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MONITORING EU TELECOMS POLICY

Martin Cave, Justus Haucap, Jorge Padilla,
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Contents

Biographies..	7
The review of the EU telecoms framework: a tale of the anti-commons by Andrea Renda	9
Monitoring EU Telecoms Policy: Spectrum Policy by Martin Cave and Leo Fulvio Minervini	19
The Recommended Regulation of Fixed and Mobile Termination Rates: A Critical Appraisal by Justus Haucap	27
The regulation of next generation access networks and the draft Commission Recommendation by Brian Williamson	35
An economist's look at the draft Community Guidelines for the application of State aid rules in relation to rapid deployment of broadband networks by Jorge Padilla	45

Biographies

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He is a regulatory economist specialising in the communications sector. He has written a number of academic articles in this area. He is co-author of 'Essentials of Modern Spectrum Management' (2007) and co-editor of 'The Handbook of Telecommunications Economics' (2002, 2005) and of the 'Oxford Handbook of Regulation' (forthcoming). He has consulted widely for regulators in several countries and for the European Commission, and conducted a number of independent regulatory reviews for the UK government, including two into spectrum issues.

Justus Haucap holds a chair for competition theory and policy at the University of Düsseldorf, Germany. He is also the Director of the newly found Düsseldorf Institute for Competition Economics (DICE) and Chairman of the German Monopolies Commission.

Between 2007 and 2009 Justus Haucap was a Professor for Economic Policy at the University of Erlangen-Nuremberg, and between 2004 and 2007 he was Professor for Competition Theory and Policy at the Ruhr-University of Bochum. From 1999 to 2003 Haucap worked as a lecturer at the Institute for Economic Policy at the University of the German Federal Armed Forces in Hamburg.

Between 1997 and 1999 Haucap was employed as a senior analyst in the New Zealand Treasury's Regulatory and Tax Policy Branch, working mainly on telecommunications regulation, Commerce Act matters, and water sector reforms.

Haucap holds a Diploma and a Ph.D. in economics from the University of Saarland, Germany. He has published widely on competition and regulation in mobile and fixed-line telecommunications markets, and he is a member of the editorial board of Telecommunications Policy.

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Jorge Padilla is the European chief executive officer of LECCG.

Dr. Padilla advises clients on a variety of competition policy and intellectual property issues, covering a wide range of industries, including electricity, entertainment, media, retailing, technology, telecommunications and transport. He has advised on various cases and given expert testimony before the Cypriot, Dutch, French, German, Irish, Italian, Portuguese, Spanish, and UK competition authorities, as well as in cases before the European Commission. Dr. Padilla has also submitted written testimony to the European Court of First Instance and the UK Competition Appeals Tribunal in state aid, cartel, merger control and abuse of dominance cases. He has also given expert testimony in various civil litigation (damages) and international arbitration cases.

Dr. Padilla earned M Phil and D Phil degrees in economics from the University of Oxford. He is a research fellow of the Centre for Economic Policy Research (CEPR, London) and the Centro de Estudios Monetarios y Financieros (CEMFI), and is or has been member of the editorial boards of Competition Policy International, the Review of Economic Studies, the Spanish Economic Review and Investigaciones Económicas (which he directed for more than three years).

Dr. Padilla has written several papers on competition policy and industrial organisation in the Antitrust Bulletin, the Antitrust Law Journal, the Boston University Journal of Science and Technology Law, the Economic Journal, the European Competition Law Review, the European Economic Review, the Fordham International Law Journal, the International Journal of Industrial Organization, the Journal of Competition Law and Economics, the Journal of Economics and Management Strategy, the Journal of Economic Theory, the RAND Journal of Economics, the Review of Financial Studies, the University of Chicago Law Review, and World

Competition. He is also co-author of *The Law and Economics of Article 82 EC*, Hart Publishing, 2006

Andrea Renda is a Senior Research Fellow at the Centre for European Policy Studies (CEPS), where he started and currently manages the CEPS Regulatory Affairs Programme. Andrea is also Professor of “Economic Analysis of Law”, “Antitrust and regulation” and “Policies and policymaking in the EU” at Luiss Guido Carli University, in Rome, and a Senior Research Fellow at Luiss’ Law and Economics Lab. Since 2006, he also lectures on “Advanced Topics in Competition and Regulation” at the Erasmus University of Rotterdam within the European Master in Law and Economics. In 2009, he also lectured on telecommunications regulation at the University of Jordan in Amman and on “Regulatory Impact Assessment for Business” at the College of Europe in Bruges. As an expert in antitrust and regulation, Andrea is member of the Editorial Board of the international peer-reviewed journal “Telecommunication Policy” (Elsevier); a member of the Scientific Board of the International Telecommunications Society (ITS) and of the Scienti-

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Brian Williamson is a Director of Plum Consulting focusing on regulatory policy and strategy in the areas of fixed and mobile communications, media and radio spectrum. Brian has contributed to the development of thinking about the relationship between economic growth, ICT, the communications sector and public policy; and to the developed of regulatory concepts in the communications sector including “equivalence” and “anchor product” regulation. Brian has a BSc in Physics and an MSc in Economics from the London School of Economics.

The review of the EU telecoms framework: a tale of the Anti-commons

Andrea Renda

When on June 10, 2009 the French Conseil Constitutionnel struck down some of the key provisions of the French HADOPI law, which allowed Internet Service Providers to block their subscribers' Internet account in case they were found to infringe copyright three times, the telecoms industry was puzzled. That was not only due to the controversial nature of the "three-strikes" provision contained in the French law; even more importantly, only a few weeks before that rule alone had led to yet another major delay in the agreement on the EU telecoms package: a delay that meant leaving the issue to the newly elected European Parliament. In a word, the French HADOPI law had been the straw that finally broke the camel's back, leaving the European Commission again with the need to restart from scratch, like a novel Sisyphus doomed to ceaselessly roll a rock to the top of a mountain, whence the stone would fall back of its own weight.

This was just the last chapter of a never-ending saga. In one of the most dynamic and fast-changing industries worldwide, EU institutions and member states have already spent more than three years debating the reform of an outdated legislative package. This, by the way, means that the review period is already longer than the pre-review period – something that can probably happen only in Brussels. The initial debate, mostly focused on regulatory holidays versus functional separation, gradually left the scene to endless discussions on the pan-European regulator (which took the most improbable acronyms and configurations over time, from EECMA to BERT, GERT, and eventually BEREC), on the Commission's veto power over remedies, on the centralization of spectrum policy, on next generation networks, on network neutrality and finally on copyright infringement. The juxtaposition of vested interests and veto powers has so far led to the failure of the first and second readings of the Commission's proposal, and while in theory the only issue that is really pending is that of copyright protection on the Internet, several commentators have observed that some of the chapters may be reopened again by the new Parliament and, who knows, maybe even the new European Commission in 2010.

Economists have a word for situations where the overlap of too many veto rights eventually frustrates the achievement of a socially desirable outcome: we call it "tragedy of the anti-commons"¹. In Section 1 below, I describe how the delays in approving the telecoms package have led to a Pareto pessimism, a "lose-lose" situation in which the EU27 has remained a laggard in NGN investment compared to other industrialised countries; the European Commission, despite its often commendable efforts and most often due to pressure from other institutions, has gradually lost its intellectual leadership as far as the future of telecoms regulation is concerned; Member States have taken individual initiatives to bring their own citizens in the Internet age, with limited or no coordination with other governments; and the pending telecoms package goes to the ultimate detriment of industry players – who need legal certainty to really decide whether and how to invest in new networks – and of EU citizens, who deserve a modern set of rules to really enter the Internet age from the front door.

After all, this is not only a European story. In many industrialised countries comprehensive telecommunications laws have had little fortune in the past decade, leaving the impression that this sector is too dynamic and complex to be regulated by a single piece of legislation. For example, in the United States the 1996 Telecommunications Act was hailed as a "Camelot moment" when it was passed, but industry players, policymakers, practitioners, other stakeholders and even academics have been struggling since then to get rid of it². In Canada, the Telecommunications Act awaits a major reshape at least since the publication of the report of the Telecoms Policy Review Panel in 2006³. In Japan, a new consolidated law is due to be presented next year to the Diet, with the purpose of establishing a more technology-neutral piece of legislation that covers all layers of the NGN architecture.

Does this mean that the telecoms industry has now become so complex, multi-layered, important and commingled with the me-

¹ See Heller, M. A., *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 Harv. L. Rev. 621-688 (1998).

² As of today, the Act has not been replaced, but was virtually surpassed by an array of secondary regulations that have completely altered its original architecture, based on the "silos" approach to telecoms and information services, and moved towards enhanced technological neutrality based on regulatory holidays for high-speed networks, managed industry consolidation and infrastructure-based competition. See, i.a., Renda, A. (2007) *The Costs and Benefits of Transatlantic Convergence in Telecom Services*, in "Sleeping Giant: Awakening the Transatlantic Services Economy", edited by Dan Hamilton and Joseph Quinlan, Johns Hopkins University and Brookings.

³ See <http://www.telecomreview.ca>.

dia and Internet world that regulating it through a single piece of primary legislation has become impossible? This question is now lingering on all players that discuss the EU telecoms package, as the most compelling issues are being gradually taken out of their table and moved either to a higher political level, or to the lower level of secondary legislation.

The review of the telecoms package: a quick guide

The 2002 regulatory framework for electronic communication was welcomed as a major step towards a new, more flexible and technology-neutral framework which, in principle, would capture the “best of breed” regulatory features to foster long-run infrastructure-based competition in the interest of European consumers⁴. As regards the overall regulatory approach, perhaps the most important idea behind the architecture of the framework was the “investment ladder” concept – i.e., the idea that short-term service-based competition could be consistent with long-term infrastructure-based competition, and that regulators could apply a regulatory model that would lead new entrants to gradually invest in their own networks by starting as resellers and ending up as infrastructure players⁵. In line with this overall approach, access policy played a key role in the formulation and subsequent implementation of the framework, and went far beyond the concept of “essential facilities” or “enduring bottlenecks” which in the 1996 ONP package designated the parts of the incumbents’ networks that should be opened up for competition⁶.

Another key feature of the framework was the partial reliance on competition policy tools, which accounts for much of the success of the EU framework around the world, especially in candidate and developing countries. On the one hand, the concept of Significant Market Power (SMP) was linked to the concept of “dominance” as interpreted in the application of Article 82 of the Treaty, i.e. in general-purpose Community competition rules on abuse of dominance. On the other hand, contrary to what occurs in competition law, and given the ex ante nature of the regulatory intervention, a finding of SMP was considered as sufficient for NRAs to apply remedies: once a relevant market has been defined, and SMP players have been found in that market, remedies follow automatically; and although NRAs can in principle choose between a list of remedies offered by the European Commission, they ended up applying price regulation in almost all cases⁷.

The transplant of competition policy tools in the 2002 framework was aimed at fostering a smooth, gradual transition from an initial period in which ex ante regulation and ex post competition policy co-existed, to a phasing out of the former and a generalised application of the latter once markets would become sufficiently liberalised. However, the adoption of competition tools was more problematic than many had imagined at the outset. Firstly, it was quite clear that many of the pre-defined markets in the 2003 Recommendation – most notably, the wholesale fixed-line markets – would not have qualified as relevant markets under antitrust scrutiny⁸. Secondly, NRAs were not well-equipped to apply antitrust tools. Competition authorities already face enormous problems in dealing with ICT markets in an era of convergence, as testified by several antitrust cases of the past few years, not least Microsoft⁹. The likelihood that NRAs in many member states would be able to fully appraise and analyse the existence of platform-based competition in their own national telecom sectors was indeed very low: this is, for example, what occurred in the analysis of Market 18 (broadcasting), where strong inter-platform competition was not considered by most NRAs, which defined strictly separate relevant markets according to the underlying technology. Thirdly, the real litmus test for deciding between ex ante regulation and ex post competition policy was the “three-criteria test”¹⁰. However, this very important test – however imperfect and criticised – was not given prominence under the 2002 framework: to the contrary, the framework made no mention of the three criteria, if not in the Recitals of the 2003 Recommendation on relevant markets. As a matter of fact, NRAs had to prove that the three criteria were met only if they decided to deviate from the pre-determined list of markets provided by the Commission: for markets included in the 2003 Recommendation, compliance with the three criteria was presumed.

At the same time, the framework had an important objective, i.e. achieving the internal market for e-communications: accordingly, as far as the governance of the framework was concerned, EU policymakers decided to introduce a greater degree of centralization of regulatory powers in the hands of the European Commission, whereas national regulatory authorities (NRAs) were called to apply as consistently as possible the process of market analyses triggered by the 2003 Recommendation, where 18 relevant markets that in theory warranted ex

⁴ The new regulatory package consists of the Framework Directive (2002/21/EC, OJ/L 24/04/2002, P.33), the Access Directive (2002/19/EC, OJ/L 108, 24/04/2002, P.7), the Authorisation Directive (2002/20/EC, OJ/L 108, 24/04/2002, P.21), the Universal Service Directive (2002/22/EC, OJ/L 108, 24/04/2002, P.51), the Radio Spectrum Decision (676/2002/EC, OJ/L 108, 24/04/2002, P.1), the Directive on Privacy and Electronic Communications (2002/58/EC, OJ/L 201, 31/07/2002, P.37) and the Regulation on Unbundling of the Local Loop (2887/2000/EC, OJ/L 336, 30/12/2000, P.4). The application of competition rules to the telecommunications sector was also clarified in a 1998 Notice, and the terms of ULL obligations by incumbent operators were anticipated by a Communication issued by the Commission in 2000. See Communication from the Commission of 26 April 2000 on the Unbundled access to the local loop, OJ 23.9.2000 C272/55.

⁵ See Martin Cave and Ingo Vogelsang (2003), How access pricing and entry interact, *Telecommunications Policy*, Volume 27(10-11), pp. 717-727; Cave, M. (2004), Making the Ladder of Investment Operational, at <http://www.ictregulationtoolkit.org/en/Publication.2916.html>; and Cave, M. (2006). Encouraging Infrastructure Investment via the Ladder of Investment, *Telecommunications Policy*, 30(3-4): 223-237.

⁶ See Renda, A., *The Competition-Regulation Interface in Telecommunications: What's Left of the Essential Facility Doctrine?*, forthcoming on *Telecommunications Policy*, 2009.

⁷ In the Access Directive, the remedies envisaged are transparency (Art. 9), non-discrimination obligation (Art 10), accounting separation (Art. 11), access-obligation (Art. 12) and price control and cost accounting obligation (Art 13).

⁸ Indeed, the investment ladder model itself was based on the existence of a degree of supply-side substitutability between different access points, which in turn would have led to merging the allegedly separate markets into a single relevant market for “wholesale access to fixed-line telecom networks”. See Renda, supra note 6.

⁹ See, i.a., Pardolesi, R. and A. Renda, *The European Commission's Case Against Microsoft: Kill Bill?*, *World Competition*, Vol. 27, Issue 4, December 2004.

¹⁰ According to the three-criteria test, a market should be subject to ex ante regulation only a forward-looking analysis reveals that entry barriers into the market are still high, the market at hand does not show a clear trend towards effective competition and competition law alone is not sufficient to deal with market failures. See, for a critical analysis, Henning Never and Brigitte Preissl, *The three-criteria test and SMP: how to get it right*, *International Journal of Management and Network Economics*, 2008, vol. 1, issue 1, pages 100-127.

ante regulation had been pre-selected¹¹. Deviating from the list of markets was still possible, but – as already explained above – implied a much heavier burden of proof for NRAs. In a nutshell, and perhaps oversimplifying, the EU framework partly sacrificed the soundness of the economic analysis performed by NRAs and the application of antitrust tools on the altar of the Single market.

In summary, the attempt made by EU policymakers with the 2002 regulatory framework was to increase the reliance on access policy by de facto forcing NRAs to stick to a standardized list of relevant markets and apply a set of tools similar to those used in antitrust enforcement, for the purpose of achieving consistency in regulatory practices across Member States.

The framework was so “perfect” in theory than its practical implementation inevitably took too long: Commissioner Viviane Reding herself stated in 2006 that 25 (now 27) NRAs having to define 18 markets each were an unbearable burden of almost 500 market definitions, and called for drastic simplification. Given that the package contained an ambitious three-year review clause, when the European Commission started working on the review of the framework, at least one member state (Greece) had not even transposed the primary legislation into its own national legal system, and many others had just started the long iter of market reviews. It was thus very difficult to judge about the soundness of the overall approach adopted by Brussels legislators, and even market developments could not be taken as evidence that the framework was really working.

To be sure, already in 2006 the following problems had already emerged:

The framework was too complex: as already recalled, the difficulty in using antitrust tools (e.g. definition of SMP, collective dominance, etc.), the number of market reviews to be undertaken by NRAs and other provisions of the 2002 framework made it almost unworkable. Moreover, the investment ladder model still had to prove convincingly its potential to boost sustainable facilities-based competition in EU member states: in some countries it appeared to be producing some results, but in many others it had clearly proven too complex and conducive to market micro-management¹². Accordingly, real infrastructure-based competition was still missing in many EU member states¹³. This was clear also in the words of Commissioner Reding in a speech delivered in November 2006: “we have moved to a competitive environment where a large number of telecom service providers thrive. This is based to a good part on service-based competition but whenever

possible we should increasingly seek more infrastructure-based competition which is sustainable in the long term”¹⁴.

