

Delivering the new EU approach to fibre: combining pricing flexibility and non-discrimination

A report for ETNO

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Summary

The decision by Commissioner Kroes in July 2012 to allow pricing flexibility in relation to next generation broadband, subject to conditions, has been positively received by the market. For example, HSBC commented *"Taken together, we believe that this approach has the best chance of securing investment in the NGA capability Europe needs."*

Commissioner Kroes was also clear regarding the anticipated outcome stating: *"...national regulators will no longer be required to apply cost-oriented price regulation in almost all circumstances"*. However, important questions in relation to detailed implementation are yet to be determined. Further, what package in relation to *ex ante* price controls, margin squeeze assessment, non-discrimination requirements and service level KPIs and/or guarantees is most likely to deliver desired outcomes whilst avoiding unintended consequences? This paper addresses these questions.

Price flexibility

Price flexibility for next generation access is desirable since it supports efficient investment, digital inclusion and transition from current to next generation access whilst helping to overcome the challenge of setting prices when demand is initially low and demand growth is uncertain.

Price flexibility for next generation access should be contingent on adequate safeguards in line with the policy statement by Commissioner Kroes:

- In relation to indirect price constraints via a price-regulated anchor product and/or platform competition from cable where available and increasingly from LTE wireless; and
- In relation to non-discrimination (covered below).

Initially next generation access investment is expected to be precisely in those areas where the price constraint from anchor products (unbundled copper in higher density areas) and platform competition (since platform competition improves the investment case for fibre) is likely to be strongest. As investment proceeds the pricing of copper based anchor products and/or platform competition is likely to continue to provide a sufficient discipline. Alternatively, a virtual anchor product over fibre that mimics the price and performance of unbundled copper lines could be applied to next generation access. If these conditions are met, national regulators should forbear from the application of cost-orientation. To impose additional requirements, such as the absence of SMP at the retail level, would substantially raise the burden of proof, prolong a cost-oriented regime for fibre networks and reduce the effectiveness of the European Commission's new policy approach.

It is also important that the approach to margin squeeze preserves pricing flexibility to promote investment, whilst also supporting non-discrimination and competition. Key conditions are that where margin squeeze is applied by national regulators it is applied on a basis consistent with the approach applied under general competition law i.e. based on an equally-efficient-operator test and on a complaints driven basis. Prior guidance in relation to the application of a margin squeeze test for next generation broadband may be required to increase predictability and to ensure consistency with the proposed approach to fibre regulation. Such guidance should in particular take into account the initial high fixed cost and long-term nature of the investment. Regulators should focus the margin squeeze test on the volume and/or term commitment price, i.e. the price paid by an access seeker that shares a significant part of the investment risk.

Finally, price flexibility for next generation broadband may require amendment of certain elements of the September 2010 recommendation on regulated access to Next Generation Access Networks that contains different conditions for forbearance from cost orientation than those now proposed.

Non discrimination

Whilst the regulatory requirements for investment and competition have tended to be viewed in opposition in a (more static) legacy environment, there are grounds for viewing them as complementary during the transition to next generation access:

- All parties that rely on the fibre platform for providing high speed broadband have an interest in growing the market, particularly as competition from competing platforms intensifies. Efficient and effective downstream retailers can therefore improve anticipated returns from fibre investment, provided wholesale pricing flexibility allows a reasonable prospect of returns.
- Parallel running of current (price regulated) and next generation networks will itself increase platform competition during transition, thereby improving incentives for the access provider to offer non-discriminatory access, and/or to seek partnership arrangements, in order to grow the access market.

Fibre transition also presents an opportunity to strengthen and make more transparent a commitment to non-discrimination. The concept of equivalence of input (EOI), namely that wholesale products should be offered on the same terms at the same price to all retailers, is an important reference point introduced in the current debate by the Commission. BEREC has moreover introduced the concept of 'equivalence of output' (EEO), noting that "[...] EEO may be an acceptable and proportionate alternative to EOI."

We note that equivalence, and the concepts of EOI and EEO, do not follow a common definition at EU level and leave considerable scope for interpretation. In preparing EU level guidance on non-discrimination, equivalence should, however, be considered distinct from functional separation and the balance of costs and benefits involved in moving closer to equivalence should be carefully assessed. The focus should be on achieving non-discrimination, rather than strict equivalence or functional separation *per se*, on a proportionate basis. Further we note that the aim is to provide non-discriminatory access to bottleneck inputs, not to eliminate competitive differences in the retail market.

Implementing strict equivalence or elements of functional separation may involve considerable time and cost in terms of capital investment in systems, institutional change and management focus. At a time when a near-term focus on fibre investment is sought a proportionate approach is required which takes account of the trade-offs in terms of management attention and priorities for capital expenditure.

We reviewed experience in the UK in particular given that the UK is often cited in relation to the implementation of EOI and/or functional separation following the creation of Openreach in 2006. Experience in the UK points to the need for a pragmatic assessment taking account of national circumstances. Implementation of equivalence has been partial in the UK and functional separation is viewed as distinct – supporting but not an inherent part of equivalence. In relation to the creation of Openreach and development of equivalence in the UK:

- There was evidence of discrimination, failure of other remedies and LLU based competition had not developed leading up to the creation of Openreach.
- The undertakings were a voluntary contract between BT and Ofcom (though motivated by carrots and sticks). This made a material difference to the ease and success of implementation.

- Systems separation, which is an adjunct to EOI in the UK has proved costly, protracted and is not expected to be completed until 2014 at the earliest, 8 years after the separation process began. With hindsight it is not at all clear that systems separation was justified relative to much lower cost means of managing access to information systems.
- The EOI concept is not applied universally and in some cases where EOI does apply BT retail and other retailers utilise different wholesale inputs.

The conditions that held in the UK in 2005 do not apply now in the UK or the rest of Europe. In general LLU is now mature - its varied take-up levels a function of national market characteristics - and fibre investment is more clearly a focus for operators. In drawing on UK experience with the concept of equivalence both the context at the time and outcomes relative to expectations should be considered in deciding which principles on non-discrimination should apply in the EU today.

