers and, potentially, financial investors). Third-party entrants could purchase 'active' wholesale services from the participant-operators. Alternatively, after an initial period of, say, five years (in order to reward the early commitment of participant-operators over the period of most significant demand uncertainty), they could purchase 'passive' fibre loops from NetCo on commercial terms. Participant-operators would commit to funding NetCo over the construction phase, and would receive a share of NetCo's (upstream) returns

This article is based on Oxera (2011), 'How a Co-investment Model Could Boost Investments in NGA Networks: Feasibility and Implementation of a Co-investment Model', prepared for Vodafone, November, available at www.oxera.com.

as dividend payments. A stylised illustration is given in Figure 1 below.

NetCo would control the fibre network elements, but would leave the investment in active electronics, and innovation in content and applications layers, to the service providers. In other words, NetCo would (mainly) own and control only the most non-replicable ‘dumb’ parts of the access network. Participants—ie, NetCo’s owners—are envisaged to provide wholesale active access to independent third-party operators on commercial terms. The ownership structure of NetCo would be expected to evolve over time, with external investors (including pension and infrastructure funds) having a more significant role once the demand and construction risks reduce.

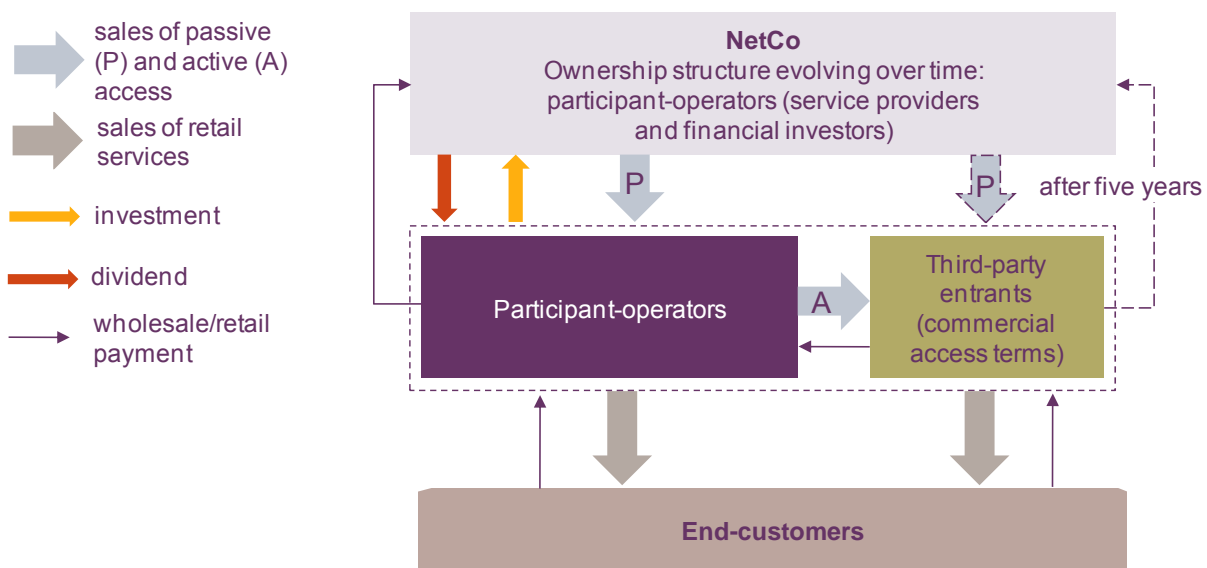
A number of market features are believed to be hindering large-scale investment in next-generation broadband infrastructure across the EU, including demand, cost and regulatory uncertainty. There are ways in which a co-investment model, such as NetCo, would deal with these factors.