The framework wasn’t complex enough: emerging issues such as convergence and inter-platform competition, network externalities, two- and multi-sided markets and the relevance of content and applications for new high-speed networks were almost ignored by the package and by its implementing measures and guidance documents produced by the Commission and the European Regulators Group (ERG). Already in 2001, a CEPS task force report authored by Martin Cave and Pierre Larouche denounced that the forthcoming 2002 package “missed the broader picture”. In addition, the framework did not address the key issue of Community spectrum policy, which despite the adoption of the Radio Spectrum Policy decision in 2002 was left as a prerogative of member states¹⁵.

Remedies chosen by NRAs were often inconsistent: the Commission itself realised that its veto power over market analysis and SMP findings should be extended also to the choice of the remedy operated by the NRA, in order to ensure that players engaging in cross-border trade would find similar regulatory conditions, something that would in turn boost the internal market for e-communications¹⁶. This, however, had been an element of disagreement with other EU institutions already in 2001.

Some provisions were almost impossible to apply: in particular, the “window on the future” in the package was the provision contained in Recital 15 to the Recommendation on relevant markets, according to which “new and emerging markets, in which market power may be found to exist because of ‘first mover’ advantages, should not in principle be subject to ex-ante regulation”, was left almost unused by NRAs. This was mostly due to two factors: (i) the existing tension in the framework between the technology-neutrality principle; and (ii) the requirement for NRAs to run the SSNIP test to find out whether an emerging market could be considered as entirely separate from an established one – something that contradicts the very notion of emerging markets in the ICT world, where most of the innovation is in fact incremental, rather than disruptive.

The governance of the framework could be improved. The initial arrangements allocated different competences to i.a. the European Commission, the NRAs and the ERG, which had been set up inside the Commission to help achieving better consistency in the regulatory practices of the Member States. However, this “soft coordination” model, based on guidance and exchange of practices within the ERG, proved too weak. In addition, in some member states the implementation of the remedies identified by the NRA was inhibited by national administrative courts due to

¹¹ See the Commission Recommendation of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services - C(2003)497.

¹² See, for a more detailed description, Renda, A. (2006), Last Call for Lisbon? Suggestions for the Future Regulation of Electronic Communications in Europe, Report of a CEPS Task Force, June 2006.

¹³ See the survey by London Economics and PwC for the European Commission, July 2006, at http://ec.europa.eu/information_society/policy/ecomms/doc/library/ext_studies/assessmt_growth_invst/investment.pdf.

¹⁴ Viviane Reding, SPEECH/06/697, 16 November 2006.

¹⁵ See, i.a. Bohlin, E. et al. (2008), A Common European Spectrum Policy: barriers and prospects, study for the European Parliament, ITRE Committee, January 2008, at http://www.europarl.europa.eu/meetdocs/2004_2009/documents/dv/itre_st_2007_spectrum_poli/ITRE_ST_2007_SPECTRUM_POLICY.pdf.

¹⁶ COM(2006) 28, 6.2.2006. See also the 12th Implementation Report and the 2nd Commission Communication on market reviews under the EU Regulatory Framework – Consolidating the internal market for electronic communications, COM(2007) 401, available at: http://ec.europa.eu/information_society/policy/ecomms/implementation_enforcement/article_7/index_en.htm.

the suspensory effect of appeals procedures; at the same time, a gap still existed for what concerned the possibility of appealing the Commission's decisions within the Art. 7 review.

There was a need for a stronger "better regulation" dimension in the package. While the need to justify regulation through ex ante impact assessments (IAs) pervades the whole EU policy process and inspires the agenda of regulatory reform worldwide, the 2002 framework allowed NRAs to impose often intrusive regulatory measures without having to prove that they were proportionate, efficient and effective. This was mostly due to the already mentioned feature in the 2002 framework, which significantly lowered the onus probandi for NRAs that followed the list of markets pre-selected by the Commission in the 2003 Recommendation. The undesirable result was that the Commission used the three criteria test as a gateway criterion to pre-select markets in its own preliminary list, but NRAs did not apply that test in practice when implementing the framework.

In order to tackle at least some of these problems, the Commission initially proposed a conservative approach that aimed at merely refining what many stakeholders considered as a sound overall approach to organise the ex ante regulation and gradual opening to competition of telecom services, and the transition from ex ante regulation towards the mere application of ex post competition policy. The Commission's initial proposal to review the framework was embedded in a Communication adopted in June 2006, which was accompanied by an early-stage impact assessment¹⁷. After another round of consultation, the Commission finally published its proposals in November 2007. Proposed changes included the following:

A drastic simplification of the list of relevant markets that are presumed to warrant ex ante regulation, by repealing most of the retail markets included in the 2003 Recommendation¹⁸. At the same time, the Commission refined the definition of former market 11 by making it more technology-neutral, and merged two previous retail markets (n. 1 and 2) into one, termed "access to the public telephone network at a fixed location for residential and non-residential customers". Of course, removing a relevant market from the list included in the Recommendation does not mean deregulating it: to the contrary, it means restoring the natural condition under which, before regulating a market, a NRA should prove that the three criteria are met and that the proposed regulatory measure is proportionate. In this respect, the Commission showed a commitment towards better regulation principles in the review of the framework.

A more coordinated approach to spectrum policy, in which the concepts of technology and service neutrality would become binding on member states from 2015 onwards, and the Commission had a much stronger right to take action to harmonise spectrum bands for pan-European services. This provision was echoing a number of documents published by the Commission since 2005 to promote a more flexible and market-based approach to spectrum management, and constituted a first attempt to strengthen the role of the Commission as "spectrum regulator" in the EU. Together with the proposals for the review of the package, the Commission also adopted a Communication on the digital dividend, in which it proposed a clustering of the UHF band that would lead to allocating the upper portion of that band to wireless broadband rather than broadcasting services¹⁹.

More monitoring of appeals process for NRA decisions. The Commission proposed to introduce a rule under which "interim measures may be granted if there is an urgent need to suspend the effect of the decision in order to prevent serious and irreparable damage to the party applying for those measures and the balance of interests so requires"²⁰.

A new governance arrangement, which included two complementary measures to strengthen the consistency of the framework's implementation throughout the territory of the EU:

(i) The extension of the Commission veto power – currently covering only market analysis and SMP assessment – also to remedies proposed by NRAs.²¹

(ii) The creation of a European Electronic Communications Market Authority (EECMA). The EECMA would replace the ERG, the ENISA and – partly – the COCOM. Its main functions would be that to advise the Commission on market analyses (Phase II); intervene whenever an NRA was not complying with a veto decision under Art. 7 of the Framework Directive; deal with the analysis of transnational markets and pan-European services (including spectrum and ETNS 3883 services); and provide network security. The EECMA was indeed a major novelty in the Commission's proposal, especially since the 2006 impact assessment had concluded the time was not ripe for creating a pan-European telecoms regulator, as the costs would outweigh the benefit – a finding that was very similar to what Cullen International and Eurostrategies had found in an earlier study for the Commission in 1999²².

¹⁷ SEC(2006)656, available on the European Commission's impact assessment website, at http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2006/sec_2006_0817_en.pdf.

¹⁸ Markets warranting ex ante regulation are those that fulfil three basic criteria: a) existence of significant barriers to entry; b) absence of a tendency towards effective competition; and c) the insufficiency of competition law to address the market failure.

¹⁹ See Bohlin et al., supra note 15. And Forge, S. et al. (2007), *The Mobile Provide. Economic Impact of Alternative Uses of the Digital Dividend*, available online (summary report) at http://www.digitaldividend.eu/files/digital_dividend_summary_report.pdf.

²⁰ See COM(2007) 697 final, 13 November 2007.

²¹ See the Commission Communication on the outcome of the review, COM(2007)696 of 13 November 2007: "Under the present set of rules, NRAs exercise considerable discretion in implementing the regulatory framework but their perspective has remained largely confined to national borders, despite the efforts made to improve coordination via the European Regulators Group (ERG), a forum bringing together national regulators. This has led to regulatory inconsistency and distortions of competition, hindering the development of a single European market in which undertakings can operate seamlessly across borders and where private and business consumers can profit from the availability of comparable communications services independently of geographic location".

²² See Haucap (2009), in Preissl, Haucap and Curwen. However, it must be recalled that the day before the 2006 Communication on the review was adopted, Commissioner Reding announced her intention to create a pan-European regulator, thus leaving the whole industry in a state of deep confusion. See Reding's speech SPEECH/06/422, 27/06/2006, stating that "The most effective way to achieve a real level playing field for telecom operators across the EU would of course be to create an independent European telecom regulator that would work together with national regulators in a system, similar to the European System of Central Banks".

The introduction of functional separation in the Access Directive (Articles 13a and 13b) as a new remedy available to NRAs in case of finding of SMP, under very specific circumstances – i.e., cases in which non-price discrimination by the incumbent against its rivals has not been solved by the imposition of other, less intrusive remedies, and the NRA assesses *ex ante* “the expected impact on the regulatory authority, on the undertaking, and on its incentives to invest in its network, and on other stakeholders”.

The Commission proposed a number of other important changes in the proposed new Directive on universal service and users’ rights, including improved tariff transparency; the right for users to port their numbers to competing providers “no later than one working day from the initial request”; and two provisions which were initially given little attention – one on the notification of security breaches by ISPs, and the other on network neutrality, giving NRAs the possibility of imposing minimum quality of service (QoS) when appropriate.

Main chapters of the review

The Commission’s 2007 proposals, even if far from perfect, represented a clear and courageous attempt from the Commission to raise the stakes in telecom liberalization throughout Europe. Several commentators and industry players complained that the Commission had gone too far – i.a. in claiming strong new powers in spectrum policy, proposing a brand-new pan-European advisory body, and pretending the inclusion of a new, intrusive remedy such as functional separation. Initially, the most heavily debated provision in the framework was certainly functional separation: but things evolved quickly in the first reading of the European Parliament, and in 2008 the most hectic debate revolved around spectrum policy and the European regulator/advisory body.

The Commission submitted its proposal for a Regulation to the European Parliament and to the Council on 13 November 2007 for adoption by co-decision procedure as laid down in Article 251 of the EC Treaty. After the opinions of the Economic and Social Committee (29 May 2008) and the Committee of the Regions (19 June 2008), the European Parliament voted in first reading on 24 September 2008. The Council then adopted its common position on the proposal on 16 February 2009. After this, the Commission adopted a rather critical Communication on the common position of the Council on 17 February 2009. The European Parliament then adopted its position in second reading on 6 May 2009, but agreement could not be found on one single issue – the (in) famous amendment 138 on copyright infringement.

Below, I summarise briefly what has changed during the co-decision procedure for each of the main chapters of the review.

Access policy v. regulatory holidays

The first mantra in the review of the framework was the call, from some incumbent players and some commentators, for regulatory forbearance for investments in new, high-speed networks. The so-called “regulatory holidays” approach mirrored what had happened in the US between 2003 and 2005, when the FCC gradually exempted investments in FTTx and DSL from access policy obligations that had been introduced for narrow-band networks, triggering a massive flow of investment from big telcos into those new networks.

However, as often observed, the United States differ from many EU countries due to their legacy cable network, which – coupled with a favourable regulatory treatment of cable as “information service” – led to the development of two alternative infrastructures and thus to an embedded degree of facilities-based competition, which was lacking in the overwhelming majority of EU member states. Accordingly, the US qualifies as a “2.x” country, in which DSL and cable are available in almost every zip code, together with the wireless network, which increasingly becomes a substitute for fixed-line. In Europe, only a few countries (the Netherlands, Belgium, and to some extent Austria, Portugal, Hungary, Sweden and Denmark) match these conditions, whereas most of the other countries are either “1.x” or even “0.x”²³. In addition, compared to the US 1996 Telecommunications Act, the EU regulatory framework was in principle equipped for lifting regulatory obligations once the market would become competitive, and also in case of emerging markets for which regulatory intervention would look premature. But it did not envisage any other situation in which forbearance would be possible. Accordingly, Commissioner Reding has in several occasions clarified that regulatory forbearance for investments in NGNs is “not a policy option” for the review of the 2002 framework.²⁴

The issue is, however, more complex than it initially appeared. In the past years, several scholars and practitioners have consistently (and sometimes, also convincingly) shown that access policy regimes are negatively correlated with incentives to invest in alternative infrastructure²⁵. In addition, the economic downturn that was triggered by the financial crisis has brought the issue of counter-cyclical investment back on the table of EU policy-makers. As a result, the issue of regulatory holidays has slipped away from the debate on the review, and came back at a higher political level in national stimulus plans for economic recovery.

The debate on functional separation

As already mentioned, much of the attention on the Commission’s proposed review was initially put on the proposal to include functional separation in the list of remedies available to NRAs un-

²³ The classification was developed by Columbia University professor Eli Noam, and is now widely adopted in the industry. See, e.g., Cave, M. (2007), *The regulation of access in Telecommunications: a European Perspective*, mimeo, Warwick Business School, University of Warwick, at <http://www.econ.upf.edu/docs/seminars/cave.pdf>.

²⁴ Viviane Reding, SPEECH/06/697, 16 November 2006. In mid 2007, the EC took Germany to the European Court of Justice over a German law that granted Deutsche Telekom a “regulatory holiday” to encourage it to invest in a fibre network.

²⁵ See, i.a., Waverman, L., M. Meschi, B. Reillier and K. Dasgupta (2007), *Access Regulation and Infrastructure Investment in the Telecommunications Sector: An Empirical Investigation*, LECG, September 2007; Wallsten, S., *Whence Competition in Network Industries? Broadband and Unbundling Regulations in OECD Countries*, December 2007, available at <http://www.techpolicyinstitute.org/files/s8.pdf>; Wallsten, S. and S. Hausladen, *Net Neutrality, Unbundling, and their Effects on International Investment in Next-Generation Networks*, *Review of Network Economics* Vol.8, Issue 1 – March 2009; Grajek, M. and L.H. Röller, *Regulation and Investment in Network Industries: Evidence from European Telecoms*, SFB 649 Discussion Paper 2009-039, at <http://sfb649.wiwi.hu-berlin.de/papers/pdf/SFB649DP2009-039.pdf>; and Pietrunti, M., *Regulation and investment incentives for next generation broadband access networks*, forthcoming as EIB working paper.

der the Access Directive, as new Article 13a (with another Article, 13b, dedicated to voluntary separation). Much of the rhetoric of functional separation was related to the debate on regulatory holidays v. access policy, with functional separation constituting the extreme solution for access policy²⁶. However, the Commission's proposal was not really adding anything to what was already happening in a number of member states, especially after the initial UK experience with Openreach: to the contrary, despite some emphasis in the Commissioner's speeches, the Commission's proposal actually restricted the circumstances under which national regulator could actually use such remedy.

As a matter of fact, functional separation as a remedy was already possible under Art. 8(3) of the Access Directive, and this is also testified by the fact that some member states (not only the UK, but also Italy and Sweden) had already started implementing it before the review. Its explicit inclusion as an additional remedy was therefore not necessary, unless the Commission wanted to clarify the exceptional nature of the remedy and the precise steps that must be followed to implement it at national level. And that is what happened in the Commission's proposal after the first reading in Parliament and Council: the proposed Article 13a was maintained but the exceptional nature of the remedy was further emphasised: the NRAs can impose functional separation only: (i) as a remedy of last resort, when the imposition and implementation of other remedies has failed and seems doomed to failure in the future; (ii) confined to the problem of non-price discrimination, (iii) subject to an ex ante assessment of the impact of this remedy on the NRA, the undertaking ("in particular its workforce and its incentives to invest in its network"), and other stakeholders, including in particular analysis of the expected impact on infrastructure competition and any potential consequential effects on consumers; and (iv) subject to evidence that there is little or no prospect of infrastructure-based competition within a reasonable timeframe.

The existence of a provision on functional separation in the framework seems therefore justified by a need to clarify the conditions that have to be met for such remedy to be acceptable and viable in the Commission's view. Discussing the merit of functional separation as a remedy in and of itself would fall outside the scope of this paper: it is worth recalling, however, that the literature is split, and both policymakers and practitioners have expressed widely diverging opinions over the impact of functional separation, both per se and depending on the context in which it is applied²⁷.

Two issues are however worth recalling as regards the review of the framework. First, the provision on functional separation was initially coupled with the proposed extension of the Commission's veto power over remedies, and with the proposal to create a

powerful new advisory body, the EECMA (see infra, Section 1.1.3): in this context, a situation might have emerged in which the Commission could veto a proposed remedy by an NRA (say, setting access charges for wholesale access), leaving it with no choice but to propose functional separation. This position would have been backed by a simple majority decision of the EECMA. In a nutshell, in this situation functional separation would have been imposed in a given country against the will of the NRA and of the regulated firm: a bit too much for member states to digest.

Secondly, a potential problem could emerge as regards the compatibility of a functional separation remedy with the objective of achieving the internal market for e-communications in Europe. As a matter of fact, having countries with functionally separated networks and others in which this remedy has not been applied could make it more difficult for firms wishing to engage in cross-border trade to find similar conditions across borders. This is why optional, "conditioned" functional separation must be kept as an exceptional remedy in the future.

The governance debate: much ado about nothing?

One of the most debated issue in the first and second reading of the telecom package was the new institutional framework that had been designed by the Commission, with the EECMA and the Commission's veto power over remedies. Both have been subject to major changes in the review, which ended up diluting significantly the Commission's initial effort to achieve more consistency in the remedies applied by NRAs.