Conclusion

It is proposed that the transition to next generation broadband be facilitated by wholesale pricing flexibility, subject to conditions. In order to support the underlying goal of fibre transition and competition we propose the following for consideration:

- The availability of a price regulated anchor product and/or the presence of platform competition (including cable and, increasingly, LTE) should be sufficient discipline on pricing of next generation broadband; price flexibility should not in addition be made conditional on the absence of SMP at the retail level.
- Transition may be seen as an opportunity to strengthen the commitment to non-discrimination. However possible measures should be subject to a strict proportionality test, namely: is there a problem, would the measure result in an improvement and do the benefits outweigh the costs? Further:
 - Both the transition to fibre and price flexibility can be expected to reduce incentives for discrimination against 3rd party retailers and promote provision of appropriate levels of service. Any assessment of additional measures should be conducted against this changing counterfactual.
 - Measures to strengthen non-discrimination, including the application of equivalence, should be considered on a product-by-product basis taking into account national circumstances.
 - The conditions that lead to the introduction of equivalence on copper in the UK do not apply in EU markets today. For example, to require systems separation for legacy products, which are currently provided on a non-discriminatory basis and/or to require the introduction of new processes and systems, appears disproportionate. We note that operators will often use efficient established processes and systems when launching NGA access products.
 - Margin squeeze tests should only be applied by national regulators on a basis consistent with the approach applied under general competition law. Prior guidance may be required to ensure consistency with the proposed approach to fibre regulation.

In conclusion, the package of measures should be considered and designed as a whole taking account of interactions between transition, pricing flexibility and incentives in relation to both investment and non-discrimination. The conditions attached to pricing flexibility should support rather than undermine the goal of fibre transition.

1 Introduction and context

The decision by Commissioner Kroes in July 2012 to allow pricing flexibility in relation to next generation broadband, subject to conditions, has been positively received by the market. For example, HSBC commented *“Taken together, we believe that this approach has the best chance of securing investment in the NGA capability Europe needs.”* Commissioner Kroes was also clear regarding the anticipated outcome stating that *“...national regulators will no longer be required to apply cost-oriented price regulation in almost all circumstances”*.

However the detailed conditions attached to pricing flexibility in relation to non-discrimination are yet to be determined and will be key to whether the prospect of pricing flexibility is delivered and considered credible by investors. This paper addresses this issue. Further it does so against a backdrop of increasing competition at the access and applications layers:

- Platform based competition will intensify in the near term as fibre competes with price regulated ADSL during a period of transition, and as upgraded cable (DOCSIS 3.0) and wireless (LTE with more spectrum) compete with ADSL and fibre.
- Services based competition will intensify as over-the-top applications including VoIP and messaging applications delivered on a global basis grow in importance.

Not only do the above considerations point to the need for pricing flexibility to support investment and transition and a competitive level playing field in the access market, they also point to a shift in the balance of incentives in relation to discrimination versus non-discrimination and alignment of commercial interests for the following reasons:

- The desire to grow the market for next generation broadband in order to achieve a commercial return over time should see a reduction in incentives to discriminate against 3rd party retailers.
- Increased platform competition aligns the interests of access providers and access seekers (who would otherwise lose their retail customers) in a transition to next generation broadband.

Increased pricing flexibility can therefore be expected to improve the prospects for a cooperative rather than adversarial interaction between access providers and access seekers. It is therefore important that the approach to both *ex ante* regulation and any application of margin squeeze tests preserves pricing flexibility to promote investment. Shifting incentives also offers an opportunity to let the market drive appropriate levels of service quality rather than relying on regulation.

Incentives will also be better aligned between producers and consumers since increased platform and application competition, and relaxation of price controls, enables rewards to flow to those who match consumer preferences in terms of service levels. Provision of appropriate levels of quality of service – to both downstream and third party retailers, is therefore more rather than less likely alongside a relaxation of price controls. Further possible measures to support non-discrimination should be assessed in light of the above.

2 Pricing, price flexibility and price controls

2.1 Efficient pricing

In competitive markets prices should reflect the expected opportunity cost of inputs including a return on capital invested. Investors need to be assured of a return over time and expectations regarding investment options (including the option to delay), future technology, demand and potentially competing uses for long-lived inputs including land will impact pricing. In a dynamic setting price/s may therefore differ significantly from those estimated on the basis of an accounting assessment of costs. Application of the regulatory concept of cost orientation is therefore not straightforward, particularly during a technology transition with demand uncertainty.

Further, with joint and common costs and either multiple services (say voice and broadband access) or the opportunity to differentiate a given service (different levels of quality of broadband access) different levels of recovery of common costs across services may be economically efficient and commercially attractive. A single price or prices where common cost recovery is based on some accounting rule of thumb may not therefore maximise demand consistent with cost recovery or align consumer and investor interests in relation to investment to raise service levels.

We note that, contrary to what is sometimes claimed, service-price differentiation is not a symptom of the exercise of monopoly power and can arise in competitive industries. For example, increased price differentiation has been associated with the relaxation of entry restrictions in aviation and growth in competition.

Figure 2-1: illustrates the benefits of price differentiation for the investor in terms of additional revenue with a lower-quality lower-priced product and a higher-priced higher-quality product in addition to an intermediate product compared to a single intermediate product at a single price where the two squares labelled $+\Delta R$ show the benefit.

Figure 2-1: Benefits of price differentiation



From a societal point of view there is also a benefit from additional demand represented by the additional area between the demand curve (willingness to pay) and what is paid. Price differentiation may also be used to offer transition or entry products to encourage residual customers with low willingness to pay to switch from copper to fibre and to discourage them from switching back (for example, Verizon in the US offer a 3 Mbps low cost product over FTTH for this purpose).

The above picture is static in that it does not capture investment dynamics. Price differentiation, by more closely aligning revenue with willingness to pay for new services (such as fibre), better aligns investor and consumer interests in investment in new technology.