- **Firm-level demand uncertainty.** To reduce demand uncertainty, participating service providers would commit to decommissioning (or integrating, if feasible) existing networks in exchange for compensation from NetCo. They would also agree not to invest in alternative fixed-access networks while they are NetCo investors. These commitments would reduce (but not eliminate) demand uncertainty for investors, by ensuring that the customer base across which the fixed and sunk costs of setting up a fibre network are spread is as broad and stable as

possible, throughout the period of the investment. The larger the share of the overall market participating in NetCo, the more significant would be the reduction in demand uncertainty associated with the potential duplication of the access network assets.

- **Long-term regulatory commitment.** While there would still be tools to allow the regulator to intervene under certain predefined circumstances, a fundamental requirement of the NetCo model is that key elements of the regulatory regime should be defined ex ante and maintained ex post (with a 15-year commitment). This contrasts with the current EU regime, where the ‘rules of the game’ may change every three years. To allow regulators to commit for a longer period of time, the NetCo model would need to ensure that there are a sufficient number of providers competing in the downstream part of the value chain.⁶ The principle of allowing lighter, or no, significant market power (SMP) regulation in a co-investment scheme is consistent with the European Commission’s NGA Recommendation.⁷
- **Cost risks.** The NetCo model has been designed to ensure that the NGA cost characteristics (sunk, fixed and unprecedented) do not deter investment as much as they would otherwise. For example, the fixed-cost problem would be partly addressed by establishing an entrants–incumbent partnership. This partnership would guarantee that all partners exploit together the scale economies of the network. The sunk-cost problem could therefore be mitigated by reducing demand and regulatory uncertainty, thereby minimising the risk of asset stranding.

Figure 1 Stylised illustration of the NetCo model



Source: Oxera.

In the absence of any commitment to a single large fibre-access network, each co-investor could attempt to invest only in the more profitable urban areas, leaving the less profitable areas unserved. Under a co-investment model, operators could have a collective interest to maximise, not duplicate, the network footprint, hence 'internalising the externalities' of wider roll-out. In rural areas where there is no business case for NGA deployment, even under the co-investment model, public funding could still be warranted.

A co-investment model would not completely remove the risks surrounding fibre investments. Nevertheless, there are sound reasons to suggest that it would do so more effectively than the status quo.

...and how to make it work

Critical to the success of any co-investment model is its implementation. A 'blueprint' of such a model—the key elements of which are presented below—aims to achieve legitimacy and to balance the conflicting interests of stakeholders, including the incumbent, entrant operators and the regulator. The model design has three main elements: the rationale; governance; and detailed design.

The rationale

The attractiveness of the co-investment model to the various stakeholders would be influenced by their assessment of the competitive and regulatory system that would arise in a scenario without NetCo. While it is not in the scope of this article (or the Oxera report) to detail the ways in which this base case could change, it seems reasonable to assume that more stringent regulatory approaches seem likely. Examples, as indicated by the European Commission, are lower regulated copper charges; low-cost and effective duct access for alternative operators; and more stringent enforcement of non-discrimination obligations and/or the imposition of stricter regulatory remedies, including functional separation. These would each significantly affect the standard against which stakeholders (including incumbents and entrants) would judge the benefits of the NetCo proposal.

Given the nature of the investment, there are benefits gained and costs borne by all stakeholders. The amount of the net benefits depends on how the status quo is defined and perceived.

Under NetCo, the incumbent would gain greater certainty on its NGA investment (relative to the status quo) in return for ceding some control over the access network, and retiring legacy copper assets. The entrants would share many of these benefits and gain

from reduced access discrimination in return for upfront commitments. All participants, and policy-makers, would benefit from a larger NGA deployment, which in turn would be expected to result from lower and shared (industry) total costs, coupled with the collective incentive to maximise footprint rather than duplicate networks in the more competitive areas.