The idea of creating the EECMA was seriously challenged by the European Parliament already in first reading, especially due to doubts on the need to appoint a new body with 134 staff and only an advisory role in a context in which ex ante regulation is supposed to be phased out in favour of standalone ex post antitrust scrutiny. As already recalled, an external study in 1999 and the Commission impact assessment that backed the 2006 Communication on the review had both rejected the possibility of a new body; at the same time, the impact assessment on the 2007 review proposals concluded the opposite, though this conclusion was drawn on the basis of a very weak cost-benefit analysis²⁸. The Parliament thus decided to transform the EECMA into a Board of European Regulators on Telecommunications (BERT), which was essentially an enhanced version of the ERG, established as a private law body with a mandate until 2014, and hosting a conciliation procedure for cases in which the Commission expressed doubts on remedies proposed by the NRAs. The Commission broadly agreed with the Parliament's proposal, but renamed the BERT into BETR (Body of European Telecoms Regulators) and restated its role as a EU agency; however, in February

²⁶ As stated by Commissioner Reding, "The Commission's proposal on functional separation is consistent with the Commission's long-held position that a 'regulatory holiday' on fibre is definitely not the right way to boost investments in new infrastructures, as a few stakeholders have been claiming. This is not the way the EU Telecoms Rules work: our EU Framework is based on networks and services competing with each other in a technologically neutral way. If telephony and broadband are the basic products sought by consumers, then whether they are delivered over metallic or fibre loops is largely irrelevant to the analysis. What is relevant is the state of competition on that market". See SPEECH/07/765, Brussels, 28 November 2007.

²⁷ For comments, see i.a. Whalley, J. and P. Curwen (2008), Is Functional Separation BT-Style the Answer?, COMMUNICATIONS & STRATEGIES, no. 71, 3rd quarter 2008, p. 145; Xavier P. and D. Ypsilanti (2004), Is the case for structural separation of the local loop persuasive?, Info, Vol. 6, no. 2, pp. 74-92; and Renda, A. (2008), Achieving the Internal Market for e-communications in Europe, Report of a CEPS Task Force, CEPS, Brussels.

²⁸ See the impact assessment, SEC(2007)1472, available at http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2007/sec_2007_1472_en.pdf where the Commission equates the benefit of a European authority with the benefit of achieving the internal market for e-communications.

2009 the Council watered down the BERT/BETR, proposing a Group of European Regulator on Telecommunications (GERT) which had no legal personality, and was essentially a re-proposition of the ERG. Finally, agreement was found on setting up the Body of European Regulators for Electronic Communications (BEREC). The BEREC is further composed by: (i) a Board consisting of the 27 national regulators, would have advisory powers but no legal personality; and (ii) the Office, comprising a Management Committee (27 + 1 member representing the Commission) and an Administrative Manager, which would have a support role would be a Community body with legal personality. BEREC would assist the Commission and the national regulators with expert advice in the range of their responsibilities under the EU regulatory framework for electronic communications. The Office would provide the professional and administrative support services required by BEREC to fulfil its tasks and would be financed by a Community subsidy and financial contributions from Member States or NRAs made on a voluntary basis to finance specific items of operational expenditure.

BEREC is essentially the same as the ERG. It has no legal personality, it is not a EU agency, it does not include the competences that are reserved to ENISA, it does not have any significant competence on spectrum issues. Where it will play an enhanced role is assisting the Commission in Art. 7 procedures, and also in reviewing remedies chosen by the NRA. As regards the latter, the Commission's proposed veto power was transformed by the Council into a so-called system of "co-regulation" whereby the Commission will be able to express "serious doubts" on the remedy selected by the NRA, but the impact of the Commission's opinion will not go beyond moral suasion. After taking utmost account of BERECs opinion, the Commission will decide whether to adopt a recommendation asking the NRA to withdraw or amend the remedy: if the NRA disagrees, it will be able to proceed anyway with its original proposal.

The spectrum policy puzzle

Also the Commission's proposals on spectrum were significantly diluted during co-decision. These proposals were initially seen with a degree of hostility in the European Parliament, for two fundamental reasons: (i) the Commission was reserving for itself a very important role in the shaping of EU spectrum policy, without allocating any powers to the European Parliament, which already felt under-represented in this domain; and (ii) the Commission's digital dividend proposal was fiercely opposed by broadcasters, which are traditionally influential on MEPs. On the former issue, the Parliament has watered down the reallocation of competences – which included the EECMA with a role on spectrum harmonization – by removing spectrum competences from the BEREC, and requesting the creation of a Radio Spec-

trum Policy Committee to deal with spectrum planning issues and reporting to all EU institutions. Eventually, the Parliament agreed with the Commission both on technology and service neutrality, and even on the need to reallocate the digital dividend to wireless broadband applications.

However, the Council opposed these proposals by rejecting any enhanced Commission's role in designating bands to be harmonised for pan-European services, and inserting amendments that allow member states to deviate from technology and service neutrality in a fairly broad set of circumstances. As a result, the final text is very far from what the Commission had initially envisaged; in addition, it does not create any scope for the achievement of a real common spectrum policy in the EU, something that is particularly worrying, given that spectrum is becoming increasingly key in the development of future high-speed networks and in bridging the digital divide.

Interestingly, while the proposed new governance of spectrum policy was being deleted from the package, the European Economic Recovery Plan mentioned spectrum resources as essential for the European resurgence from the economic downturn. Again, this very hot issue was being moved away from the package, into a high-level political document: Action 10 of the Recovery Plan prescribes that "Member States should promote competitive investments in fibre networks and endorse the Commission's proposals to free up spectrum for wireless broadband". Accordingly, there is scope for a virtuous solution of the digital dividend debate: however, this solution is inevitably to be pursued outside the regulatory framework for e-communications.

The net neutrality debate

A dormant issue in Europe until recently, the net neutrality debate has been raging in the United States for years. The Commission's proposal on net neutrality appeared quite balanced, although the feasibility of imposing any "minimal QoS" requirement appeared weak at best from a technical viewpoint. In any event, the 2002 framework and the possibility of applying Community competition law for cases of application blocking or intentional QoS degradation suggested that there was no need to intervene on net neutrality directly in the framework²⁹. And the European Commission stated that product differentiation through traffic prioritisation and network management is, in general, desirable, as it opens up new opportunities for ICPs and increases consumer choice³⁰.

However, during the first reading in the European Parliament the issue started mounting, not without unnecessary rhetoric (mostly imported from the United States). The issue has catalyzed most of the media interest in the past months, but did not lead to major changes in the second reading of the

²⁹ See Renda, A. (2008), I own the pipes, you call the tune? The net neutrality debate and its (ir)relevance for Europe, CEPS Policy Paper; Cave, Martin and Pietro Crociani (2007) Does Europe Need Network Neutrality Rules?, *International Journal of Communication*, 1: 669-679; and Chirico, Filomena, Ilse M. Van Der Haar, and Pierre Larouche (2007), *Network Neutrality in the EU*, SSRN Working paper. <http://ssrn.com/abstract=1018326>.

³⁰ See the Commission's Impact Assessment on the proposed review of the e-communications framework, stating that "product differentiation is generally considered to be beneficial for the market (particularly in industries with large fixed and sunk costs) so long as users have choice to access the transmission capabilities and the services they want. Allowing broadband operators to differentiate their products may make market entry of content providers more likely, thereby leading to a less concentrated industry structure and more consumer choice". SEC(2007)1472, at 91, note 208 and accompanying text.

Universal Service directive. According to the current text, “[i]n order to meet quality of service requirements, operators may use procedures to measure and shape traffic on a network link so as to avoid filling the link to capacity or overfilling the link, which would result in network congestion and poor performance”. These procedures will be scrutinised under antitrust laws to ensure that competition is not distorted, and when needed NRAs may be able to challenge degradation of QoS and impose minimum quality levels.

In addition, Article 20 of the Universal Service Directive is amended to allow member states to impose obligations of transparency, according to which end users have to be clearly informed of whatever limitation imposed by their ISP on their ability to access any content and/or run any lawful application or service of their choice.

Copyright protection

Copyright protection had not been an element of discussion in the first phase of the co-decision procedure, until the European Parliament tabled an amendment, which required NRAs to apply the principle “that no restriction may be imposed on the fundamental rights and freedoms of end-users, without a prior ruling by the judicial authorities, notably in accordance with Article 11 of the Charter of Fundamental Rights of the European Union on freedom of expression and information, save when public security is threatened where the ruling may be subsequent”.

The provision was at first blush straightforward. However, it clashed with a proposed bill that the French government was proposing to tackle the problem of widespread Internet piracy and illegal p2p downloads. The proposed law created a government agency called “Haute Autorité pour la Diffusion des Œuvres et la Protection des Droits sur Internet” (HADOPI), which had the power to act as “cyber-police” on the Internet. In a nutshell, the law empowered the ISP to inspect the packages shipped by its subscribers to detect copyright infringement. After three warnings sent through certified email by the ISP or the HADOPI (so-called “3-strikes procedure”), the ISP suspends the subscriber’s internet connection for 2 months to 1 year. The law also provided that the infringing user be blacklisted, so that he or she cannot obtain any internet connection from other subscribers. Meanwhile, he or she would continue paying the bill even without obtaining service.

The Commission accepted the Parliament’s amendment n. 138, but explicitly acknowledged that it was aware “that this issue is of high political importance in the domestic debate in France”. The European Commission thus invited the French government to discuss its views on Amendment 138 with ministers of the other 26 Member States. The result, however, was that the Council, inspired by the French government, rejected amendment 138 in November 2008. Later, the Council proposed a modified version of this amendment, in which the statement was moved to the recitals, and the term “judicial authority” was changed into “legally competent authorities”, which could clearly leave space for replacing judges with administrative procedures, or – as the most malicious say – cyber-police.

Accordingly, when on May 6 the Parliament re-proposed a version of amendment 138 that required prior intervention by the judicial authority, the three institutions could not reach an agreement. And the whole telecoms package sank with it. On June 11, 2009 the Telecoms ministers rejected the proposal tabled by the Parliament and sent the whole package to the conciliation procedure, where it currently stands, and where it will be taken care of by the Swedish presidency, the newly elected European Parliament (but with the same Rapporteurs that have worked on the package so far), and the current Commission, though due to leave office at the end of the year.

The way forward: conservative v. futuristic options

The tale of the telecoms review is a tale of the anticommons for two main reasons. First, it is the story of many, too many overlapping interests, each of them with a de facto veto power on the whole package. While the European Parliament vetoed the EECMA, broadcasters and the Council vetoed the centralisation of spectrum policy and the digital dividend plan, the Council vetoed Amendment 138, etc. The package has been under attack by telecom incumbents wishing to obtain regulatory holidays, by Internet giants trying to obtain mandatory net neutrality, by content providers wishing to sponsor cyber-police. Second, this thicket of opinions and interests has led Europe’s e-communications sector on the edge of a tragic outcome. As a consequence of the stalled telecoms package, the Commission seems to have delayed the adoption of both the NGA Recommendation (after two drafts that have made everybody unhappy) and the “binding piece of legislation” on the digital dividend that had been announced in the 2007 Communication.

This, in turn, means that industry players, as of today, have no clue about the legal framework that will govern them in the years to come. They don’t know which rules will be adopted to stimulate investment in next-generation access networks. They don’t know whether and to what extent they will be able to manage traffic on their networks, whether they will have the possibility of using the upper UHF band to deploy wireless broadband services and promising 4G technologies at viable cost. They don’t know whether access policy will remain a dominant paradigm, or whether the financial crisis will lead to prioritisation of investment over competition. They don’t know whether the European Commission, the NRAs, BEREC or any other agency will be their principal interlocutor. And they don’t even know what impact the Commission expects from the package, since the impact assessment carried out by the Commission in 2007 addressed one piece of legislation that does not exist anymore.

The situation is even more urgent since electronic communications represent a large share of the EU economy, and account for approximately half of the EU productivity growth. And, despite the triumphant tone with which the recent Digital Competitiveness Report has described the achievements of the i2010 strategy – which starkly contrasts with the rather pessimistic language of previous yearly reports – the EU27 are still far from representing a Single Market where all citizens have reasonable choice between alternative, high-speed platforms and suitable

content and services that stimulate demand for broadband connections³¹.

As regards the text of the package, there is no doubt that the sooner it will be approved, the better it will be for the European citizens, even if the final agreement does not include important features of the Commission's first proposal, such as more centralised spectrum policy. However, in approving the package, EU policymakers should also realise that the years that have elapsed since the Commission's first proposals have witnessed important changes in the telecoms sector. These changes pose important problems in regulatory terms:

The long-awaited convergence between fixed and mobile, telecoms, media and the Internet is now much closer. Can a single piece of legislation govern all these aspects? The experience with the telecoms package is that telecoms (better, e-communications) have become too big to handle with a single piece of legislation, and discussions over a comprehensive package are doomed to remain hostage of very provincial arguments.

Given technology developments, platform-based competition will soon be available also to countries that have no legacy cable infrastructure, thanks to new 4G wireless technologies such as LTE. However, these technologies need access the "right" spectrum. Are we sure that the ambitious objective that the package wanted to achieve through the investment ladder (facilities-based competition) is not attainable today in a much simpler way, by making spectrum available and stimulating the industry in finding a common strategy to bring the Internet everywhere?

Does it make sense to de facto impose NRAs resource-intensive market analyses, or should instead geographical segmentation be the dominant paradigm in future telecom regulation? At a minimum, the future implementation of the telecoms package should carry no incentive for NRAs to define markets in a way that artificially separates them.

One of the effects of the financial crisis might be to shift the attention from competition "in" the market to competition "for" the market, through public procurement. The European Economic Recovery Plan mobilises resources mostly through this channel, and may constitute an important way to promote broadband deployment in the years to come. However, procurement also means picking one winner, unless consortia of incumbents and new entrants are promoted, as occurred in Australia or in Portugal lately. In either case, competition in the market is at least postponed, and industrial policy aimed at broadband penetration takes priority over the initial approach of the 2002 telecoms package.

Again, both convergence and the crisis exacerbated the need for industry consolidation in the EU27. Investments required have become enormous, some technologies need at least a pan-European scale, public procurement is becoming more important, and no internal market can be imagined with only domestic firms timidly looking at cross-border operations. As a

matter of fact, in the US 6-7 big players run the telecom sector (DSL, fibre, cable, wireless) in 50 states; in Europe's 27 states, several hundred (some say 2,000) operators survive in their local markets, but only a negligible fraction of them actually invest in infrastructure.

It is probably true that the package should not have "missed the broader picture" in 2001; however, today it sinks because it tried to capture the broader picture to an extent that borders on the horror vacui. The digital dividend debate, the net neutrality querelle and the final battle over amendment 138 suggest that the Commission should in the future become a clever negotiator, besides being a smart, responsive regulator. These are issues to be dealt with by facilitating a bottom-up solution, a real partnership for growth between Original Equipment Manufacturers, ISPs, nomadic players and giant application developers (the Microsofts, Googles and Yahoos) and content providers. And the whole issue should be dealt with at a higher political level, not in the package anymore. The telecoms world has become too big for a single piece of legislation to capture it.

Looking at the European Economic Recovery Plan, at the i2010 strategy and at the various stimulus plans adopted at EU and national level, it is hard to resist the temptation to call it "industrial policy". However, industrial policy also means demand-side policies, not only supply-side. And the i2010 report confirms that demand for broadband is still low. The post i2010, in my opinion, should be dominated by demand-side, consumer-centric policies, rather than by an old-style market regulation approach.

Accordingly, Europe faces an urgent dilemma, and an impellent need to act. I see two main policy scenarios for the years to come. First, under a conservative scenario, EU institutions should seek approval of the package before the end of 2009, by avoiding any involvement in fundamental rights. Then, NRAs will continue their market analyses and the Commission will strive to achieve consistency in the remedies adopted at national level, and all high-level policy goals such as 100% broadband coverage, net neutrality and copyright protection will be dealt with in separate policy documents. The next revision of the Recommendation on relevant market will be an occasion to repeal other markets, and gradually the regulatory framework will get back to the single problem of wholesale access to fixed-line networks – back to the "ONP era".

Alternatively, the new Commission and the new Parliament could work on a different strategy to unveil the industrial policy goals that stand behind e-communications. In particular, two main policy approaches should deserve more attention in Europe: (i) The Commission should seek more co-regulation, or better a "private-private" partnership supervised by Brussels policymakers, in which players from all the layers of the all-IP environment define the rules that will govern the European information society in the years to come, subject to approval from EU institutions: failure to agree would bring the Commission back in its prominent role of chief regulator (for example, through a "sunset clause"). The same could occur for a "pu-

³¹ See the Commissions, Digital Competitiveness Report, SEC(2009)1103, 4 August 2009, at http://ec.europa.eu/information_society/eeurope/i2010/docs/annual_report/2009/sec_2009_1103.pdf.

blic-public” partnership between national governments, which could seek to harmonise the several plans they have drafted and started to implement to boost broadband deployment in their own jurisdictions (Digital Britain, France Numérique, Avanza Infraestructuras and others). In addition, (ii) the Commission could work on outcome-based, rather than procedure-based approaches to telecoms liberalization, by promoting agreement between member states on a number of common information society indicators and targets to be reached by 2015. Such

indicators should cover both the supply-side (availability of infrastructure, OS, applications, public and private services, content, QoS) and demand-side indicators (mostly, Internet usage). Whether these merely sketched governance options will be chosen by the new generation of Brussels policymakers, remains to be seen: before chasing market failures again, it is essential to make sure that regulatory and institutional failures like the anticommons that hampered the approval of the telecoms package do not occur anymore.