Finally, where there are competing platforms, competition will be more intense and consumer interests' best served where there is freedom to innovate in terms of the services, service bundles and prices offered. If a network operator cannot compete freely then they will see a smaller payoff from, for example, fibre investment, and will therefore invest less or on a less timely basis.

2.2 Necessary conditions for efficient pricing

It is necessary that the network operator has sufficient freedom to implement and modify service levels and price points in response to changing circumstances and new information – fibre pricing is a process of discovery. An illustration of this is the service levels and retail price points offered by Verizon in the US which have changed a number of times since the first deployment of FTTH in 2006.

Service-price differentiation could take a range of forms including differentiation by location, usage/customer type, capacity and bandwidth for example. Whilst some forms of service-price differentiation could be sustained under a range of regulatory approaches, other efficient forms of differentiation from an investment incentive and digital inclusion perspective require one of the following two circumstances to apply:

- A contractual relationship which reflects underlying cost structures i.e. all operators face a mix of fixed costs and variable costs, often referred to as a 'risk-sharing' arrangement; or
- Service-price differentiation based on an active product at the wholesale level.

2.2.1 Contracts and co-investment which reflect underlying cost structure

Provided fixed and common costs are faced by all retailers and pooled across a set of customers recovery of such costs can be varied across the customer base and over time i.e. efficient service-price differentiation and dynamic pricing is sustainable. If this condition is not met then a retailer facing an annualised cost on a per line basis will undermine price differentiation via arbitrage i.e. they will be unable to profitably charge some customers less and unable to charge some customers more than a price reflecting averaged wholesale costs.

2.2.2 Service-price differentiation based on an active wholesale product

An alternative approach is to differentiate active wholesale products which are then available to all retailers, for example, differentiating bandwidth and price. This form of differentiation may not be sustainable if passive products are also available on a line by line basis. The reason for this is that in relation to the access service *per se* (as opposed to other elements of the service such as call centre response times etc. where differentiation will still be possible) a third party service provider cannot charge less for a low bandwidth-price product than the single wholesale price plus retail mark-up as this would involve making a loss. Neither can they charge more as others would then undercut them.

Broadband access service levels and prices would therefore be driven towards the single point illustrated in Figure 2-1 and important opportunities to maximise demand and align investment incentives would therefore be foregone (in commercial terms the two revenue increments (+ ΔR) may

not be sustainable at the retail level). An illustration of this problem would be if point-to-point fibre were required to be available on an unbundled basis line by line, thereby preventing wholesale service-price differentiation and discouraging otherwise efficient investment.

2.3 Conditionality in relation to pricing flexibility

The European Commission position announced on 12 July 2012 states that:¹

“When the right conditions are imposed by regulators (equivalence of input obligation, replicability test), and where there is a significant competitive constraint (from operators with cost-oriented access to the copper network in accordance with Commission guidance; or from other infrastructure-based competitors such as cable or LTE), I propose that NRAs need not apply cost orientation directly to NGA wholesale access products.”

Further the July policy statement notes that:²

“We should be aware of both direct and indirect effects of regulation. For example, regulating copper access prices can affect the pricing and return on other infrastructures: on new fibre networks or fibre-based upgrades (from whatever kind of operator), on cable, even perhaps on wireless. In the right circumstances, we can take advantage of this by focusing wholesale price regulation on key anchor products.”

In a recent Recommendation regarding the decision in Poland not to regulate fibre on a cost orientation basis the Commission stressed the need for non-discrimination rules to ensure equivalence of access if cost-orientated pricing is to be lifted.³

In relation to the competition element of conditionality the availability of a price regulated anchor product (for example existing LLU) provides competition or a threat of entry which compete with next generation broadband and provides reassurance of a price constraint. Where LLU is not applicable, for example, if copper were withdrawn, then a virtual anchor product over fibre might substitute for an actual anchor product. Local cable or wireless (LTE as it is rolled out) based competition will also provide reassurance of price constraints.

It is therefore reasonable to propose that pricing flexibility in relation to next generation access is granted subject to an anchor price discipline and/or platform competition.

When such pricing constraint is present, national regulators should forbear from the application of cost-orientation. Price flexibility should not in addition be made conditional on the absence of SMP at the retail level. To impose additional requirements⁴ that would perpetuate a cost-oriented regime for NGA networks would undermine regulatory certainty and the effectiveness of the new policy approach.

In relation to the non-discrimination element of conditionality a spectrum of measures to promote equivalence could be adopted and should be assessed to ensure that any new measures that are

¹<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/12/554&format=HTML&aged=0&language=EN&quiLanguage=en>

²<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/12/554&format=HTML&aged=0&language=EN&quiLanguage=en>

³<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/12/914&format=HTML&aged=0&language=EN&quiLanguage=en>

⁴ The recent Commission recommendation regarding the decision by UKE not to regulate fibre on a cost orientation basis refers to the “absence of high and non-transitory structural barriers to entry” in the market in the context of price constraints, C(2012) 5913, p. 12. Such criterion, used for the assessing the need for *ex ante* regulation in the first place, would unreasonably restrict the scope of pricing flexibility for fibre.

adopted are proportionate. This condition is discussed in more detail in Section 2. The press statement by Vice President Kroes is clear regarding the intended regulatory outcome:⁵

“More flexibility for “next generation” wholesale products: national regulators will no longer be required to apply cost-oriented price regulation in almost all circumstances.”

The overall package of measures, whilst designed to provide an assurance of non-discrimination, should also ensure that price flexibility is a realistic and achievable outcome in order to deliver on the goals of the Digital Agenda.

2.4 Potential trade-offs

The fact that the full scope for service-price differentiation requires access to be focussed primarily on active products – in the absence of a contractual relationship with retailers - may involve potential trade-offs since the wholesaler rather than the access seeker has greater control over the product characteristics. Indeed ensuring that active products are fit for purpose, customisable and that there is an appropriate service boundary between what is provided by the access provider versus the access seeker is an area of active focus, for example, in the UK.⁶

However, the balance of costs and benefits in relation to the optimal form of access can be expected to change with technology, and an active product instead of physical unbundling may also have competition benefits in addition to scope for service-price differentiation since it lowers entry costs for retailers and should lower switching costs for customers.