What about the regulator? Under the current structure, regulators are unlikely to commit to relaxing regulatory measures in the long term. Vertically integrated incumbents may have limited incentives to provide any third-party access at all on a voluntary basis. By contrast, in the NetCo model, the regulator would pre-commit to an industry structure that included an appropriate number of service providers in the downstream market (which are also NetCo's owners, rather than NetCo being an independent upstream entity), together with an industry code of conduct and well-defined regulatory backstop. Regulators would still be able to intervene if NetCo were to earn excessive returns in the long term (relative to its ex ante cost of capital). However, the conditions under which they would do so would have to be clearly prescribed at the outset, taking into account the risks present at the time of the investment.

Given that the ownership structure and governance mechanisms are designed to achieve legitimacy, enhance industry coordination, and facilitate appropriate dispute resolution and regulatory oversight, on the whole the NetCo model would seem to balance conflicting interests and could exhibit net benefits to all parties involved.

Governance: alignment of incentives between stakeholders

An acceptable governance structure would be a prerequisite for all the specific attributes of the co-investment model envisaged by Oxera. If this structure were not specified such that it ensured sufficient and proportionate decision-making power for all parties—and hence struck a balance between the incentives described above—it could prevent implementation of the model.

The economic problem to be resolved by the governance structure stems from asymmetric bargaining power: while the bargaining power of a monopolistic upstream operator would be constrained by the co-ownership structure, the likely large ownership and consequent voting share of the incumbent, coupled with its high retail market share, would mean that measures would be necessary to protect the interests of minority participants.⁸

Figure 2 below summarises the four central features of the governance structure of the NetCo model as put forward by Oxera. The combination of these high-level features draws on practical experience from other sectors, and is designed to align the incentives across the value chain and to secure the legitimacy of the NetCo framework.

Detailed design of practical implementation

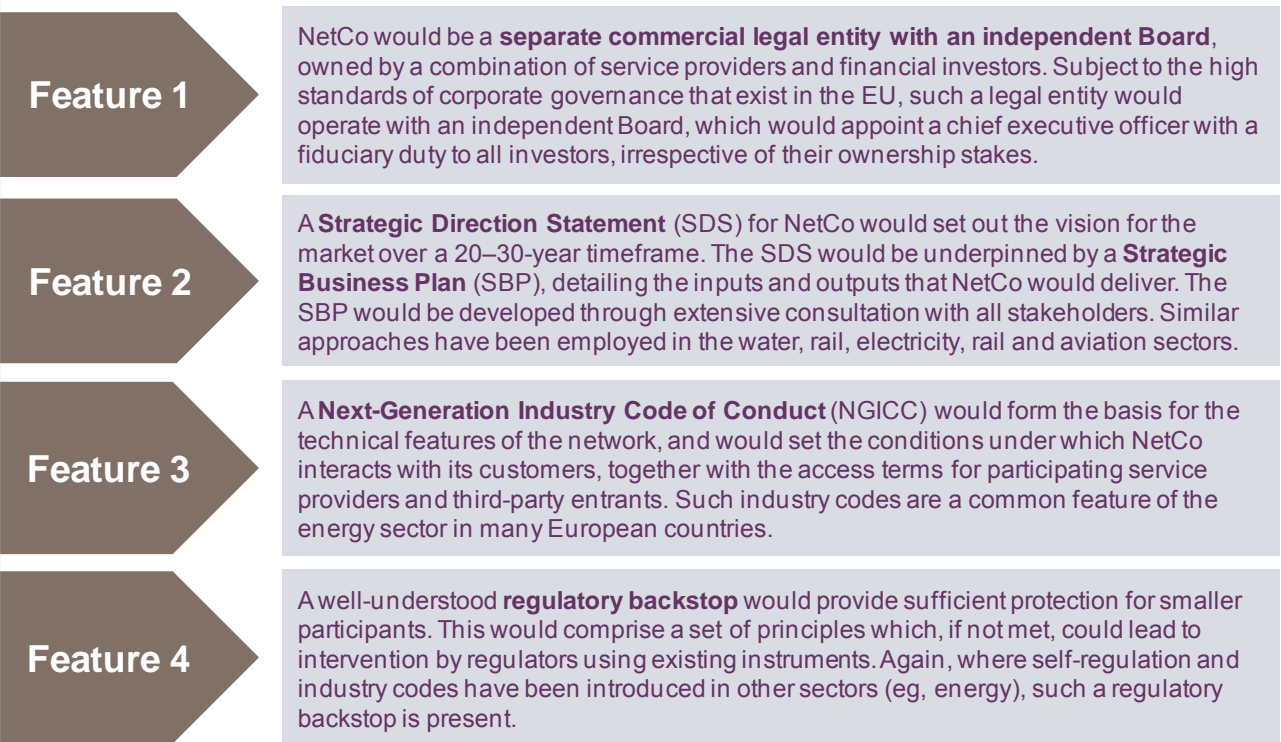
A number of practical issues would need to be addressed to put NetCo into operation, including risk, ownership, entry and exit, financing, pricing, migration from legacy environment, network topology, and the services provided by NetCo. The design of these aspects recognises the dependencies between them, as well as the evolution over time of the supply and demand characteristics of the market. Oxera’s concrete propositions for addressing these aspects include the following.⁹