Monitoring EU Telecoms Policy: Spectrum Policy

Martin Cave and
Leo Fulvio Minervini

1. Introduction

As the centre of gravity of electronic communications services (ECS) continues to move in the direction of wireless technologies (just in call, now in broadband) the importance of EU spectrum policy grows. This is reflected in the major role given to spectrum issues in the revised directives (now stalled; for other reasons, in a conciliation process but likely to be enacted shortly). Changes in military tactics, the increasing use of unmanned aerial vehicles, new vehicle controlled technologies and the tracking of goods are imposing increasing demands from defence, public safety and transport and logistics to name but four.

From an EU perspective, the key contextual element is that spectrum management is essentially a national competence embedded within a century-old regime for the international harmonisation of cross-border transmission orchestrated by the ITU. This has been effected by long-term regional agreements designed to manage interference from high-powered transmissions, especially in the area of broadcasting – the analogue agreement reached in Stockholm in 1959 and its digital successor agreed in Geneva 06.

However successful such episodic interventions have been, the EU now confronts two additional policy challenges. The first concerns the internal market, the second the innovation challenge implicit in the i2010 and Lisbon agenda.

Arguably the most conspicuous failure of the EU's highly successful ECS regulation regime since 2003 has been the failure of development of pan-European services. The deficit is most felt in wireless services, significant components of which are wholly untethered from constraints imposed by buried or aerial network assets. It is likely that the legal and regulatory regimes for the licensing of services and spectrum use are a major element in play here (wireless incumbents' preferences for a combination of national services and international roaming is another).

Secondly, achieving the ICT goals of the Lisbon Agenda (i2010 or its successor) is likely to require policy interventions in a range of areas, including spectrum.

These factors (one aimed at reducing barriers, the other pro-active), combined with growing importance of wireless technologies, are causing a 'paradigm shift from spectrum management to spectrum policy'¹ and inevitably raising the question of what the objectives and instruments of policy should be.

We assume that static and dynamic productive and allocative efficiency are appropriate objectives, and that these apply in the production of both traded and non-traded private and public goods.²

Agreement about goals is fairly widespread. In contrast, there is, appropriately, a broad spectrum of opinions about instruments, varying from supporters of liberal market-based methods ('delegators') to proponents of 'command-and-control' administrative methods ('centralisers').

An evaluation of EU spectrum policy is powerfully affected by the lens through which the commentator is looking. Ours is a liberalising lens, but one which acknowledges the potential benefits which what we refer to as paternalistic liberalisation (sometimes known as 'nudging') can bring³. We also recognise that spectrum regulators do not have to make a 'once and for all, one size fits all' choice of allocation and assignment mode.

The paper is organised as follows: Section 2 outlines the EU institutions of spectrum regulation, together with proposed changes in the now stalled reform package. Section 3 looks at the scope for identifying frequencies which are available for flexible use within the EU. Section 4 considers some recent work on the scope for anti-competitive action in spectrum markets, while Section 5 examines EU action on spectrum policy, including recent draft proposals related to the digital dividend. Section 6 offers some conclusions.

¹ We owe this phrase (together with much else that is good about EU spectrum policy) to Ruprecht Niepold.

² We draw attention to the well known fundamental result that an outcome achieved by taxing or subsidising an input, such as spectrum, is always dominated, because it is productively inefficient, by an alternative one in which the output that process is subsidising. In other words, don't subsidise production of an output indirectly by giving away scarce spectrum away free; do it directly.

³ Richard Thaler and Cass Sunstein argue that "libertarian paternalists want to make it easy for people to go their own way; they do not want to burden those who want to exercise their freedom"; see RH Thaler and CR Sunstein, *Nudge: Improving decisions about health, wealth and happiness*, London, Penguin Books, 2009, p. 5.

2. Institutions and instruments of spectrum regulation in the EU

The European Union (EU) does not manage radio spectrum; instead the Member States supervise its management at the national level and in international coordination. However, the management of radio spectrum in EU Member States is influenced significantly and increasingly by European legislation which is aimed at facilitating harmonisation of regulation and promoting competition through the liberalization of markets. The key legislation is contained in a number of directives and decisions passed in 2002.

The Radio Spectrum Decision (RSD)¹ laid the foundation for a general EU radio spectrum policy and is binding on all Member States. The objective of the RSD is to ensure coordination of radio spectrum policy approaches by facilitating harmonized conditions for the availability and efficient use of radio spectrum.

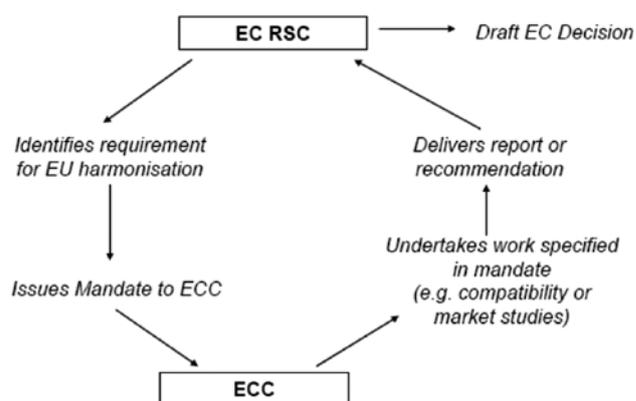
To achieve this aim, the RSD establishes procedures in respect of:

- a policy framework for the use of the radio spectrum, taking into account the economic, cultural, scientific and social aspects of Community policy, as well as considerations of security, public interest and freedom of expression with the aim of optimising the use of radio spectrum and of avoiding harmful interference;
- a methodology to ensure harmonized conditions for the availability and efficient use of radio spectrum;
- the provision of information concerning the allocation, availability and use of radio spectrum in the EU; and
- co-ordinating the interests of the European Community in international negotiations on the use of spectrum.

The RSD established the Radio Spectrum Committee (RSC) which is given appropriate technical implementation measures by the European Commission (EC) with a view to ensuring harmonized conditions for the availability and efficient use of radio spectrum, as well as the availability of information related to the use of radio spectrum. The limits of 'technical implementation measures' are unlikely now to be fully established before the new regulatory package is approved.

Since the introduction of the new EU regulatory framework a closer working relationship between the EC and Electronic Communications Committee (ECC) of CEPT (the European Conference of Posts and Telecommunications Administrations) has been established; also, there has been a move towards using Commission Decisions to support key harmonisation measures: typically, the RSC identifies a need for harmonization measures, instructs the ECC to undertake any necessary market or technical studies to inform the harmonisation process and then develops a draft EC Decision, reflecting the outcome of the ECC's deliberations. The process is illustrated in Figure 1 below.

Figure 1: Harmonisation process involving EC and ECC



Source: Study on legal, economic and technical aspects of 'collective use' of spectrum in the European Community, Mott MacDonald et Al., November 2006.

The main instrument for the harmonisation of frequency allocations in Europe are Decisions taken by the Electronic Radio-communications Committee (ERC) of CEPT. ERC Decisions often specify the service and the technical standards to be used. ERC Decisions are agreed by consensus and the intention to conform to a Decision is signalled by signing the Decision, an act which is strictly optional. However, if EU Member States do not support measures which the European Commission (EC) would like to see implemented, it is possible that the EC would seek to have the measures implemented through EC legislation.

The RSD encourages the EC to organize consultations to take account of the views of Member States and all other stakeholders. To facilitate more effective consultations, the Radio Spectrum Policy Group (RSPG) was established by separate decision⁵. The advisory RSPG is composed of one high-level governmental expert from each member state and a high-level expert from the European Commission. The RSPG offers opinions on spectrum management issues; it is encouraged to consult extensively and at an early stage with market participants, consumers and end-users.

Notably, in November 2008, the RSPG published an Opinion on Streamlining the regulatory environment for the use of spectrum,⁶ "to assist the Commission in identifying solutions to ensure consistency between various regulations affecting spectrum and to improve the cooperation between bodies involved in spectrum policies" (p. 1). In that Opinion, the RSPG argues that, due to the different roles and functions of the various entities involved, liberal approaches in the areas of R&TTE (radio and telecommunications technical equipment), ECN&S (electronic communications networks and services) as well as spectrum management, "will bring benefits to all stakeholders and to the public interest only if this

⁵ Commission Decision 2002/622/EC of 26 July 2002 establishing a Radio Spectrum Policy Group.

⁶ Document RSPG08-246 final. Note that, to improve regulation, a number of tasks in the area of spectrum management was envisaged for the EECMA (European Electronic Communications Market Authority), which was part of the package of proposals adopted in November 2007 for the review of the telecoms regulatory framework. In May 2009 the EP voted in favour of the establishment of BEREC (Body of European Regulators for Electronic Communications), to replace the loose cooperation between national regulators that exists today in the ERG (MEMO/09/219 of 9 May 2009 available at <http://europa.eu>).

complex structure (Commission, ETSI, CEPT) can work properly” (p. 2). Moreover, in identifying areas where the current regulatory mechanisms should be enhanced, the RSPG highlights the importance of maintaining confidence and ensuring clarity and certainty in spectrum management. In addition, the RSPG provides short and long term recommendations.

In the same vein, the package of measures currently under conciliation includes important measures concerning radio spectrum policy and, especially, the role of the European Parliament. A new multi-annual spectrum policy programme will now be presented by the Commission for a co-decision by the Council and Parliament. This gives the Parliament a greater role. The role of the RSPG is also increased: the programme will be developed in consultation with the RSPG, which in future can receive requests for an opinion from the Council and Parliament as well as the Commission. The multi-annual radio spectrum policy programme may become a crucial vehicle to achieve endorsement by the EP and the Council of the most strategic elements of future EU spectrum policy.⁷

3. Flexibility in spectrum use in the EU

As elsewhere, the EU discussion has focused to a high degree on (i) a market-based approach to spectrum management (with an emphasis on secondary trading) and (ii) increasing flexibility in use.

The RSPG launched a consultation on secondary trading of rights to use the spectrum in February 2004 following a request received from the EC in 2003 for an opinion on secondary trading. In November 2004, the RSPG published its Opinion⁸ and adopted a cautious stance with regard to spectrum trading considering it to be beneficial in certain parts of the spectrum, subject to the implementation of sufficient safeguards to ensure that potential benefits are not offset by adverse consequences; moreover, the RSPG stated that “European administrations should introduce secondary trading with due care” (p. 4). The RSPG favoured a phased approach to secondary trading of rights of use to the spectrum, leaving to individual countries the decision whether to introduce secondary trading and the timing of it. This took into account that some EU countries were introducing secondary trading (e.g. the UK), while other countries were more hesitant. The difference in experience with trading also led the RSPG to consider that European harmonisation of spectrum trading rules should not be pursued at that stage. Last, but not least, the RSPG was sceptical about the application of trading in bands catering for: government services (e.g. defence) and safety of life services (e.g., for civil aviation); terrestrial broadcasting services and broadcasting-satellite services, and scientific services (e.g. radio astronomy).

In parallel with the consultation exercise of the RSPG, in May 2004 the EC published a Study on conditions and options for introducing secondary trading of spectrum in the European

Community completed by consultants Analysys Consulting Ltd, DotEcon Ltd and Hogan and Hartson LLP.⁹ The study reached the following conclusion:

“quantitative and qualitative assessment of the costs and benefits to Member States indicates that net benefits are greatest if all Member States introduce trading and liberalisation in certain bands. Potential welfare gains are very large, amounting to billions of euros per annum across Europe. Much smaller gains would be realised if trading alone was introduced across Europe, whereas a general restriction on liberalisation would reduce welfare relative to the status quo” (ib., p. xi).

The EC highlighted that the study estimated that “the net gain resulting from the introduction of secondary trading combined with flexible usage rights would amount to €8-9 billion per annum”.¹⁰

The importance of flexibility in spectrum use was also considered in other studies. In August 2004, a consultancy report was submitted by the Dutch Presidency to the Council proposing to move to a new and flexible model of spectrum allocation:¹¹ the report argued that a breakthrough in the field of spectrum policy would entail a change of the traditional rigid model of spectrum allocation based on scarcity, to a new flexible model based on principles of European spectrum space, spectrum trading and shared use. In December 2004, the Council concluded that one relevant ICT policy issue was – and still is – “to continue assessing different spectrum management models with a view to more flexible and efficient use of spectrum at European and global level, taking into account the development of new and innovative technologies as well as the methodologies which make use of market mechanisms”.¹²

Further, the Commission invited the RSPG to prepare an Opinion on a co-ordinated EU spectrum policy approach for wireless communication radio access platforms, under the acronym WAPECS (Wireless Access Platforms, later changed to ‘policies’ for Electronic Communications Services).

In its Opinion of November 2005,¹³ the RSPG defined WAPECS as follows: “a framework for the provision of electronic communications services within a set of frequency bands to be identified and agreed between European Union Member States in which a range of electronic communications networks and electronic communications services may be offered on a technology and service neutral basis, provided that certain technical requirements to avoid interference are met, to ensure the effective and efficient use of the spectrum, and the authorization conditions do not distort competition” (ib., pp. 2-3).

⁷ See Transforming the digital dividend opportunity into social benefits and economic growth in Europe, Consultation document, EC, DGInfoSo&Media, 10 July 2009, p. 5.

⁸ RSPG, Opinion on Secondary trading of rights to use radio spectrum, RSPG04-54 Rev., 19 November 2004.

⁹ The study is available at http://europa.eu.int/information_society/policy/radio_spectrum/ref_info/studies/index_en.htm

¹⁰ Communication from the Commission to the Council, the European Parliament and the European Economic and Social Committee and the Committee of the Regions on a market-based approach to spectrum management in the European Union, COM(2005)400 final, 14 September 2005, p. 5.

¹¹ Rethinking the European ICT agenda: Ten ICT breakthroughs for reaching Lisbon goals, PricewaterhouseCoopers for the Ministry of Economic Affairs, The Netherlands, August 2004, available at http://ec.europa.eu/information_society/eeurope/i2010/docs/rethinking_the_european_ict_agenda.pdf.

¹² Council Resolution 10 December 2004, see 15472/04 (presse 345), p. 14

¹³ RSPG, Opinion on Wireless Access Policy for Electronic Communications Services (WAPECS): A more flexible spectrum management approach, RSPG05-102.

The objective is to ensure that spectrum is available for a wide variety of services and applications to comply with the overall policy goal of developing the EU internal market and European competitiveness. WAPECS aims at introducing more flexibility in the use of radio frequency spectrum, taking into account that a number of platforms and technologies may provide mobile, portable and fixed access for a wide range of ECS and converging applications (e.g., IP access, multimedia, multicasting, interactive broadcasting, datacasting), under one or more frequency allocations (mobile, broadcasting, fixed) deployed via terrestrial and/or satellite platforms.

In the same vein, in September 2005 the Commission published a Communication on a market-based approach to spectrum management in the European Union,¹⁴ which noted that a fragmented approach to spectrum reform would make it more difficult to achieve the Lisbon objectives. Accordingly it proposed the co-ordinated removal of restrictions on spectrum use in all Member States in order to promote an open and competitive digital economy. However, the traditional model was expected to continue to play a role where important public interests are at stake (e.g., defence and aviation, scientific research, earth observation satellites, etc.).

In practice it was suggested that substantial amounts of spectrum, including roughly one third of the spectrum below 3 GHz (the spectrum best suited for terrestrial communications), could possibly be made subject to tradable and flexible use by 2010. Clearly the Communication is a key document in which the Commission nailed its colours to the liberalization mast. If the plan were realized, it would represent a significant step towards the desired end state set out above, even though much non-telecommunication-related spectrum, which makes up much of the remaining two-thirds of spectrum below 3 GHz, would not be covered.

Although there is still a lot of work on flexible spectrum use to be done, an important example of flexibility can be found in the recent approval of the revised GSM Directive on the use of spectrum for mobile services. This area of spectrum reform has proven difficult and controversial; nevertheless, on 27 July 2009 the Council followed the EP in approving a proposal from the EC to update the GSM Directive of 1987, which reserved the use of part of the 900MHz spectrum band to GSM access technologies such as mobile phones. The benefits of this flexibility in the 900MHz were described as follows:

“The updated Directive now allows the 900 MHz frequency band to be used to provide faster, pan-European services such as mobile internet while ensuring

*the continuation of GSM services. This new flexibility will foster stronger competition on Europe’s telecoms market and contribute to a more rapid and more widespread roll-out of wireless broadband services, one of the drivers of economic recovery. Industry savings of up to € 1.6 billion are expected from the reform of the GSM Directive”.*¹⁵

The EC regards technology and service restrictions as increasingly incompatible with convergence, and anticipates a trading regime that embraces flexibility, i.e., the right of a spectrum holder to use it for any service subject to technical constraints.¹⁶ In other words, policy in the EU embraces the principle of technological neutrality and service neutrality.

Technological neutrality means that there should be a minimum of constraints applied while ensuring that interference is appropriately dealt with. However, in some cases the necessary interference management imposes constraints that in practice are more beneficial for one technology than for another.

Service neutrality means that the choice of service offered via spectrum usage rights is made by the rights holder. It is widely recognized that constraining the services for which the spectrum can be used is generally not justifiable from the standpoint of technical spectrum management. However, there are broad categories defined at the ITU level through the Radio Regulations, where rules on the avoidance of cross-border interference are imposed. According to the EC, “in the field of terrestrial electronic communications, these categorizations are rapidly becoming obsolete.”¹⁷

Lack of flexibility in spectrum management has led to a spectrum bottleneck¹⁸ for new radio technologies.¹⁹ Detailed ex ante administrative decisions and a requirement for prior regulatory approval often delay or even prevent the introduction of new products. To render spectrum distribution more flexible, the introduction of spectrum markets and licence-exempt use have been embraced by the EC.