Passive unbundled access may also lock in legacy access technology since unbundlers make investments complementary to the unbundled operator, an outcome which may complicate and delay copper line retirement.⁷

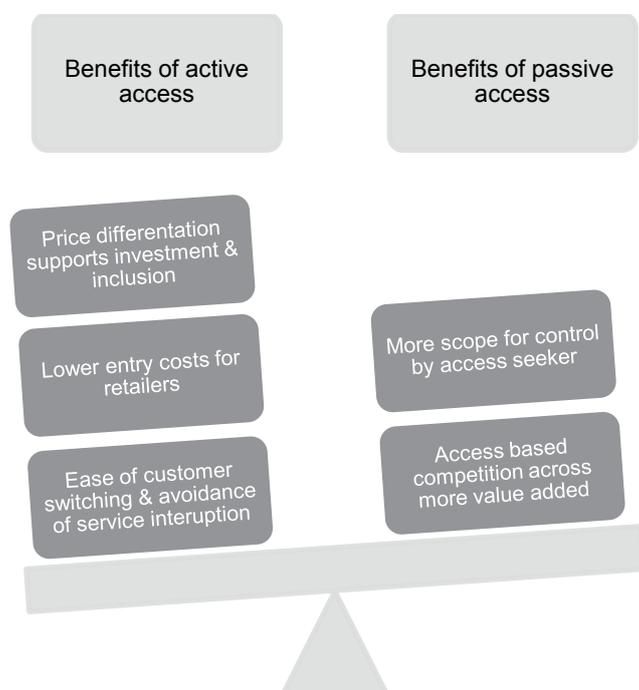
⁵<http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/12/552&format=HTML&aged=0&language=EN&quiLanguage=en>

⁶<http://stakeholders.ofcom.org.uk/telecoms/policy/next-generation-access/ethernet-active-access/updated/>

⁷ For example, Verizon in the US now target customers with a copper line fault for transition to fibre where fibre passes the home rather than copper line repair. August 2012. Verizon at Oppenheimer Holdings Inc Technology, Internet & Communications Conference. Page 12.

http://www22.verizon.com/idc/groups/public/documents/adacct/oppenheimer_vz_transcript.pdf

Figure 2-2: Re-balancing of benefits of active versus passive access with transition



Note: Contractual relationships may alter the above assessment by supporting price differentiation without necessarily requiring active access.

During the transition to current generation broadband (ADSL) the balance was arguably tipped towards passive unbundling solutions, whilst during the transition to next generation access (FTTC and FTTH) the greater costs of unbundling and higher threshold for investment arguably tip the balance towards active access.

However, the trade-offs will depend on local circumstances, the state of development of the market and whether access is provided by a single operator or co-financed on a contractual basis. The key points are that the trade-offs should be assessed, that it should not be assumed that competition at the deepest level is necessarily always efficient and that remedies at one level may interact with those at another level thereby unduly constraining price flexibility.

2.5 Linkage to service levels and non-discrimination

There are important linkages between price controls (or their absence) and incentives in relation to efficient service quality levels and non-discrimination, namely:

- *“Ratcheting downward a price the price-cap provides the regulated firm with an incentive to reduce investment in quality, ceteris paribus.”*⁸
- *“the incentive to discriminate is decreasing in the level of the access charge...” and the “the incentive to discriminate is decreasing in the market elasticity...”*⁹ Price flexibility, corresponding

⁸ Weisman. 2005. “Price regulation and quality.” *Information and, economics and policy*. Volume 17.

⁹ Weisman and Kang. 2001. “Incentives for discrimination when upstream monopolists participate in downstream markets.” *Journal of Regulatory Economics*: 20(2).

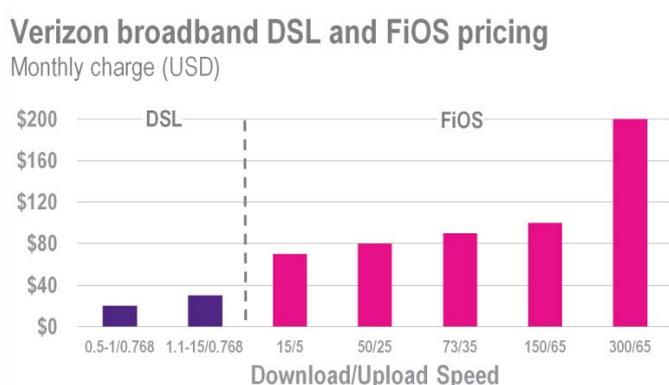
to a higher effective access charge, would therefore be expected to reduce incentives to discriminate.

Not applying price controls to fibre may therefore reduce rather than strengthen the need for safeguards against the provision of inefficiently low quality levels and/or discrimination against downstream rivals.

2.6 Experience

There are a number of examples of price differentiation on commercial terms, for example, Verizon in the US offer a number of service levels and price points over fibre.

Figure 2-3: Illustration of service price differentiation



Source: Plum Consulting. Pricing for one-year contract with phone service.

Note: Verizon also offer a low cost 3/1 Mbps FiOS service as a gateway/ retention product.

Openreach in the UK which is commercial and NBN Co in Australia which is state funded both offer examples where active fibre products are wholesaled on a price differentiated basis. In the UK the benefits of price differentiation were recognised by Ofcom in their decision to allow Openreach freedom in setting wholesale prices, subject to open access on an equivalence of input basis and recognising the discipline on pricing provided by the coexistence of regulated copper (ADSL).¹⁰

2.7 Margin squeeze test

It is important that the approach to margin squeeze preserves pricing flexibility to promote investment, whilst also supporting non-discrimination and competition. Key conditions are that margin squeeze is applied by national regulators on a basis consistent with the approach applied under general competition law i.e. based on an equally-efficient-operator test and on a complaints driven basis.