- **Stakeholder commitment**—operator-participants would commit to financing NetCo for ten years, during which time exit would be possible but subject to a financial penalty. The regulator would retain its supervisory role, but agree not to change the rules of the game during a 15-year period, given that the overall governance structure (see Figure 2) would be designed to legitimise the operations of NetCo. Regulatory commitment for such a period is a

common feature in other sectors with large-scale infrastructure investments.¹⁰

- **Ownership and financing**—from the time of its launch, NetCo would be (primarily if not exclusively) funded by operator-participants, with investment from financial investors expected once the construction phase is completed and the demand uncertainty is lower. NetCo’s financing and capital structure would be expected to evolve over time. As construction and demand risk evolve, different forms of financing and corporate governance could emerge, such as acquisition of a substantial stake in NetCo by infrastructure or pension funds.
- **Entry and exit**—participants would commit to financing NetCo’s capital and operating expenditure through a commercial bidding process for ownership stakes. Later entry and exit would be achieved through commercial agreements, subject to predefined criteria for participation.
- **Pricing**—NetCo’s pricing would be designed to provide sufficient lifetime remuneration on investment, given the risk at the time of the investment. To ensure maximum output in an uncertain environment, NetCo would be free to set its own prices and allowed to price-discriminate in order to reflect end-users’ willingness to pay and geographical differences in costs. The efficiency

Figure 2 Features of governance



Source: Oxera.

benefits of such pricing flexibility are well-understood in the status quo regime, but often subject to concerns about discriminatory practices, and hence regulatory scrutiny. Wholesale prices charged from third-party entrants would be predominantly determined on a commercial basis, albeit subject to regulatory oversight—the regulator would intervene should NetCo's returns substantially and persistently exceed its cost of capital beyond a predefined excessive level.

- **Transition** and treatment of the incumbent's assets—legacy assets that could be used as inputs into NGA would be, at least at the time of the launch of the co-investment model, leased from the incumbent at cost-reflective tariffs. If some incumbent assets became stranded relative to the counterfactual of there being no NetCo, reasonable remuneration would need to be ensured and could be recovered through NetCo's pricing.
- **Topology and services**—as far as is economically feasible, NetCo would commit to deploying point-to-point networks, in which the fibre connections reach directly to user premises, and which can be 'unbundled' by service providers. Where alternative topologies already exist, or are otherwise necessary, NetCo would provide active access, ensuring, however, maximum scope for product differentiation.
- **Regulation**—the regulator's role would be to commit firmly ex ante and to oversee the functioning of self-regulation; where disputes arise, the regulator could be the first independent arbitrator.

The design of each of these aspects needs to recognise the evolution of risk over time. More specifically, the participants and the regulator need to commit for a time period that is consistent with the period of demand uncertainty and construction risk, and takes into account the lifetime of the assets.