The Commission’s Communication on the Review of the EU regulatory Framework for ECS²⁰ proposed (at 5.1) that:

“Based on common EU rules, greater flexibility in spectrum management could be introduced by strengthening the use of general authorizations whenever possible. When not possible, owners of spectrum usage rights should not be unduly constrained but subject to certain safeguards, have the freedom to provide any type of electronic communications service (‘service

¹⁴ COM(2005)400 final.

¹⁵ EU frees new spectrum for new and faster mobile services, IP/09/1192, Brussels, 27 July 2009.

¹⁶ Technical constraints deal largely with mitigating the effects of harmful interference. See, for instance, the Study on Radio Interference Regulatory Models in the European Community conducted by Eurostrategies-LS Telecom, 2007, available at http://ec.europa.eu/information_society/policy/comm/radio_spectrum/documents/studies/index_en.htm.

¹⁷ COM(2005) 400 final, p. 9.

¹⁸ A study by the ERG (European Regulators Group) published in September 2006 highlighted a few bottleneck/competition problems in the mobile communications sector, see Spectrum allocation and bottlenecks/competition problems, ERG(06) 45b.

¹⁹ Communication from the Commission to the Council and the European Parliament, A forward-looking radio spectrum policy for the European Union, second annual report, COM(2005) 411 final, 6 September 2005.

²⁰ Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on the review of the EU Regulatory Framework for electronic communications networks and services, SEC(2006) 816-817, 29 June 2006.

neutrality') using any technology or standard under common conditions ('technological neutrality')."

"Using criteria based on economic efficiency, selected bands agreed at EU level via a committee procedure would become available for use under general authorizations, or subject to secondary trading across the EU. Common authorization conditions for the use of the radio spectrum would also be enacted with this procedure in appropriate cases."

The Commission's proposals have brought to the front fundamental issues of spectrum management and the design of property rights. Within one given frequency, transaction costs would not preclude bargaining between an original licensee and potential secondary users. There has been also a concern that unlicensed entrants, lacking security of access, would not be in a position to make collateral investments, or to offer adequate assurances to their customers of continuity of supply and quality of service - alternatively, they might establish de facto some squatters' rights of a contestable nature, which would prevent the licensee from being able to exploit its asset to the full.

In response to the EC's communications, the European Parliament (EP) published a statement on radio spectrum policy where the principles of technological and service neutrality were reaffirmed. In its statement the EP "rejects a one-sided market model of spectrum management and urges the Commission to reform the system of spectrum management in such a way as to facilitate the coexistence of different types of licensing models, i.e. traditional administration, use without numerical restrictions and new, market-based approaches"; the EP also "considers that the administrative method of allocating spectrum rights could be supplemented by Member States opening up more frequencies to unlicensed, and therefore possibly shared use, and by allowing spectrum trading on condition that this opening up does not harm the continuity and quality of services concerned with public information and safety".²¹

This statement formed the background for a three-way debate between the Parliament, the Council and the Commission over the extension of flexibility. While the parties all agreed that spectrum was very important, they disagreed on the appropriate degree of flexibility. In the event, the outcome was favourable to the flexibility camp. The principle of neutrality, especially service neutrality, is strengthened and more widely accepted. The Commission's harmonisation powers are limited, but it has maintained additional powers to identify bands in which trading should be permitted in a co-ordinated way. It remains to be seen how these powers will be used.

4. Competition problems related to spectrum.

The development of the use of market methods, permitting change of use and secondary trading, to allocate and assign spectrum in place of more traditional administrative methods, has focussed attention on the risks of spectrum markets: one of the arguments against spectrum markets is that they open

the door to anti-competitive conduct - particularly the hoarding of spectrum as means of deterring entry or expansion by competitors.

Under an administrative spectrum management regime, unlike a market-based one, the structure of industry is determined to a large degree by the spectrum regulator via licensing. There are at most as many firms as the regulator issues licences to provide a particular service, although more can be added by subsequent licensing, as the history of GSM demonstrates. That number of competitors may be (further) limited by regulatory policies in favour of a very low - or almost zero - tolerance of interference, for example by leaving a large number of adjacent channels vacant to protect services from interference.

The traditional administrative regime has limited defences against hoarding, as the opportunity cost (the value of the next best alternative forgone as a result of an allocation decision) for holding unused spectrum carries little cost, as administrative charges tend to be low, at least compared with the opportunity cost of the spectrum. The practice of auditing spectrum use is a relatively recent one, which has not spread widely, so that information about the level of spectrum use is confined, at best, to a licensee which itself has little reason to inquire into use levels in non-congested frequencies; moreover, return of unused frequencies is very limited, although there are examples of it in the public sector.

Where commercial communications activities are concerned, strategic use of spectrum licences to hamper the development of competition or competitors may be in play. This might include denying rivals or new entrants access to spectrum or raising its cost to them. The licensees in many cases have control over when a network is shut down and hence over the spectrum it uses can be freed. For instance, if a licensee wants to delay the return of spectrum, it can slow down the process of migrating customers to an alternative network. In addition, especially where the anterior regulatory decision on entry is combined with a burden of proof on the entrant, incumbents have incentives to engage in procedural stratagems to delay competition.

In June 2009 the European Regulators Group and the Radio Spectrum Policy Group published the ERG-RSPG Report on radio spectrum competition issues²². The report focussed on the management of spectrum in order to avoid anti-competitive hoarding, considering the issue in the context of the wide existing range of spectrum management techniques used in the EU. Further joint work is envisaged on market definition, transparency, the risk that spectrum will be used to establish a dominant position in downstream markets and transitional issues. The report noted that demand was likely to exceed supply for spectrum in key bands in the near to medium term and that the best remedy against spectrum-related competition problems is to make more spectrum available and apply the least restrictive terms.

This conclusion reflects the fact that traditional systems of administrative management of spectrum which do not permit flexible

²¹ Excerpts from texts adopted by the European Parliament at the sitting of Wednesday 14 February 2007, P6_TA(2007)0041, European Parliament resolution towards a European policy on the radio spectrum (2006/2212(INI)).

²² ERG (09) 22; RSPG09-278 Rev 2.

spectrum use have the effect of limiting substitutability across frequencies and 'balkanise' spectrum markets. Eliminating such restrictions widens markets significantly; for example mobile voice and broadband communications services which many analyses suggest fall in the same downstream markets can be produced using frequencies lying between 400 and 3,500 MHz. It would be a daunting task for a single firm to corner such a large spectrum market.

However, the mobile communications sector is characterised by a small number of firms in many geographic markets - which may be declining as consolidation occurs. Typically such firms are well placed to win auctions that release spectrum for successive generations of services, as they already dispose of a customer base which can be upgraded. Unilateral or concerted behaviour by such firms may have the effect of excluding entry.

Faced with this possibility, ECS or spectrum regulators have a variety of tools at their disposal, including:²³

- the application of competition law alone: the conduct of a firm using spectrum as an input is subject to European competition law in the usual way (the acquisition of a spectrum licence - which is not an undertaking - is not subject to European merger regulations);
- sector-specific interventions to control secondary trades, which could be approved or disapproved by the spectrum regulator; here a *de minimis* rule could be introduced to avoid examination of insignificant trades, although the analysis of upstream and downstream markets would be quite time-consuming;
- 'use it or lose it' clauses (to combat hoarding) - a remedy, however, with a variety of problems: for instance, there may be good reasons, and not anti-competitive ones, to acquire spectrum ahead of use; also, where usage data are monitored, they often show low levels of utilisation;
- caps on spectrum holdings, that have been used or proposed in liberalizing countries such as the US and Canada; spectrum caps on the stock of spectrum an operator is permitted to hold can be 'hard' ones (imposing an absolute ban on an operator, preventing it from taking its spectrum holdings beyond a certain level), or 'soft' ones (if exceeding the quota simply triggers a licence condition, which might, for example, entitle the spectrum regulator to undertake an investigation); soft caps mitigate the potential to harm end users;
- caps on spectrum acquisition at primary issue, arguably an effective form of intervention in the competitive process, which can benefit end users by spectrum regulator's qualified power to influence downstream market structure; nevertheless, risks such as excessive 'entry assistance' or (countervailing) disadvantages such as lower auction revenues have to be considered.

As always with regulation of potentially competitive markets, the problem is that of finding a middle way between discouraging abuses and preventing successful competitors from increasing their market share. Our present view is that, given the regula-

tory curtailment of the size of the market for spectrum in most member states, there is likely in many cases to be an arguable case for imposing restrictions of spectrum licences purchased at auction.

5. Harmonisation in the EU

Traditionally harmonisation was the international expression of the command and control form of spectrum management; national administrations were subject to requirements from above: thus harmonisation has been related primarily to *de jure* spectrum harmonisation, i.e. to mandatory measures facilitating the coexistence of the different equipment or networks. However, harmonisation may also occur *de facto*, when, for instance, service providers and equipment manufacturers adopt similar usages in a particular frequency band.

Harmonisation can play a relevant role to ensure that spectrum is used as efficiently and effectively as possible; therefore, it can bring considerable economic benefits in some cases, depending on the balance between advantages and disadvantages: on the one hand, harmonisation restricts the ways in which individual frequencies can be used (and thereby excludes certain applications that might be economically attractive); on the other hand, harmonising pan-European usage makes it easier for services to be marketed and used throughout Europe; moreover, harmonisation may help benefit from economies of scale in production.

The proposals and actions in the area of spectrum flexibility, by contrast, can be construed as a permissive and delegated or 'meta' form of harmonisation: by the introduction of flexibility of spectrum use across the EU, firms (guided by economic incentives associated with different equipment costs at different frequencies) are empowered to achieve their own *de facto* harmonisation of frequency spectrum use.²⁴ In 2006, the ECC presented a report with a wide discussion of the various possible balances between harmonisation and flexibility, and the appropriate scope for regulation.²⁵ The ECC firstly defined harmonisation as "the process of defining measures at the European or international level to ensure that the utilisation of the spectrum will have sufficient commonalities"; secondly, argued that flexibility "can be understood as the ability of the spectrum regulatory framework to facilitate and adapt, in a timely manner, to user requirements and technological innovation by reducing constraints on the use of spectrum and barriers to access spectrum" (ib., p. 4). Thus flexibility in spectrum use is an important element of EU spectrum policy (as discussed above); however, old-fashioned harmonisation is not dead - even if the GSM Directive, its major success story, is moribund.

Table 1 shows a number of recent actions taken within the EU. As is evident, many concern "unlicensed" spectrum, whereas one exception concerns mobile satellite services (MSS) which will be discussed briefly below.

²³ This list is taken from Martin Cave, *Anti-competitive behaviour in spectrum markets*, June 2009, a paper prepared for the ERG-RSPG working group and available at www.erg.eu.

²⁴ The analogy with *de facto* standardisation of technologies is obvious.

²⁵ *Enhancing harmonisation and introducing flexibility in the spectrum regulatory framework*, ECC Report 80, Oulu, March 2006.

Table 1 : Recent actions taken within the EU

Area	Application	Assignment mode
Short range devices	Large variety of applications	Unlicensed
RFID	Object tagging	Unlicensed
SRR 24 GHz and 79 GHz	Road safety	Unlicensed
ITS	Road safety	Unlicensed
Ultra wide want (UWB)	High bit-rate communication; specific applications	Unlicensed
5GHz R-LAN	ECS	Unlicensed
Mobile communications on planes and vessels	ECS	Licensed, unlicensed [mutual recognition]
Mobile satellite services	ECS	Licensed

Source: ECC European Commission

Table 1 also reflects the usual fundamental distinction between licensed and unlicensed spectrum regimes. Recently, however, the ECC has reviewed the various terminologies that are commonly used to qualify the type of licensing regime applied in the regulation of spectrum use in Europe. The ECC report²⁶ shows that “unlicensed” (or “licence-exempt”) as well as “light licensing” have different interpretations in the practices of various European countries; moreover, the ECC review notes that effective regulatory “light-licensing” regimes may actually combine various regulatory features. Therefore the ECC has proposed reference terminologies in order to capture some fundamental differences between various regulatory options, as well as to mitigate growing disharmony and risk of mutual misunderstanding among European spectrum regulators (Table 2).

Table 2: Key characteristics of different licensing regimes

Individual authorisation (Individual rights of use)		General authorisation (No individual rights of use)	
Individual licence	Light-licensing	Licence-exempt	
Individual frequency planning / coordination Traditional procedure for issuing licences	Individual frequency planning / coordination Simplified procedure compared to traditional procedure for issuing licences With limitations in the number of users	No individual frequency planning / coordination Registration and/or notification No limitations in the number of users nor need for coordination	No individual frequency planning / coordination No registration nor notification

Source: ECC Report 132.

The case of MSS does illustrate the difficulties of undertaking a cost-benefit decision of harmonisation. Following discussion of the need for pan-European mobile television services, and recognising that a satellite component would both facilitate this and provide other services, attention fell on 2x30 MHz available in the 2 GHz band for mobile and mobile satellite services. A CEPT study suggested that that co-existence between terrestrial-only mobile services and mobile satellite services was not feasible. Priority was given to mobile satellite services because other bands were available for terrestrial-only mobile services. A February 2007 Decision allocated the spectrum for mobile satellite services.²⁷

A Parliament and Council co-decision established a single selection process at European level, and a comparative selection procedure was launched in 2008. In the event, only two applicants were found to be qualified, so the beauty contest envisaged did not take place. The selection procedure is, however, subject to legal challenge.

The incentives facing the parties in reaching the decision deserve some consideration. Suppose that one member state finds it in its own interest to make the allocation decision nationally. The value of the service to its citizens might then rise, at no extra cost to them, if it were harmonised. This would give it an incentive to overstate the benefits of harmonisation. The opposite incentive would apply to an administration preferring not to make a national allocation. Unfortunately, these effects will not cancel out. Ideally, it would be preferable to take the issue down to the users themselves, but, absent complex systems of side payments, they are subject to the same incentives to misreport. The situation is identical to the problem of eliciting truthful preferences for turning a frequency into a licence-exempt commons. And not surprisingly, most of the actions in Table 1 do concern licence-exempt spectrum.

The stakes are quite high, as the spectrum involved is valuable. But the stakes are clearly much greater for the decision over allocation of the digital dividend spectrum, associated with the switch-off of analogue TV transmission within the EU and the greater efficiency of spectrum use by digital means. In the July consultation document issued by the EC, it is stated that “the digital dividend has a strong European dimension as virtually all its potential uses are mass market consumer applications which will only become a reality if economies of scale and the other internal market benefits can be achieved” (p. 2).²⁸

Everyone agrees that the analogue switch-off is a once in a lifetime opportunity to gain access to large amounts of additional spectrum, even though it is qualified by a commitment to devoting a major part of it to digital terrestrial broadcasting, which is unlikely to be a desirable and efficient platform for broadcasting.

The Commission issued a Communication on the digital dividend in 2005 arguing for the released spectrum to be flexibly used.²⁹ This set a continuing tone in favour of flexible rather than prescriptive co-ordination, which is continued in the July 2009 con-

²⁶ Light licensing, licence-exempt and commons, ECC Report 132, Moscow, June 2009.

²⁷ Commission Decision 2007/98/EC of 17 February 2007 on the harmonised use of radio spectrum in the 2 GHz frequency bands for the implementation of systems providing mobile satellite services.

²⁸ Transforming the digital dividend opportunity into social benefits and economic growth in Europe, consultation document, EC, DGIInfoSoc & Media, 10 July 2009.

²⁹ Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on accelerating the transition from analogue to digital broadcasting, COM(2005) 204, 24 May 2005 Reaping the full benefits of the digital dividend in Europe: A common approach to the use of the spectrum released by the digital switchover, COM(2007) 700 final, 13 November 2007.

sultation document. What is proposed there is a flexible EU regime nudging Member States towards actions. The chief of these are: ensuring high quality standards for DTT receivers; this addresses a key issue in spectrum policy: how to get millions of households to purchase fractionally more expensive equipment which economises a spectrum use;³⁰ achieving further spectrum efficiency gains; adopting a common position on 'white spaces' (i.e. spectrum unused for broadcasting); dealing with secondary uses of the UHF spectrum, such as for wireless microphones; making the 800 MHz band (790-862MHz) available for low/medium power electronic communications networks, under harmonised technical conditions following the principle of technology and service neutrality.

In relation to the last measure, no final implementation would be specified in the technical harmonisation measure.³¹ However it is noted that a final or mandatory date might emerge in the context of the multi-annual spectrum policy programme, noted in Section 2 above.

Member States are also invited to commit to an analogue switch-off by 1 January 2012 and to refrain from any regulatory action regarding the use of the 800 MHz band that would contradict or complicate the application of the technical harmonisation measure being planned at EU level.

Perhaps inevitably, given the scale and sensitivity of the digital dividend issue, a classic prescriptive harmonisation measure was never feasible. Nonetheless, the proposed consultation reflects the effects of the new flexible approach and the use of softer instruments which we described in the Introduction as paternalistic liberalisation.³²

6. Conclusions

This account indicates that there has been very considerable change in EU spectrum policy in the last six years, with further

significant changes occurring in the past months. Over the longer period, the balance has shifted decisively in favour of more flexible methods of spectrum management.

Within the European institutions, responsibility for this improvement rests largely with the Commission. Since 2005, it has tirelessly promoted the cause of flexibility and neutrality, initially in the face of opposition from the Parliament, where the voices of broadcasters are particularly strong, and also of the Council. It seems to have played a weak hand (weak because spectrum remains fundamentally a national competence) consistently well.

It has also accepted different and less prescriptive forms of harmonisation. A tendency to over-react to an 'industrial panic' in favour of old-fashioned harmonisation, promoted by European equipment manufacturers, may still be discerned in some decisions, but the obstacles placed in the way of such policies, not least because of increasing competition among operators and equipment manufacturers, make a return to the old ways less likely.