Prior guidance in relation to the application of a margin squeeze test for next generation broadband may be required to increase predictability and to ensure consistency with the proposed approach to fibre regulation. There are particular challenges in applying margin squeeze to fibre given the long time frames involved in recovering investment costs, the need for service-price differentiation and learning and price adaptation over time and the fact that fibre is a multi-service platform with

¹⁰ Ofcom. 2007. "Future broadband - Policy approach to next generation access." Page 106 (Figure 11). http://stakeholders.ofcom.org.uk/binaries/consultations/nga/summary/future_broadband_nqa.pdf

potentially multiple retail services (including bundles supported). Further, co-investment and/or volume or term discounts for access seekers may complicate an assessment of margin squeeze. We have previously considered these issues in a report on costing methodology.¹¹ Where margin squeeze tests are applied some of the key considerations are as follows:

- The application of margin squeeze tests in relation to a single wholesale or retail product should be avoided given the multi-service nature of fibre and the desire to allow price flexibility.
- An assessment of pricing over time (either anticipated or contractually committed) should be considered given the likelihood of strategies such as penetration pricing to grow the market for high speed broadband.
- In relation to term and volume discounts the wholesale discounted price should be used in assessing margin squeeze since this price reflects and equivalent sharing of risk between the investor and access seeker.

We note that the above concepts, whilst correct in principle, are likely to prove challenging to implement in practice given the information requirements. A pragmatic approach which recognises the challenging nature of commercial fibre investment is called for. Care is needed to ensure that the application of margin squeeze to fibre does not undermine the policy intent of the Commission policy on fibre regulation, namely to ensure pricing flexibility subject to conditions in relation to non-discrimination.

2.8 Conclusion

Price flexibility and the opportunity for service-price differentiation and dynamic pricing over time will promote investment and digital inclusion. Price flexibility can also be expected to reduce incentives for price and non-price discrimination by allowing returns at the wholesale level, rather than dependence of returns on a high retail market share.

Full price flexibility for next generation broadband requires forbearance from the application of cost orientation, which in turn may require amendment of the September 2009 recommendation on regulated access to Next Generation Access Networks. A careful assessment of the relationship between passive and active remedies at different layers will also be required to ensure that efficient pricing options are not precluded.

Finally, to support pricing flexibility and efficient investment and operations the application of a margin squeeze test, where appropriate, should be applied by national regulators on a basis consistent with the approach applied under general competition law i.e. based on an equally-efficient-operator test and on a complaints driven basis. Prior guidance on margin squeeze tests may be required to increase effectiveness and predictability, and to ensure consistency with the proposed approach to fibre regulation.

¹¹ Specific issues arising in relation to the application of margin squeeze during fibre transition are discussed in: Plum. March 2011. "Costing methodology and the transition to next generation access." Section 7.

http://www.plumconsulting.co.uk/pdfs/Plum_Costing_methodology_and_the_transition_to_next_generation_access_March_2011_Final.pdf

3 Non-discrimination

There is a concern is that network operator may engage in price or non-price discrimination, favouring their own downstream retail arm ahead of competitors. The incentive to discriminate is theoretically ambiguous, as we see played out in the wider ICT value chain between open, closed and in-between models in different circumstances.

Therefore we should consider how incentives might change in the transition from current generation broadband. In a number of markets/locations cable is now a strong competitor to fixed broadband, and platform competition reduces the incentive to discriminate by reducing the benefits of holding retail market share relative to wholesale market share. Further, Weisman and Kang (2001) found that the incentive to discriminate is decreasing in a number of factors, all of which plausibly point in the direction of reduced incentive to discriminate in the transition to next generation access, namely the:

- Efficiency of downstream rivals since greater efficiency implies greater demand for upstream access services.
- Market elasticity, since a higher market elasticity gives rise to lower downstream prices and reduced profitability of the downstream market relative to the upstream market.
- Level of the access charge, since higher access charges increase the benefit of wholesale demand.

Critical to the success of investment in next generation access is sufficient demand, and third party retailers can help attract customers. Early indications of changing incentives and a changing relationship between access seekers and access providers are provided by a number of illustrative examples. In the Netherlands KPN offers wholesale broadband access voluntarily,¹² while in Germany Deutsche Telekom is pursuing a fixed-line network cooperation with NetCologne to enable mutual network usage. Deutsche Telekom has also announced that 1&1 Telecom will be its first partner to use the revised contingent model for wholesale access to the broadband network. Finally, Working Group 2 at the second CEO roundtable for the European Commission in 2011 called for an industry approach to agree on the standardisation of Next Generation Bitstream wholesale offerings.

On the contrary, it has been argued, for example by WIK, that the transition to fibre is seeing a re-emergence of high retail market shares for network operators.¹³ However, in relation to the UK experience what has been observed are merely delays relative to BT retail of FTTC products by competitors which have resulted in a temporary shift in the fibre retail market share relative to shares in relation to ADSL.

Delays in making complementary investments in the core network and backhaul capacity may also be a factor, for example, in relation to the delayed launch of FTTC based products by BE and O2.¹⁴ Other significant retail players including TalkTalk and Sky have now launched FTTC based products and others have announced their intention to do so. We are not aware of any claims that initial differences were a result of discrimination (based on public information and discussion with two entrant retail operators).

¹² http://www.kpn.com/v2/upload/4140a0cd-d7b7-4104-b7b1-76ba7c3419fc_Presentation_Fiber_update.pdf

¹³ http://ectaportal.com/en/upload/File/Press_Releases/2012/NGA_Progress_Report_final.pdf

¹⁴ <http://www.ispreview.co.uk/index.php/2012/04/uk-isp-be-broadband-and-o2-delay-launch-of-superfast-broadband-to-2013.html>

3.1 Equivalence

We note that equivalence, and the concepts of equivalence of input (EOI) and equivalence of output (EOO), do not follow a common definition at EU level and leave considerable scope for interpretation.