Similarly, on termination of the construction phase, it may be convenient for NetCo to increase the proportion of debt in its capital structure. Also, the participation of financial institutions is more likely once the construction risk is over, as witnessed in other sectors with significant infrastructure investments. The model is, however, fairly flexible towards various financing options.¹¹

Why NetCo?

The economic merits of risk-sharing and co-investment are well-understood. However, their practical implementation has been considered complicated, and it has often not been clear what such a model would actually entail.

It is recognised that a co-investment model, even if implemented for as narrow a set of assets as possible, would represent a change in industry engagement, and would come with some cost and complexity. Nevertheless, on the basis of Oxera's analysis, if appropriately implemented, the NetCo model could provide a basis for more (private) NGA investment. Central to this finding is the identification of the correct counterfactual of there being no NetCo, which currently seems to be surrounded by a degree of controversy and uncertainty. A co-investment model could lead to greater stakeholder engagement with respect to the 'dumb' infrastructure, and, given its design and ownership structure with multiple 'insiders', a more competitive market in the active and retail layers of the value chain.

The model summarised in this article, and further articulated in the Oxera report, is a first blueprint of an industry-led co-investment model designed to achieve high stakeholder legitimacy and to be risk-reducing, and is founded on practices already applied in other network industries. As such, it seeks to remove, not increase, the controversy and complexity surrounding the use of the access network.

¹ The European Parliament and the Council of the European Union (2009), 'Directive 2009/140/EC of the European Parliament and of the Council of 25 November 2009 amending Directives 2002/21/EC on a Common Regulatory Framework for Electronic Communications Networks and Services, 2002/19/EC on Access to, and Interconnection of, Electronic Communications Networks and Associated Facilities, and 2002/20/EC on the Authorisation of Electronic Communications Networks and Services', *Official Journal of the European Union*, L 337/37, December 18th, p. 51.

² See http://ec.europa.eu/information_society/digital-agenda/index_en.htm.

³ European Commission (2011), 'Questionnaire for the Public Consultation on Costing Methodologies for Key Wholesale Access Prices in Electronic Communications', October 3rd.

⁴ A summary of the 'CEO Roundtable on Broadband Investment to Sustain Internet Growth', held in spring 2011, is available at: http://ec.europa.eu/information_society/newsroom/cf/itemdetail.cfm?item_id=7211.

⁵ European Commission (2010), 'Commission Recommendation of 20 September 2010 on Regulated Access to Next Generation Access Networks (NGA)', September 20th.

⁶ These characteristics of NetCo address the issues of downstream competition as well as price and non-price discrimination. There is a separate issue of potentially excessive pricing by NetCo, which could be addressed by an ex ante 'safety cap' on NetCo's overall returns.

⁷ European Commission (2010), op. cit., paras 27 and 28. The Commission included even more explicit guidance in the 2009 consultation document on the circumstances under which a co-investment model does not warrant cost orientation: European Commission (2009), 'Draft Commission Recommendation of [...] on Regulated Access to Next Generation Access Networks (NGA)', June 12th, Annex III.

⁸ This asymmetric development in the initial ownership structure is common, for example, in the energy sector, in the context of pipeline development projects.

⁹ The details of these propositions are presented in Oxera's original report.

¹⁰ Precedents from other sectors with substantial investment in long-lived assets indicate that periods of ten to 25 years are common, thereby providing sufficient certainty to the parties making the investment (examples from rail, aviation, electricity transmission, distribution and supply, and gas transport and shipping are presented in the Oxera report).

¹¹ If NetCo participants are willing to provide guarantees on NetCo's debt, it may be efficient to run a higher level of debt gearing within NetCo, even during the initial phase. In the context of pipeline development projects, reviewed in the Oxera report as examples of infrastructure co-investments, a 70–30 debt–equity split appears to be quite common.

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email g_niels@oxera.com

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