Another important development is the recognition that spectrum management in the EU requires a policy, and in particular the involvement of Commission, Parliament and the Council in the preparation and approval of the inelegantly named 'multi-annual spectrum policy programme'.

In the long run, we might see something in spectrum management equivalent to the 1998 liberalisation package in telecoms services: namely the adoption of a prohibition on restrictions on spectrum use, subject to a dwindling number of exceptions. While the political will for such a measure is clearly not there now, the direction of travel is fairly well established.

³⁰ See M Cave and W Webb, 'Can market-based spectrum management methods deliver optimal receiver performance?', pp. 95-102, in *ICT Shaping the World*, Wiley, 2008.²⁵ Enhancing harmonisation and introducing flexibility in the spectrum regulatory framework, ECC Report 80, Oulu, March 2006.

³¹ This is in line with the position of the RSPG on the digital dividend (Document RSPG09-271 of 13 May 2009); for a discussion of regulatory/harmonisation steps beyond GE-06 Agreement in UHF/VHF bands and associated goals/advantages see RSPG's Opinion on EU spectrum policy implication of the digital dividend of 14 February 2007 (both documents are available at http://rspg.groups.eu.int/rspg_opinions/index_en.htm).

³² The effect of this was shown earlier in the decision by Ofcom, the UK spectrum regulator, to change its approach to the digital dividends to comply with the expected EU-wide proposals (see Ofcom's statement Digital dividend: clearing the 800MHz band, 30 June 2009).

The Recommended Regulation of Fixed and Mobile Termination Rates: A Critical Appraisal

Justus Haucap

1. Introduction

On 7 May 2009 the European Commission has issued a “recommendation on the regulatory treatment of fixed and mobile termination rates in the EU” (European Commission, 2009a). In this guidance, which followed an extensive consultation process that started in June 2008, the European Commission recommends that national regulatory authorities (NRAs) regulate mobile termination rates (MTRs) down to a forward looking long-run incremental cost (FL-LRIC) level, which in turn should be determined on the basis of a bottom-up approach, using analytical cost models.

The European Commission further recommends that only wholesale termination services should be defined as the relevant increment, for which the incremental cost should be calculated. As is outlined in the explanatory note on the recommendation “the relevant incremental cost (i.e., avoidable costs) of the wholesale call termination increment is the difference between the total long-run costs of an operator providing its full range of services and the total long-run costs of that operator not providing a wholesale call termination service to third parties” (European Commission, 2009b, p. 22).

In addition, the European Commission considers “that termination rates should normally be symmetric and that asymmetry requires an adequate justification.” Only under exceptional circumstances the European Commission regards asymmetric termination rates as justifiable by objective cost differences outside the control of the operators concerned (European Commission, 2009b, p. 9). Furthermore, the European Commission considers a timeframe of four years (from the date of entry of the operator concerned) appropriate “for phasing out asymmetries in mobile markets, based on the estimation that in the mobile market it can be expected to take three to four years to reach a market share of between 15 and 20%” ((European Commission, 2009b, p. 19). Otherwise, MTRs are expected to reflect the FL-LRIC of an absolutely (not relatively) efficient mobile network operator. The European Commission expects mobile termination rates now to converge to approximately 1.5 to 3.0 euro cents per minute by the end of 2012.

As Commissioner Viviane Reding has noted in the press release that accompanied the recommendation, one reason for issuing this guidance are the large gaps between fixed and mobile termination rates, which “can lead to serious distortions of competition between Member States and operators”. The main reason for the European Commission’s intervention, however, are the alleged “inconsistencies” (others would just say: differences) in the approaches to MTR regulation that different NRAs have been following. According to the European Commission these differences concern the form of price regulation, the treatment of asymmetries between mobile network operators and the implementation of glide paths. As has become common over the last years the European Commission views a lack of complete uniformity in regulatory methods as a per-se justification for further harmonisation. This philosophy also drives the recommendation at hand which constitutes – according to the ERG (2008, p. 1) – a “fundamental change of regulatory methodology”. While so far the Commission has restrained itself to ensure that NRAs decide on the basis of shared principles, it now aims at “uniformity in the fine detail of the regulatory approach” (ERG, 2008, p. 1).

My paper critically reflects on the European Commission’s recommendation and is organised as follows: In section 2 the paper generally discusses the general need to regulate mobile termination rates at all. As will be demonstrated, this is less straight-forward than sometimes argued, also taking into account the imperfections of regulation, but nevertheless likely to be justified when weighing all arguments. Section 3 then comments on the question of who should regulate MTRs if a need for regulatory intervention was established. This part of the contribution concentrates on the vertical division of labour (and competencies) between the European Commission or any other central, supra-national institution and NRAs or other more decentralised regulatory agencies. Put differently, the question arises whether – speaking from a strictly economic point of view and putting legal matters aside – a guidance of NRAs from the European Commission is necessary or desirable. As will be shown, there is hardly any convincing evidence which would demonstrate that the benefits of further harmonisation or centralisation outweigh the associated costs, at least for the

time being. Section 4 then concentrates on the material aspects of the recommendation, i.e., the question of how MTRs should be regulated if regulation is considered desirable. In this part the paper specifically discusses the recommended cost standard and the potential need for asymmetric regulation as well as the likely economic effects thereof. Section 5 finally summarises and concludes this contribution. Since the most drastic changes are envisaged for the regulation mobile termination rates, I will largely concentrate on MTRs in this contribution.

2. Is There a Need for Regulating MTRs?

There has been quite some debate in academic circles as well as among regulators and policy makers about the question whether there is a need to regulate mobile termination rates at all (see, e.g., Littlechild, 2006; Frontier Economics, 2008, Armstrong and Wright, 2009). The European Commission has long been arguing, along with a substantial number of NRAs and academic economists, that there is a separate demand for wholesale termination services for every single mobile network so that each single network constitutes a market in its own. This is the so-called “one network = one market”-philosophy. The simple idea behind this approach is that due to the need for interconnectivity it is not possible for any fixed or mobile network to offer fixed or mobile telecommunications services without being able to terminate calls on all other networks. Since networks cannot substitute termination services from one network against termination services from another mobile network, every (fixed and mobile) network is defined as a separate market for wholesale (fixed or mobile) termination services. Hence, network operators are automatically non-contestable monopolists (of their own network), which in turn establishes a justification for price regulation.

In the end, the need for regulation is essentially driven by the billing principle according to which the calling party pays (CPP). It is argued that mobile end-users do not sufficiently account for the benefit of being called in their choice of their mobile network so that the price that others pay for calling me does not enter my decision calculus when signing a mobile phone contract or purchasing prepaid cards. This in turn implies that termination rates are not directly relevant for customers' subscription decisions so that they only indirectly influence competition between mobile service providers. Hence, every network is defined as a separate market for wholesale termination services.

The case for regulation is strengthened, as the European Commission (2009c) correctly points out, by the fact that mobile termination is an essential input for both fixed-line operators as well as other mobile operators in order to compete. While termination on very small (entrant) mobile networks may not be necessary in order to provide competitive retail services, termination on incumbent networks is certainly a bottleneck that competitors need to access in order to provide services to consumers. High MTRs can have two effects here: Firstly, they can distort competition between fixed-line and mobile operators and services, and secondly, they can serve as a barrier to entry and

expansion for small (entrant) mobile operators, especially when combined with significant on-net/off-net call price differentials. While neither on-net/off-net call price differentials nor unregulated MTRs may be a barrier to entry when looked upon in isolation the combination of the two may serve as toxic cocktail for competitive entry (also see Hoernig, 2007; Calzada and Valletti, 2008; Stennek and Tangerås, 2008). This fact has only been highlighted by Commissioner Reding in her press release where it is explicitly outlined that “higher mobile termination rates make it harder for fixed and small mobile operators to compete with large mobile operators.”¹

While this view can be regarded as being widely accepted by the large majority of both academics² as well as regulators and policy makers, there are, nevertheless, also a number of arguments against MTR regulation: First, it is sometimes argued that consumers take the benefit of being called into account when making their subscription decision and choosing among networks. In that case, the termination fee becomes another element of the price vector that consumers consider for their decision so that firms' termination rates would be constrained by retail market competition over mobile customers (see, e.g., Kruse, 2003). Whether this view is correct, is in the end, of course, an empirical question. The research conducted so far, however, does not indicate that users take the price into account that others pay for calling them.

The second argument sometimes brought forward against MTR regulation is that common costs need to be allocated in an efficient way (according to so-called Ramsey principles). If the demand for mobile call termination is considered to be especially inelastic then a high mark-up may be justified for efficiency reasons (see, e.g., the debate in Competition Commission, 2003). However, as Höffler (2006) has argued in detail there is very little reason to suspect that an operator which offers telecommunications services in competitive retail markets on the one hand and termination services in monopolistic wholesale markets on the other hand will choose an efficient Ramsey-pricing structure, as the individual demand elasticity that the operator faces diverges from the market demand elasticity in competitive markets, but not in the monopolistic wholesale market. Even if intense retail market competition would lead mobile operators to pass through their termination revenues to consumers (i.e., if the so-called waterbed effect would be about 100%) the resulting price structure would not reflect Ramsey prices.

This argument directly leads us into the third line of reasoning against MTR regulation, according to which consumers are not necessarily harmed by high mobile termination rates if the waterbed effect is sufficiently strong (see, e.g., Frontier Economics, 2008). Indeed, there is some preliminary evidence for the existence of reasonably strong waterbed effects (Genakos and Valletti, 2008, Andersson and Hansen, 2008). Hence, mobile consumers are often not harmed (on average) through high MTRs, as the money that consumers lose on paying too much for off-net calls is returned to them through handset subsidies and lower prices for other services when operators compete for consumers.

¹ <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/710&format=HTML&aged=0&language=EN&guiLanguage=nl>

² See, e.g., Armstrong and Wright (2009) and much of the literature cited there.

Moreover, it is also sometimes brought forward (see, e.g., Frontier Economics, 2008) that high MTRs create incentives to also compete for marginal customers who mainly receive calls, thereby increasing overall penetration rates. However, this argument ignores a number of crucial insights. First of all, there remains a distortion between fixed-line and mobile network operators as fixed-line customers cross-subsidise mobile customers. This argument is certainly correct, at least from a theoretical point of view, and it has been stressed by many advocates of mobile termination regulation such as WIK–Consult (2008), who have estimated this cross-subsidisation at €10 billion in Germany for 1998–2006, and Bomsel et al. (2003) who have estimated this transfer at around €19 billion in the UK, Germany and France for the period 1998–2002. Hence, high fixed-to-mobile MTRs distort competition between fixed-line telephony and mobile telecommunications, possibly leading to an artificially high degree of fixed-mobile substitution. This factor is of growing importance the more the two market segments converge into one market where it becomes increasingly difficult to clearly distinguish between fixed-line and mobile services (as is the case with “homezone”-type offerings).

While opponents of MTR regulation occasionally argue that a significant portion of the reduction in MTRs has been and will be retained by fixed-line operators (the so-called retention effect, also discussed under the heading of pass-through), one has to be aware of measurement problems in this context. While case-based evidence suggests that FTM call charges may not have dropped by the same amount as MTRs which have fallen over time, one has to note that fixed-line operators often compete in bundles, especially for business consumers. Hence, reductions in MTRs may be reflected in bundle price reductions which are not as visible as the single FTM call price. Hence, the effective pass-through or retention rate is more difficult to measure than sometimes suggested and a less than 100% measurable pass-through rate on FTM call rates does not need to imply that the fixed-line operators’ cost savings due to reduced MTRs are not passed through to consumers. In the end, the degree to which cost savings due to lower MTRs can be retained by fixed-line operators will depend on the degree of competition in fixed-line telephone markets.³ If the pass-through is indeed incomplete the question should be rather how to increase competition in the fixed-line market than to abolish MTR regulation.

Probably the strongest argument against a cost-based regulation of MTRs results from a comparative institutional perspective, as outlined by Coase (1960), Demsetz (1968) and more recently Dixit (1996). The key question in any regulatory cost-benefit analysis is the choice of the appropriate counterfactual. One question not thoroughly analysed by the European Commission (2009c) is whether structural remedies would not be superior to ongoing price regulation, taking into account the direct cost of regulation. As Littlechild (2006) and Dewenter and Kruse (2006) have suggested moving to the receiving party pays (RPP)-principle should overcome the problem of regulation altogether. Furthermore, as Dewenter and Kruse (2006) show there is no significant difference in penetration rates between RPP-

and CPP-jurisdictions (as often stated) once one controls for the endogeneity of the regulatory decision to change from RPP to CPP. In a similar vein, the ERG (2008) suggested to consider the implementation of “bill and keep” as an alternative to price regulation. Finally, Kruse (2009) has proposed to introduce mobile termination carrier selection in order to resolve the termination monopoly problem. Unfortunately, these options have not been analysed by the European Commission (2009c).

Overall, the regulation of MTRs is still likely to be justified, especially as it (a) reduces a barrier to entry to the mobile retail market and it (b) increases competition between fixed-line and mobile operators. However, the necessity to regulate MTRs is also likely to differ between jurisdictions, as the benefits of MTR regulation crucially depend on (i) the degree of competition between mobile operators and (ii) the degree of competition in the fixed-line telecommunications market. The stronger the degree of competition in these markets is, the lower are the additional benefits from MTR regulation. For example, in a market where four network operators have been established for more than 10 years and where there is also vigorous competition from MVNOs (such as Germany) the benefits of MTR regulation are likely to be lower than in a market with only three operators that have more or less openly been engaged in collusive behaviour (such as Spain or France).

3. Who Should Regulate MTRs?

The European Commission’s guidance is in the form of a recommendation which means that NRAs are obliged to take the utmost account of it. While from a legal perspective there is probably little doubt that issuing a recommendation on the regulation of MTRs falls within the Commission’s competencies, from an economic perspective the question still arises whether the expected benefits of further harmonisation outweigh the associated costs.

When analysing the optimal division of executive competencies between NRAs and any supranational body from an economic perspective (see Haucap, 2009), a clear case for supranational regulation and/or harmonisation emerges if there are significant, or at least more than negligible, effects that regulation (or the lack thereof or deregulation) in one country has on the welfare of consumers and/or firms in other jurisdictions. The paradigmatic case in mobile telecommunications is obviously international roaming where regulation of international roaming rates tends to benefit foreign consumers at the expense of domestic operators and consumers.⁴ With respect to MTRs there is no evidence, let alone a compelling case, that high MTRs hurt foreign consumers or firms more than foreign consumers at the expense of domestic consumers or firms. To my knowledge, such an argument has also never been forwarded in the debate which circles around the effects on different domestic consumers and firms. The lack of evidence for a problem related to the Common Market to exist is worrisome, especially since the ERG (2008, p. 1) argued absolutely correctly that the Commission must ensure that its policy is “supported and justified by evidence-based reasoning”.

³ Also note that FTM call markets are usually not defined as a separate relevant product market, exactly because service providers often compete on bundles and the average consumer does not appear to choose separate providers for FTM calls on the one hand and other (national) calls on the other hand.

⁴ To which degree domestic firms and consumers benefit from high international roaming fees or bear the costs of their downward regulation depends on the size of the waterbed effect and pass-through rates.

While it is theoretically perceivable that domestic MTRs are set by NRAs in a strategic fashion in order to favour domestic operators, this reasoning lacks plausibility in practice. First of all, mobile telecommunications services (such as wholesale termination services, but also retail services) are not tradable across borders. Hence, one cannot directly benefit national champions through strategic trade or competition policy. This starkly contrasts with cars, airplanes, computer chips, call centre services and other tradable goods and services. Secondly, in almost all European countries the majority of mobile telecommunications providers is largely foreign-owned or has a majority of foreign shareholders. It appears unlikely from a political-economy perspective that policy makers and NRAs aim at hurting domestic consumers through artificially high MTRs in order to transfer rents to foreign owners. And thirdly, setting MTRs in a strategic fashion in order to benefit domestic firms would be a highly ineffective tool to benefit domestic operators when much more effective options are available such as strategically allocating and pricing spectrum, tax rebates, the design of favourable accounting rules (especially with respect to depreciation possibilities for mergers and acquisitions) and so on. While, for example, the UK and Germany tend to auction off spectrum rights, other jurisdictions use beauty contests that are much more prone to favouritism.

To sum up, it is simply unrealistic to assume that the regulation of MTRs would be used as a tool of strategic regulatory policy by NRAs. Hence, cross-border externalities provide no economic justification for harmonising MTR regulation at a European level.

Other arguments in favour of centralisation include economies of scale and transactions cost savings for operators and/or regulatory agencies alike when standardised procedures are being used. However, since regulation will still take place at the NRA level with separate regulatory procedures from jurisdiction to jurisdiction, these savings can be estimated to be relatively low. In fact, even though economies of scale and transactions cost savings have not been an argument for harmonisation in this specific context, the European Commission has generally argued that the costs of doing business will be reduced if the methodologies applied by different NRAs are more harmonised (or less “inconsistent” as the Commission says). However, it is just not plausible that the costs of doing business decrease if all NRAs use analytical cost models to determine mobile termination charges. For an access seeker it is largely irrelevant how the regulated termination rate has been determined as long as it is regulated so that access seekers do not have to engage in tedious bargaining processes. In fact, for mobile operators the cost of doing business would probably be lower if NRAs used much more simple methodologies than analytical cost models which have heavy informational requirements and demand substantial industry input from operators. For NRAs, the use of analytical cost models is also a rather costly exercise in itself so that it is more likely than not that the direct costs of regulation will increase, following the Commission’s recommendation.