In preparing EU level guidance on non-discrimination, equivalence should, however, be considered distinct from functional separation and the balance of costs and benefits involved in moving closer to equivalence should be carefully assessed.

The concept of EOI, namely that wholesale products should be offered on the same terms at the same price to all retailers, has been introduced in the current debate by the European Commissioner for ICT, Neelie Kroes in a statement made on July 12.¹⁵ Further, the concept of EOO has been used in national regulatory practice.¹⁶

On the relationship between the concepts of EOI and EOO, BEREC notes that:¹⁷

“A general high level principle may be to apply EOI where this is deemed necessary to remedy the competition problems identified and where the incremental design/implementation costs of imposing it are low. In other cases EOO [equivalence of outputs] may be an acceptable and proportionate alternative to EOI.” EOO may be an acceptable and proportionate alternative to EOI.”

We concur with the view that as a high level principle EOI should only be applied where it is necessary to remedy the competition problems identified and the cost of implementation is low, in other cases other measures to promote non-discrimination may be sufficient.¹⁸ In case non-discrimination is already effectively applied in a market, the costs of introducing EOI would outweigh its benefits.

We reviewed experience in the UK in particular given that the UK is often cited in relation to the implementation of EOI and/or functional separation following the creation of Openreach in 2006. Experience in the UK points to the need for a pragmatic assessment taking account of national circumstances. Implementation of EOI has been partial in the UK and functional separation is viewed as distinct – supporting but not an inherent part of equivalence. In relation to the creation of Openreach and development of equivalence in the UK see Figure 3-1. Further details are provided in Appendix A.

¹⁵

http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/12/554&format=HTML&aged=0&language=EN&gui_language=en

¹⁶ In Italy, undertakings agreed with the Italian regulator AGCOM in January 2009 (Order 718/08/CONS), with modifications by the NRAs implemented an ‘equivalence of output’ regime applying to certain SMP-copper and fibre access services.

¹⁷ BEREC. March 2012. “High level principles on issues of non-discrimination.” Page 4.

¹⁸ BEREC’s Review of the Common Positions on wholesale unbundled access, wholesale broadband access and wholesale leased lines, March 2012, http://erg.eu.int/doc/2012/BoR12-10_BEREC_consultation_ND_final.pdf

Figure 3-1: UK experience in relation to equivalence

A number of specific circumstances led to the creation of Openreach in January 2006 and the introduction of EOI in the UK, in particular:

- Evidence of discrimination by BT and the lack of development of the local loop unbundling market.¹⁹ Further there was a desire to achieve a structural remedy via the threat of a competition law referral, rather than rely on detailed regulation and oversight to motivate a change in behaviour. Non-discrimination rather than functional separation or EOI *per se* was the objective.
- BT stated that it did not plan to invest in fibre given a lack of evidence of demand. There was therefore no trade-off between implementing a fibre investment programme and establishing Openreach at the time.
- BT voluntarily offered the undertakings under which Openreach was created, though in response to sticks (the threat of referred to the Monopolies and Mergers Commission) and carrots (the expectation of greater retail pricing freedom). The voluntary nature of the undertakings resulted in a management commitment to deliver.
- EOI was not required immediately and was focussed on new products. BT had an expectation that the costs of delivering equivalence of inputs for legacy products subject to an agreed timetable be low as legacy products were to be phased out with the move to an all IP NGN network (21CN). This did not go to plan.²⁰ EOI is not universally applied, for example it is not applied in relation to passive infrastructure access (PIA).²¹

In terms of outcomes it is not possible to disentangle cause and effect as, for example, a number of changes including pricing and the demonstration effect and learning from other markets resulted in greater LLU based competition over time. However, the following can be identified:

- Ofcom did make explicit conditional commitment to reducing regulation and has reported progress against these.²²
- 21CN did not proceed as planned as problems in migrating legacy services to an all IP network were identified.²³ BTs progress on systems separation proved to be much more costly than originally estimated and the original targets were subsequently relaxed.²⁴
- Based on reviews undertaken by Ofcom (the last in 2009) the general view of industry is that the restructuring of BT has eventually been well executed and the mechanics of equivalence are working well.
- A number of variations to the undertakings have been made. Further the undertakings remain a work in progress, for example in relation to systems separation.²⁵ EOI is evaluated on a product by product basis and is not universally applied. For example, EOI does not apply to passive infrastructure access whilst LLU is underpinned by a metallic path facility (MPF) product rarely used by BT. Further, BT retail do not always use the same products and gateways as other retailers.²⁶

¹⁹ Spectrum Strategy and Indepen. 2004. "Reaping the telecoms dividend."

http://www.indepen.uk.com/docs/Reaping_the_telecoms_dividend.pdf

²⁰ <http://stakeholders.ofcom.org.uk/consultations/ngndevelopments/>

²¹ <http://media.ofcom.org.uk/2011/11/08/competition-and-investment-in-superfast-broadband/>

²² Ofcom. May 2009. "Impact of the Strategic Review of Telecoms." Pages 41-42 (Figure 4.14).

http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bt/impact_srt_fulldoc.pdf

²³ <http://stakeholders.ofcom.org.uk/consultations/ngndevelopments/>

²⁴ Ofcom, December 2007, Impact of the Telecoms Strategic Review,

http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bt/tsr_statement.pdf

On the basis of the above experience we conclude that:

- The conditions that held in the UK in 2005 leading up to the creation of Openreach do not apply now thought-out Europe. Evidence of a discrimination problem, whether EOI would help overcome that problem in a way that less intrusive remedies would not and whether the benefits of implementation of EOI would exceed the costs (including the potential opportunity cost of foregone fibre investment) should all be assessed before imposing EOI. EOI, if it were imposed, should apply to only one layer of the network, not multiple layers.
- If stricter non-discrimination safeguards were deemed necessary, Commission guidance should focus on new systems and processes. To impose EOI for legacy systems and processes which ensure effective non-discrimination in today's markets would not meet the proportionality test as benefits would be very limited and costs high. Commissioner Kroes has made a similar distinction in her announcement of July 12.²⁷ It should be noted however that operators often rely on efficient established processes and systems when launching NGA access products.
- Imposing EOI would likely prove difficult and costly. The BT undertakings were voluntary and remain a work in progress. In some instances implementation has proved more costly than anticipated leading to variations and delays to implementation. Ofcom have adopted a pragmatic approach and the goal has remained one of non-discrimination.

3.2 Conclusion

Non-discrimination has arguably been delivered to a greater degree, and retail competition is much more established across markets in Europe, than was the case in the UK in 2005. Further both market transition and relaxation of price controls can be expected to reduce incentives to discriminate. Cooperation between network access providers and retailers to grow the market may become profitable.

The benefits of implementing stricter equivalence requirements can therefore be expected to be lower than they were in the previous environment. The costs and timescales required should also not be underestimated including amending product development and ordering processes, pricing processes and authorities and field engineering practices. Further the transition to stricter equivalence involves investment of capital and senior management time, potentially shifting attention away from developing and implementing next generation access investment plans in the near term.

In short, whilst non-discrimination is a desirable goal, it should not be presumed that stricter non-discrimination *requirements* are the logical counterpart of a relaxation of *ex ante* price regulation. Rather, the balance of costs and benefits should be assessed against a backdrop of anticipated improvements in market based incentives for non-discrimination and against the complex real world experience of implementation of EOI in the UK.

²⁵

<http://www.btplc.com/mobile/Thegroup/Ourcompany/Theboard/Boardcommittees/EqualityofAccessBoard/Overview/EABoverviewMay2012.htm>

²⁶ See for example: http://stakeholders.ofcom.org.uk/binaries/consultations/wla/statement/WLA_statement.pdf

²⁷ S. Memo-12-554, p. 3 “Of course, [equivalence of access] can be costly in existing networks, so NRAs will have to weigh up proportionality considerations very carefully in such cases: but there is no excuse, in my view, not to achieve this standard in new systems,”

4 Service levels

4.1 Efficiency and non-discrimination

As discussed above downward regulatory pressure on prices can result in an incentive to underprovide in terms of service quality. Conversely not applying price controls to fibre would improve incentives for efficient levels of service quality (monopoly per se does not result in an incentive to underprovide quality and can result in over or under provision of quality²⁸).

The efficient level of service quality is reached when consumers' incremental willingness to pay for additional improvements matches the costs of improvements – higher quality beyond this point reduces consumer welfare rather than increasing it.

At the wholesale level there may be two separate concerns. First, that service quality levels may be inefficient. Second, that a network operator may discriminate between the service quality offered to its own downstream and those of retail competitors. We focus on the overall level of service quality in this section and consider potential discrimination in the next section.

Where the network operator is free to set the price of fibre it is not clear that service quality needs to be specified as incentives to deliver the right level of service quality should be strong, provided there is sufficient transparency regarding service levels. Individual consumers will also have different preferences in terms of the level of service quality they are willing to pay for – some will prefer low cost basic broadband (or a package without add-ons) whilst others will prefer to pay more for a superior service. This also suggests caution before intervening in relation to levels of service quality.

There may also be grounds for not only forbearing from intervening to set service quality floors, but for caution regarding contractual minimums at a wholesale level. This is particularly the case when service quality on an individual customer basis is inherently variable, as it is for ADSL and VDSL based broadband, and where more than one technology may be offered in parallel. The reason for this is that a customer may prefer, say, good basic broadband over VDSL to their existing lower quality broadband over ADSL.

4.2 Experience

Experience in the UK illustrates both an interaction between Key Performance Indicators (KPIs) and regulation in relation to broadband delivery, and unintended consequences regarding minimum wholesale broadband speeds for fibre (FTTC) products.

In 2004 Ofcom outlined the Key Performance Indicators (KPIs) that BT is required to publish with respect to key wholesale products and services. The Undertakings also stated that “BT shall report performance on KPIs relevant to these Undertakings”, the matters that the KPIs cover is reviewed by the Equality of Access Board on a regular basis. However in 2007 Communication Providers complained that Openreach's SLAs and SLGs did not provide suitable incentives to provide good service and the compensation process favoured BT. After a failed negotiation period, Ofcom held a consultation and agreed that SLGs were not fair and reasonable, requiring Openreach to make amendments.

²⁸ Spence. 2003. “Monopoly, quality and regulation.” *The Bell Journal of Economics*, Volume 6(2).

In relation to minimum wholesale broadband speeds, Openreach initially only made its “Infinity” VDSL product available if the line could deliver 15 Mbps. However, this denied some customers with poor quality ADSL the opportunity to improve their broadband by adopting VDSL. Openreach subsequently lowered the minimum to 5 Mbps, though a third party retailer argued that there should be no speed floor on the wholesale product and the decision regarding product availability should be the sole responsibility of the retailer (pers. Comm).

4.3 Conclusion

The rise of platform competition, including competition between current and next generation access, and the rise in applications based competition; improve incentives to provide appropriate levels of service quality subject to transparency conditions. Further, allowing service-price differentiation allows both greater opportunity for experimentation and learning and for service levels to be matched to the needs and preferences of individual consumers. There are therefore sound grounds for believing that less rather than more intervention is required in relation to service levels.

Appendix A: UK Experience

In April 2004 Ofcom launched a strategic review of the UK's telecommunications market. The focus of the review was establishing what consumers wanted from the telecommunications market, how to achieve this through competition and regulation and the issue of structural or operational separation of BT. It was deemed that 20 years of pro-competition regulation had failed to maximise the benefits to consumers and the first phase of the consultation determined that 'real equality of access' from BT was the preferred solution. This would consist of equivalence of inputs for BT's retail division and retail rivals and operational separation within BT.