While the benefits of increased harmonisation can be expected to be slim or even negligible, there are substantial costs asso-

ciated with the detailed harmonisation that the Commission demands. Indeed, there are three main disadvantages associated with a further harmonisation due to:

1. differences in consumer preferences and habits across jurisdictions (reflected in pricing schemes, penetration rates, take-up rates of new services, fixed-mobile substitution),
2. differences in natural and historical endowments (such as speed and history of infrastructure deployment, spectrum allocation, market structures),
3. reduced scope for regulatory learning processes

Differences in consumer preferences and habits imply that different regulatory approaches and policies may be appropriate for seemingly similar problems. While, for example, text messages may be popular in one country, they may be less so in other countries, not only because of different prices, but also for cultural reasons. Similarly, the demand for mobile telecommunications services may depend altogether on the cultural affinity to various services. Overall, it is unlikely that the shape and structure of mobile demand functions is uniform across countries. It is important to note this because it also affects various regulatory questions such as how common costs are best allocated across various services. A “one size fits all”-solution is unlikely to be efficient in such a case. Instead “horses for courses” is an English idiom that nicely catches what is needed: What is suitable in one situation may not be suitable in another, rather different situation. Centralised decisions and harmonised solutions are inefficient in such a case. Or, as the ERG (2006, p. 11) has put it, “(...) in fast moving and innovative environments, some diversity of approach can be positive, as it allows Member States to experiment or learn from each other.” While the European Commission usually uses terms like fragmentation and talks about inconsistencies, it should rather speak of pluralism and diversity in this context.

As the ERG (2006) and Haucap and Kühling (2006) have pointed out, some regulatory diversity is highly beneficial, as it allows NRAs to learn from each others’ experience. If all NRAs apply exactly the same methodology instead, no learning is possible, even setting aside that there are differences between markets and consumer behaviour between Member States (which cannot be harmonised by decree). In fact, any economist or bureaucrat claiming to know precisely what kind of MTR regulation is really welfare maximising in the long-run should be given a free copy of the collected works of Hayek, as ignoring the limits of our knowledge is a form of hubris that is dangerous for a free and open society. Harmonising regulation in a highly dynamic environment is akin to putting all eggs into one basket. As it is uncertain what regulation is welfare maximising in the long-run, some regulatory diversity is highly beneficial in order to allow for learning processes.

The observation that the European Commission aims here at expanding its competencies without any economic need or objective justification is consistent with the recent analysis of Bolkestein and Gerken (2007), according to which the Common Market is instrumentalised to pursue other objectives outside the Commission’s areas of competency. According to Bolkestein und Gerken (2007) some measures are portrayed as if they were safeguarding the

Common Market even though the Common Market is often not at all or at best marginally affected. That means, harmonisation is pursued under the disguise of protecting the Common Market against artificial distortions. Bolkestein and Gerken (2007) even speak of a „perversion of the Common Market mandate“. As Bolkestein and Gerken (2007) note the tragedy is „that, as a frustration relief, European politics is driving economic regulations forward in areas which do not need to be regulated on a European level while national egoisms prevent European policies where they are really necessary“ [own translation, J.H.].

In summary, the arguments in favour of an increased degree of centralisation are only applicable to a very limited extent with respect to MTR regulation. The issue of international roaming, which has been resolved by now – even though in a rather unsatisfactory, draconic fashion, lends support to some degree of centralisation, but the same does not hold for MTRs, as there are hardly any measurable cross-country externalities from divergent methods of regulation.

Overall, the entire process testifies to an unflappable confidence to neglect the bulk of expert advice and demand further harmonisation and centralisation without any serious cost-benefit analysis. In my view, the interventionist approach of the European Commission can pose a serious problem if there is too little honesty about the uncertainty surrounding the optimal details of regulation, especially in fast-moving, complex industries such as mobile telecommunications. In fact, this uncertainty is also reflected in the diversity of the submissions and the differences in the academic literature surrounding two-sided markets. To require uniformity in regulatory methods, is a rather “brave” move under these circumstances.

4. How Should MTRs be Regulated?

Leaving these first-principle arguments aside and accepting the reality as it is – how should MTRs be optimally regulated? Traditionally the regulation of access to fixed-line telecommunications networks (and other essential facilities) has been based on the philosophy that regulation should try to imitate as far as possible competition in areas where competition cannot emerge due to a combination of specific investments (resulting in sunk costs) and natural monopoly technologies. Regulation of bottleneck facilities in fixed-line telephony was needed in order to liberalise (and then deregulate) the potentially competitive segments of the industry. The philosophy behind regulating prices at TSLRIC level has initially been that TSLRIC-based prices are likely to emerge in a contestable market. The basic idea has been that regulation should aim at simulating competition. Prices should be regulated to a level that would emerge in a hypothetically competitive market. This may also be called the “as if”-approach: Prices should be set as if there was competition in the bottleneck segment of the market. That is why TSLRIC emerged as the regulatory cost standard.

This philosophy fundamentally differs, of course, from the approach forwarded in much of the regulatory economics literature (such as Laffont, Rey and Tirole, 1998a, b), which also drives much of the regulatory practice today. According to this

regulatory fine-tuning approach, prices should be regulated in a way so as to correct all sorts of externalities (from call externalities over network externalities to double mark-up problems, i.e. vertical externalities). That is, prices should deliberately be set in a way in which they would not emerge in a competitive market. This is the approach followed also by the European Commission (2009a) in its current recommendation.

The proposed LRIC standard is unlikely to emerge as a price in a competitive market, as in industries with large common costs usually all services are required to contribute to the coverage of common costs (apart from the hypothetical case where the demand elasticity for a service reaches infinity). This point has also been correctly raised in many submissions (see, e.g., Benzoni, 2008; Frontier Economics, 2008). Departing from a TSLRIC-standard may be justified on efficiency grounds, however, in order to correct for call externalities, network externalities and double mark-up problems, which are likely to exist in imperfectly competitive mobile retail markets. To require that prices be set at LRIC-levels may be viewed as a shortcut to correct for these externalities, albeit a highly imperfect one, especially since all calling externalities, network externalities, and double mark-up problems are likely to differ highly from jurisdiction to jurisdiction, i.e., from market to market. It should also be clearly pointed out that if the mobile termination market was competitive (for example because of the introduction of RPP, which leads consumers to consider termination rates in their subscription decision), prices would not converge to LRIC-levels, but to some TSLRIC- or LRAIC-level at best.

Regarding the appropriate increment the Commission recommends that wholesale termination services are taken as a very narrow increment and that all common costs associated with building, maintaining and running a mobile telecommunications network should not even partially be recovered through MTRs. The problem is, of course, that the possibility to terminate calls (and, therefore, to offer wholesale termination services) is inseparably connected with mobile access and origination services. It is not conceivable that anybody would build a telecommunications network and run a successful business without offering termination services. This approach again departs from the “as if”-philosophy, but follows the “fine tuning”-approach.

Given that the European Commission is following the regulatory fine-tuning strategy rather than the “as if there was competition”-philosophy, a stark inconsistency in the Commission’s approach has to be pointed out as well: As Benzoni (2008) and Peitz (2008), among others, have stressed in their submissions and as has been repeatedly demonstrated in the economics literature (see De Bijl and Peitz, 2002; Peitz, 2005a, b) asymmetric termination rates can foster market entry and, thereby, increase welfare. As even efficient entrants cannot achieve an efficient scale on day one of their operations due to various consumer switching costs (resulting, for example, from long contract lengths), on-net/off-net-price differentials and other early mover advantages that have been demonstrated (see, e.g., Bijwaard, Janssen and Maasland, 2008; Dewenter and Haucap, 2008), it can be beneficial to grant entrants a higher termination rate than incumbent operators. If the European Commission aims at setting welfare maximising MTRs, there is no reason not to follow this approach.

Put differently, the question of the appropriate efficiency standard arises. Is an absolute standard desirable or should the efficiency standard be relative, i.e., accounting for the operator's scale? One argument against a relative standard is obviously that it may adversely affect entrants' growth incentives. Therefore, many NRAs have adopted glide paths to correct for this. Similarly, the EU recommends phasing out asymmetric regulation over the next four years. From a conceptual point of view, however, it is not clear (a) why future entrants should not benefit from asymmetric termination rates and (b) why even today's entrants should not be granted a longer glide paths.

From a market-oriented perspective, the key problem with both asymmetric regulation and glide paths in general is that they attempt to fine-tune regulation in a situation with high uncertainty and highly asymmetric information. Both concepts are incompatible with what would happen in competitive markets. If the European Commission followed an "as if markets were competitive"-approach, abolishing asymmetric termination rates and glide paths altogether would be consistent. In competitive markets entrants can neither claim higher prices from consumers because they have not reached efficiency levels yet nor can anybody rely on any glide path. The removal of asymmetric termination rates is consistent with this philosophy, but adopting a LRIC-standard is not. In contrast, the adoption of a LRIC-standard may be in line with the regulatory fine-tuning philosophy, but then abolishing asymmetric termination rates is not.

In the end, the choice of appropriate approach boils down to the question whether one considers (a) a regulatory fine-tuning approach that aims at designing optimal market structures and determining optimal market results (so that welfare is maximised) more promising, taking into account the difficulties around information problems and uncertainty, or (b) the "as if markets were competitive"-philosophy which aims at setting prices which would result in competitive markets without further regulatory fine-tuning. One may keep in mind that competitive markets are rarely regulated in order to correct for externalities. Instead taxes and subsidies are often used to correct for externalities if a significant market failure can be demonstrated. Also note that structural remedies such as RPP would be more in line with the market-oriented philosophy as the resulting prices would be, or course, market prices without correction terms for externalities.

5. Summary and Conclusion

This contribution has critically evaluated the European Commission's recommendation on the regulation of fixed and mobile termination rates. In our analysis, we have concentrated on the analysis of mobile termination rates. Here, we have focused on three related questions, namely

- whether MTRs need to be regulated at all,
- who should regulate MTRs, given that a case for regulation was established,
- how MTRs should be regulated.

As was argued above, there is a reasonably strong case for the regulation of MTRs, especially in order to remove distortions in

competition between (a) fixed-line and mobile telephony and (b) incumbent mobile operators and entrants. However, structural remedies such as a movement to RPP or the introduction of bill and keep-arrangements may be even superior to price regulation, given that structural remedies allow for market-based solutions, make regulation largely redundant and are in line with the initial "as if markets were competitive"-philosophy.

We have also argued that the case for further harmonising MTR regulation in the EU, as recommended by the Commission, is weak. There is no empirical support that further harmonisation brings any benefits. Imposing uniformity on how NRAs calculate and allocate costs is preventing any regulatory learning. The decision whether to use FDC or TSLRIC, historical or forward-looking costs, bottom-up or top-down cost models or benchmarking should be left to NRAs. There is absolutely no need for harmonisation of these details.

On the question of how MTRs ought to be regulated we pointed out that there are two competing regulatory philosophies: On the one hand, there is the "fine-tuning"-philosophy according to which prices should be regulated so as to induce efficient market outcomes by correcting for all sorts of externalities and by deliberately setting prices that would not emerge in competitive markets. The LRIC-standard follows this approach, as do asymmetric termination rates and glide paths.

In contrast under a "as if markets were competitive"-philosophy the relevant question is what kind of prices would emerge in competitive markets. These are likely to be symmetric TSLRIC-prices, based on the cost of the most efficient operator and without any glide path. If markets were (hypothetically) competitive firms could not enter with higher prices than incumbents nor could firms ask for a glide path in order to adapt to entry or increased competition. However, they would most likely charge TSLRIC- or LRAIC-based prices and not LRIC-based prices. In my view, the latter philosophy is more promising, but regulatory competition and learning should be allowed to test this proposition.

The European Commission, in contrast, is following neither philosophy, but mixes both approaches so that no clear policy is emerging. Hence, the Commission's recommendation is rather inconsistent in itself. Since regulatory pluralism is sought to be prevented by all means, learning about the different approaches is not likely to be possible in the future.

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The regulation of next generation access networks and the draft Commission Recommendation

Brian Williamson

Summary

The draft European Commission recommendation of 12 June 2009 on regulated access to next generation access (NGA) focuses on fixed access. This paper comments on the recommendation and considers the wider context in terms of market developments, namely the development of internet based applications and content delivery and the growth of wireless broadband, devices and applications.

The objective of the recommendation is to clarify the regulatory approach to NGA and to avoid “inappropriate divergence of regulatory approaches.” The development of a framework for regulation of NGA ahead of market analysis and assessment of significant market power (SMP) is welcome, since it provides potential investors with greater clarity ahead of investment. However, it is important that ex ante guidance is not overly prescriptive given the uncertainty surrounding the market for NGA and the need to allow future market and regulatory innovation.

The market context is changing – driven by the internet and internet based applications and content delivery. This is disrupting existing value chains and opening up new forms of competition and market entry. Existing modes of competition in telecommunications, which have taken time to establish and heavily influence regulatory thinking, may therefore be less relevant in future. In particular, access to networks and network unbundling may be relatively less important in support of competition and innovation in future – provided consumers have access to applications and content provided over the internet.

A further market development is the emergence of wireless data services, devices and applications. Wireless may be a strong competitor to copper based DSL access in future, particularly once UHF spectrum – which offers wide channels to support bandwidth and lower frequencies which improve rural and indoor coverage – is reallocated to mobile to support LTE. Fixed and wireless will also be complements with fibre increasingly

required to support higher traffic levels at base stations and WiFi access points. These developments have implications for the extent of competition in geographic sub-markets, the economics of co-investment and for the sustainability of existing obligations relating to copper networks. Fixed and wireless NGA should be considered together.

The development of protocols for interconnection of optical networks and new bitstream remedies is recommended. This is welcome as “active remedies” may play a greater role in future given the economics of NGA investment and competition. Active remedies may also support interoperability of service provision across multiple access networks nationally and across Europe as a whole.

The draft recommends a default regulatory position of cost reflective access to passive infrastructure where feasible, complemented by active bitstream access if infrastructure access on an unbundled basis is not provided. The emphasis on cost reflectivity in relation to both active and passive remedies may undermine prospects for efficient and timely investment in NGA since the value, rather than cost alone, of alternative investment options must be reflected in investment and pricing decisions to incentivise efficient investment.

The draft recommends that cost orientation might not be required in defined circumstances where particular regulatory approaches (functional separation), business models (FTTH co-investment by competitors in the downstream market) or technologies (FTTH with multiple fibre) are adopted. This represents a departure from an approach where regulation is more neutral regarding investment choices and market structure and is focussed on circumstances where SMP applies. There are three risks with this approach:

- First, it may provide insufficient protection for consumers in the transition to NGA where access is a bottleneck and no price controls apply.

- Second, it may unduly favour specific technologies, business models or approaches to regulation given the wide gap between the default regulatory position and the alternative applied in defined circumstances.

- Third, it may limit the scope for other forms of business and regulatory innovation which may prove desirable. For example, the development of long-term contracts and/or approaches in which consumer choice over the mode of access (wireless or fixed, as is as is proposed in Finland) and capability of access products consumers desire plays a greater role in determining outcomes.

A regulatory framework which offered more flexibility in terms of the default regulatory option and a less prescriptive approach to alternatives might be preferable. One approach, which may complement a relaxation of ex ante price controls to support efficient investment whilst offering a degree of consumer protection, is anchor product regulation.

Under anchor product regulation consumers would be assured of continued access to broadband services over NGA that correspond to those over legacy copper networks via emulation products (or via continuation of copper based access if legacy and NGA networks overlap). Anchor product regulation would serve two purposes:

- First, it would provide an assurance that consumers who do not want advanced services will not be made worse off by investment via the offer of more advanced and higher priced services and the withdrawal of legacy services.
- Second, it would provide a restraint on pricing of more advanced services (in addition to any competitive pressures) which is less binding than cost based regulation, thereby supporting efficient investment.

The draft also recommends a notice period of around 5 years for removal of legacy points of interconnection. This proposal appears to reflect the interests of existing competitors rather than consumers per se. A comprehensive framework for the timely phase-out of copper is required to facilitate efficient NGA investment. Specifically, the draft does not address the set of issues related to re-specification of universality for voice services on technology neutral terms. This is required to allow copper switch-off and promote efficient and timely investment in fixed and mobile NGA.

Draft Commission Recommendation

On 12 June 2009 the Commission published a draft Recommendation on regulated access to next generation access networks (NGA).¹ The draft focuses on fixed NGA.

Proposed regulatory approach

The draft proposes, in relation to undertakings with significant market power, that:

- Access to civil engineering infrastructure (ducts, poles etc) should be provided on cost oriented and in accord with the principles of equivalence. The price of access should not be a geographical average in the presence of substantial cost differences between areas.

- Effective physical access remedies might render imposition of an obligation of wholesale broadband access unnecessary. In particular where access to the unbundled fibre loop is available, particularly on a point-to-point basis.

- New access remedies in terms of interfaces for interconnection of optical networks and bitstream remedies may be required and NRAs should co-operate with each other, international standards bodies and industry stakeholders to develop common standards.

- Wholesale bitstream access prices should be cost oriented with different prices for different bitstream products to the extent that such price differences can be justified by the underlying costs of service provision; except where

- There is a proven track record of functional separation that has resulted in fully equivalent access to NGA and where there is a sufficient competitive constraint on the operator's downstream arm.