In February 2005 BT offered some voluntary changes to its business and organisational structure. The initial voluntary changes were worked through by Ofcom and industry players in the following months. On June 30th 2005 Ofcom published the proposed Undertakings under the Enterprise Act, the key points were:

- The Undertakings would be legally binding and enforceable
- The Access Services Division (ASD, subsequently called Openreach) will provide a comprehensive suite of access products including WLR, LLU and Ethernet services. The new entity will include some 30,000 of BT's staff and nearly all of its access infrastructure and facilities
- The ASD will be organised as a separate business with its own offices and incentives based solely on the ASD's performance. The ASD will have its own distinctive brand (subsequently Openreach)
- All new wholesale products should be offered on an 'equivalence of inputs' basis and set the timetable for BT delivering equivalence of inputs for key legacy projects:
 - *“LLU – ready for service June 2006*
 - *WLR on the PSTN – ready for service mid-2007, migration complete June 2010*
 - *WLR on ISDN2 – ready for service September 2007, migration complete end-March 2009*
 - *WLR on ISDN30 – ready for service December 2007, migration complete December 2009*
 - *IPStream – ready for service end-December 2005, migration complete end-December 2006*
 - *Wholesale Ethernet Service (WES), and Backhaul Ethernet Service (BES) – ready for service September 2006, migration complete March 2007.”*

EOI is not required on all legacy products as the costs would outweigh the benefits, instead.²⁹

“For other wholesale products where BT has Significant Market Power, BT should make those which it makes available to third parties and those which it uses for its own purposes sufficiently comparable to allow competition to take place – so called ‘equivalence of outcome’.”

- Set out rules for governance and compliance outside the ASD. The Equality of Access Board will monitor compliance with the Undertakings across the SMP products; it has five members, three of whom are independent.³⁰

²⁹ Ofcom, 2005 Telecommunications Statement, http://stakeholders.ofcom.org.uk/consultations/telecoms_p2/statement/

³⁰ http://stakeholders.ofcom.org.uk/consultations/telecoms_p2/statement/

Ofcom accepted the Undertakings on 22nd September 2005; Openreach was established in January 2006. Since the Undertakings were signed Ofcom have completed three reviews, the last in 2009. The general view of industry is that the restructuring of BT has been well executed and the mechanics of equivalence are working well. However there were some areas where customers thought there was room for improvement including product development and customer responsiveness.

One issue that ISPs complained about was that BT was not always using the same wholesale products as alternative providers, effectively undermining equivalence. This was the case with LLU, where communication providers were using an MPF product that was rarely used by BT and often failed to meet industry targets.³¹

“Nonetheless, communications providers that use Metallic Path Facility remain concerned at the service performance provided by Openreach. Ofcom shares these concerns, particularly given that BT does not use the Metallic Path Facility product to a significant degree, and hence may be perceived not to have the incentives to improve the quality of this product.”

Through interaction with Ofcom and the use of strong Service Level Guarantees, this issue has largely been resolved.

Another major area of concern was BT's progress on systems separation, this proved to be much more costly than originally estimated and the original targets were subsequently relaxed (see below).³² The Equality of Access Board also publishes an annual report monitoring BT's compliance with the Undertakings.

In 2004 Ofcom outlined the Key Performance Indicators (KPIs) that BT is required to publish with respect to key wholesale products and services. The Undertakings also stated that “BT shall report performance on KPIs relevant to these Undertakings”, the matters that the KPIs cover is reviewed by the Equality of Access Board on a regular basis. The EAB publishes KPIs in their annual report comparing BT with other Communication Providers; the Office for Telecommunications Adjudicator (OTA2) also publishes overall KPIs on a monthly basis. However in 2007 Communication Providers complained that Openreach's SLAs and SLGs did not provide suitable incentives to provide good service and the compensation process favoured BT. After a failed negotiation period, Ofcom held a consultation and agreed that SLGs were not fair and reasonable, requiring Openreach to make amends.

Since 2005 there have been a number of variations to and exemptions from the Undertakings, any changes have to go through a consultation process. Some of the notable changes include:

- Allowing Openreach to control and operate electronic equipment necessary to provide superfast broadband services using FTTC technology, this change supported early investment in superfast broadband³³
- Re-prioritising BT's remaining Undertakings commitments on information systems separation, this resulted in a set of new BT commitments in exchange for relaxing a number of existing BT Undertaking commitments relating to systems separation. Systems separation is not expected to be completed by 2014 at the earliest, 8 years after the separation process began³⁴

³¹ Ofcom, 2007, Impact of the Telecoms Strategic Review, page 50

http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bt/tsr_statement.pdf

³² Ofcom, December 2007, Impact of the Telecoms Strategic Review, op cit.

³³ <http://stakeholders.ofcom.org.uk/consultations/fttc/>

³⁴ <http://stakeholders.ofcom.org.uk/consultations/btundertakings/>

- BT was granted a permanent exemption to the undertakings allowing BT to expand legacy DSLAMs without the need to use Equivalence of Input processes³⁵
- BT has recently submitted a request for exemption of the Undertakings for certain high bandwidth service in the West, East and Central London Area where BT does not have SMP. BT is arguing that by requiring Openreach to offer these services on an EOI basis its flexibility to compete is reduced.³⁶

Another example of the need for flexibility arose with the introduction of FTTC products. Openreach originally launched the FTTC product set with a minimum assured downstream speed of 15 Mbps. If a premise could not receive 15 Mbps (for example due to long line length) then BT would refuse to connect the premise to FTTC even if the local exchange had been fibre enabled. Therefore some customers who would have received a significant improvement on their existing DSL speeds could not get FTTC. However BT relaxed this condition so ISPs could sell FTTC service with a minimum assured downstream speed of 5 Mbps.³⁷

³⁵ Ofcom, 2011, "Request from BT to extend an exemption from the Undertakings under the Enterprise Act 2002 for 20CN DSLAMs", <http://stakeholders.ofcom.org.uk/consultations/dslams/summary>

³⁶ <http://stakeholders.ofcom.org.uk/consultations/above-1gb/>

³⁷ <http://www.zdnet.com/bt-fibre-broadband-can-be-as-slow-as-5mbps-3040090990/>