- Cost oriented access to the unbundled fibre loop should be provided in the case of co-investment into FTTH; but with no requirement for cost orientation where:

- The SMP operator has jointly with at least one other provider of electronic communications services competing on the downstream market deployed an FTTH network; and

- The co-investors deploy multiple fibre lines; and

- The co-investment project is not exclusive (timely notice should be given to potentially interested parties who could participate on the same terms and conditions); and

- All co-investors enjoy equivalent access to the jointly deployed infrastructure.

- Decommissioning of existing points of interconnection in relation to copper access should be subject to a transitional period, in general 5 years.

Context

The Commission draft:

- Assumes that:

- Cost orientation is consistent with efficient investment (paragraph 13).

- Networks based on multiple fibre lines can be deployed at marginally higher cost than single fibre networks (paragraph 19).

¹ http://ec.europa.eu/information_society/policy/ecomm/doc/library/public_consult/nga_2/090611_nga_recommendation_spc.pdf

- Does not mention or discuss:

- The internet and, in particular, access to internet based applications and the possible implications for competition and regulation.

- Next generation wireless access and, in particular, its role as a potential substitute and/or complement to next generation fixed access and the possible implications for regulation.

- Existing platform specific entitlements or obligations, such as the allocation of UHF spectrum for terrestrial broadcasting and the USO for voice and terrestrial broadcasting coverage obligations, and their possible implications for a transition to next generation networks.

Market context

The drafts omission of any discussion of the internet and next generation wireless is striking, as developments in both areas seem likely to play a key role in the evolution of network access, competition and service provision in future.

The internet

The internet is the key enabler of demand for next generation broadband – it is the killer app. It is also an open platform for the development of new services including applications and content delivery. The internet has allowed some services to become global rather than local, and content and applications are starting to be delivered direct to end users.

This trend is facilitating entry into the communications and content markets by businesses from the global internet market. Even though some applications will be free to end users, and most will not be offered by vertically integrated service providers, they will nevertheless increase end user willingness to pay for next generation fixed and wireless access.

The internet is disrupting existing vertical value chains and is facilitating network independent competition. As Ofcom noted on 31 July 2009:²

“In the extreme, the competition model in telecoms sector may begin to resemble that found on the Internet more closely. This envisages network operators focussing on the provision of generic conveyance services, whilst a multiplicity of independent service providers develop and deliver rich applications which run over these generic conveyance networks.”

The emphasis in the draft on protecting legacy access models and competitors may therefore act against consumers’ interests – to the extent that it slows the development of next generation networks and services.

Next generation wireless

Long term evolution (LTE) offers a substantial peak and average speed improvement and much lower latency than current 3G technology. Verizon anticipate that in practice LTE will deliver an average performance of 5 to 12 Mbps.³ LTE also offers lower latency and a five-fold reduction in the cost per MB carried relative to 3G. The European Commission has also given priority to the earliest possible reallocation of spectrum for wireless broadband.⁴

LTE might therefore be expected to compete with copper based DSL. LTE will also compete with fibre for those customers who have more modest internet use in terms of peak speed and monthly data requirements. However, fibre is also complementary to LTE as it can accommodate the higher traffic levels to base stations. As William Webb (2007) put it:

“The extent to which fibre cables are brought within 100-300 metres of people’s homes will determine the viability of massive upgrade of wider area mobile radio data speeds.”⁵

In the US, where analogue TV was switched off on 12 June 2009 and 700 MHz spectrum has been awarded for mobile broadband and public safety, the deployment of LTE networks has begun. Verizon’s business intentions therefore provide an indication of the possible future impact of LTE in Europe. Verizon plan to offer service to 100 million customers by the end of 2010.

At an investor conference in May 2009, Verizon set out their view in relation to substitution and complementarity of LTE, copper and fibre as follows (from transcript of analyst question and answer session):⁶

“...the fact that we have 5 to 12 Mb speeds on average to the customer suggests that we’re going to be able to supplant a good deal of fixed services as well as we deploy LTE just simply as a result of the speed and the improved latency that you see.”

“I think you need to look at the future as being fiber fed to virtually any cell site.”

“What in fact I’m saying is that there is opportunity throughout the country where we have LTE for a customer to decide that this is exactly what they need for Internet connectivity and to buy a package and use it in a fixed service in their home.”

“With regards to other flavors of DSL, I’m not convinced that they’re economically viable for the long-term. There’s a lot of complexity to them. And they are also copper-based and I’m not sure that I want to spend significant amounts of incremental do-

² Ofcom. July 2009. Next generation network: responding to recent developments to protect consumers, promote effective competition and secure efficient investment. <http://www.ofcom.org.uk/consult/condocs/ngndevelopments/>

³ The RBC Capital Markets’ 2009 Technology, Media & Communications Conference. http://investor.verizon.com/news/20090609/20090609_transcript.pdf

⁴ http://ec.europa.eu/information_society/policy/ecomm/radio_spectrum/topics/reorg/pubcons_digdiv_200907/index_en.htm

⁵ William Webb. 2007. “Wireless communications: the future.” John Wiley. Page 209.

⁶ The RBC Capital Markets’ 2009 Technology, Media & Communications Conference. http://investor.verizon.com/news/20090609/20090609_transcript.pdf

llars upon further investment in copper plane given the promise that both FiOS or fiber, if you will, and wireless.”

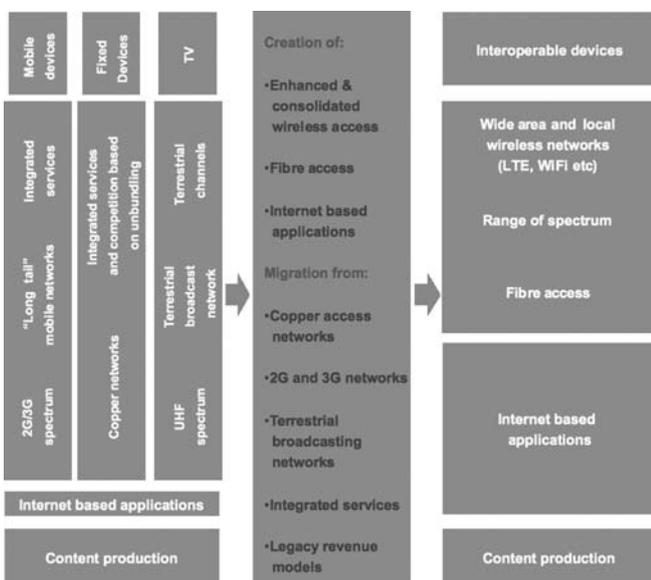
Next generation wireless will be both a substitute and complement to fixed access, and a joined up view of the potential and regulatory implications of fixed and mobile next generation access is required. There are a number of potential elements to this, in particular:

- Wireless may play a greater role in terms of competition and levels of competition may differ more by location in future.
- Fixed and mobile NGA will to some extent be complements and this may be relevant to co-investment or other long term relationships.
- A focus on “middle mile” fibre – as in Finland – may be appropriate with competition for last mile access.
- Existing obligations specific to copper access may prove unsustainable if LTE undermines copper based business models.

Value chain transformation and regulatory implications

Figure 1 summarises the transformation of networks and services that we envisage occurring in the medium term.

Figure 1: Potential transformation of value chains



Note: radio and satellite TV, which should survive the transition in some form, are not shown.⁷

Figure 1 illustrates an evolution of convergence from existing players entering each others markets and offering bundles (LHS) to an outcome where (RHS):

- Applications, services and content delivered via the internet replace existing integrated platform specific service models. Access platforms may consolidate with fibre and wireless replacing copper based DSL and fibre, cable and satellite progressively replacing terrestrial broadcasting and a possible consolidation of wireless radio networks.
- Bundling of services by service providers may give way to device based integration of applications by consumers. Personal devices and their associated software will play a central role.

These changes require a transformation of telecommunications and broadcasting networks and services subject to sector specific regulation. The economics of innovation in computing and internet markets may now be more relevant than conventional regulatory economic thinking.⁸ They also require a transformation of existing regulation.

The shift that is occurring will undermine not only legacy business models, but also current ways of thinking about policy and regulation. A long history of legacy technology, market structures and institutions have led to habitual modes of thought which are an impediment to the next phase of ICT driven productivity growth. To make progress we must escape from the following modes of thought:

- An approach to regulation which does not provide incentives for efficient investment. The pre-existence of legacy access infrastructure has conditioned an approach which does not provide appropriate incentives for the large and uncertain investment transition associated with next generation broadband.
- A view that mandated access to infrastructure, particularly via so called “passive remedies” involving access to network elements or “dark fibre”, is required to support competition. The existence of vertically integrated single service networks has conditioned this view.
- An approach to universality in telecommunications and broadcasting markets based on cross subsidy and implicit transfers. A lack of competition in telecommunications and broadcasting markets supported this approach historically.

Policy issues that need to be addressed

The internet driven evolution of networks, applications and competition requires a reappraisal of policy in relation to spectrum, platforms specific obligations and legacy platform switch off and current approaches to mandated access. NGA fixed should not

⁷ The reason that satellite TV is expected to survive whilst terrestrial broadcasting is not is that the UHF spectrum utilised for terrestrial broadcasting has a higher opportunity cost given its value for mobile broadband, and satellite has much greater capacity to accommodate high definition TV channels. FM radio also utilises spectrum that has limited alternative use value and might prove a complement to internet based services and applications.

⁸ Greenstein. August 2007. “Innovative conduct in U.S. computing and internet markets.”

<http://www.kellogg.northwestern.edu/faculty/greenstein/images/htm/Research/WP/InnoEconHandbook-Greenstein-final.pdf>

Joseph Farrell & Philip J. Weiser. Fall 2003. “Modularity, vertical integration, and open access policies: towards a convergence of antitrust and regulation in the internet age.” Harvard Journal of Law & Technology, Volume 17 (1). Page 86. <http://jolt.law.harvard.edu/articles/pdf/v17/17HarvJLTech085.pdf>

be considered in isolation from these policy issues, and the current model on which competition in telecommunications has developed should be reappraised. Figure 2 sets out a high level map of the key issues involved.

Figure 2: Complementary spectrum, broadcasting and telecoms policy reform

Spectrum rights	Platform neutrality	Legacy "switch off"	Mandated access (with bottlenecks)
Liberalisation and clear rights	Platform neutral public service broadcasting delivery policy	Process for terrestrial broadcast phase-down	Equivalence and open access to the internet
Spectrum trading and/or pricing	Platform neutral telecoms USO	Process for copper and 2G/3G switch off	Value based regulation via anchor products
"Rent" created by spectrum liberalisation could assist transformation			
Process of engagement and commitment required involving industry, government and regulator/s			

The issues set out in Figure 2 are now considered and related to the draft Recommendation.

Spectrum rights and mobile broadband

The policy prescription here is simple in principle, namely to create the framework within which spectrum can be reallocated in a timely manner as convergence proceeds based on the value of competing uses of spectrum. However, in relation to terrestrial broadcasting, this is a radical proposition since existing rights are currently non-tradable and may be reserved for terrestrial broadcasting as part of the public service broadcasting policy package.

The European Commission has given priority to the earliest possible reallocation of spectrum for wireless broadband.⁹ Further, a number of national regulators are advancing plans for UHF spectrum reallocation, for example, proposals by the German Federal Network Agency in relation to allocation of 790 MHz to 862 MHz.¹⁰ UHF spectrum will support LTE via wide channels which offer efficiency and speed, and improved rural an in-building coverage.

An integrated view of fixed and mobile broadband raises other policy questions. In particular, the impact on competition by geographic location, whether fibre close enough to the home (rather than FTTH) would facilitate "last mile" competition between fixed and wireless and the impact of LTE on copper network viability.

In Finland it is proposed to extend fibre to within 2 km of virtually all households by 2015 with central funding up to 67% of the cost (state 33%, regions 27%, EU 7%). Customers would be expected to pay for their own connection, fixed or wireless, though tax credits will be provided.¹¹ In the near term 1 Mbps average down load speeds are anticipated by 2010 utilising wireless OFDM at 450 MHz.

An integrated view of fixed and mobile evolution might also contemplate co-investment by fixed and mobile operators in NGA fixed. The draft proposals focus on co-investment in relation to operators "competing on the downstream market" – a position which may narrow the focus to fixed operators given the reluctance to date of NRAs to consider mobile a downstream competitor to fixed.

Platform neutrality and legacy network switch-off

Current requirements in relation to competitor access and voice universality are typically specified in technology specific terms. If this situation persists it will be a barrier to NGA investment since potential cost savings from copper network switch off would be unavailable. Continued imposition of obligations in relation to legacy platforms might also ultimately undermine the viability of incumbent operators.¹²

Voice universality requirements in relation to fixed need to be made technology neutral or dropped, and the requirement to maintain copper loops and legacy points of interconnection also need to be phased out.¹³ In Finland, policy makers have recognised the need to plan for copper network switch-off with proposals to re-specify voice universality in terms of mobile and for allowing fixed switch off subject to one year's notice.¹⁴

The proposal in the draft recommendation for a notice period of around 5 years may harm prospects for NGA investment via the ongoing cost implications and seems more focussed on the interests of existing local loop unbundlers than consumers. With NGA competition may be based on bitstream network access and access to applications over the internet.

In relation to broadcasting, requirements for near universal access are currently not specified on a platform neutral basis. This may inhibit a shift from terrestrial broadcasting to cable, satellite and broadband distribution, thereby limiting a potential source of demand for next generation fixed access and delaying additional reallocation of UHF spectrum for next generation wireless. There is a precedent for a platform neutral approach to broadcasting from the requirement, consistent with state aid

⁹ http://ec.europa.eu/information_society/policy/ecomm/radio_spectrum/topics/reorg/pubcons_digdiv_200907/index_en.htm

¹⁰ http://www.bundesnetzagentur.de/enid/90037614635b404e171fd106db9012ae,0/Frequency_Assignment/Proceedings_for_the_award_of_mobile_spectrum_3fs.html#eckpunkte

¹¹ Ministry of Transport and Communications Finland.
<http://www.lvm.fi/web/en/pressreleases/view/660335>
<http://www.lvm.fi/web/en/pressreleases/view/518973>
<http://www.lvm.fi/web/en/publication/view/278249>

¹² The Economist. 15 August. America loses its landlines. http://www.economist.com/displayStory.cfm?story_id=14214847

¹³ In particular, where FTTH investment occurs the network would no longer provide power to support telephony service in the event of a power outage at the customer premise.

¹⁴ The Ministry of Transport and Communications. 2008. "A phone for everyone – from fixed to mobile services." <http://www.lvm.fi/fileservers/a%20phone%20for%20everyone%20-%20from%20fixed%20to%20mobile%20services.pdf>

rules that financial support for digital switchover be provided on a platform neutral basis.

Mandated access

The proposed default position in terms of mandated access in relation to undertakings with significant market power focuses on cost reflectivity. In addition, a number of specific options which would permit a more relaxed regulatory approach are proposed in the draft recommendation. It is argued below and in Appendix A that the proposals do not provide sufficient flexibility to support efficient and timely investment in NGA. They are based on an outdated view of competition and may, in relation to some of the proposals, offer insufficient protection for consumers.

Active bitstream access

The steer towards development of protocols and interfaces for interconnection of optimal networks and new bitstream remedies is welcome, as so called active remedies may play a greater role in future given the economics of NGA investment and competition in an environment. Active remedies are also needed to supported interoperability of service provision across multiple access networks nationally and across Europe.

Price flexibility and efficient and timely investment

Cost reflectivity will not deliver efficient and timely investment since the value of alternative investment options to end users will not be properly reflected in investment decisions, and price differentiation based on value is required to support timely investment. Appendix A sets out the reasoning behind this conclusion, and puts forward an alternative approach – anchor product regulation.

Anchor product regulation involves a commitment that existing service levels – perhaps the average levels - will continue to be available at existing prices in the transition to NGA. In other words anchor products are a virtual proxy for continued provision of copper based DSL. Anchor products would facilitate removal of copper and would act as a discipline on pricing of more advanced services offered over NGA.

Discrimination in a multiservice platform environment

The presumption that service providers have an incentive to discriminate against third party providers rests on experience and analysis of vertically integrated single service networks rather than on theoretically unambiguous results.¹⁵

The growing diversity of applications, from voice historically to a multiplicity of internet-based applications today (across all

of which the platform provider cannot hope to be competent), will tend to diminish or eliminate the incentive for a vertically integrated provider to discriminate against third party applications providers. Many web services are now open to third party innovation, and platforms such as the iPhone allow third party applications – an approach which has proved profitable.

Co-investment

The draft proposes that an SMP operator who has jointly invested to deploy an FTTH (and not FTTC) network with at least one other provider of electronic communications services competing on the downstream market might be exempt from price regulation.

The focus in the draft in terms of the rationale for this approach is on risk sharing – yet the risk of insufficient demand and willingness to pay remains and capital markets are generally thought to offer a mechanism for diversification of risk. Further, the proposals favour initial investors over entrants and may not provide sufficient protection for customers if the co-investors had SMP and no price restraint was in place.

Nevertheless there may be sound reasons for considering co-investment if it lowers the costs of NGA and if it helps overcome any problems in terms of strategic complementarity,¹⁶ for example, between fixed and wireless NGA rollout. Anchor product regulation might provide consumer protection alongside a co-investment model. Further the approach adopted in Finland of focussing aid for fibre investment in the “middle mile” and facilitating last mile fixed-wireless competition is an alternative approach to addressing strategic complementarity.

Long-term contracts

A further option is long term contracts with customers. This approach is applied in relation to broadcast transmission services in the UK and natural gas pipelines in the US. Neither approach relies exclusively on contracts. In the UK there is a cost reflective reference offer available to broadcasters alongside the option of adjudication.¹⁷ In the US there is a regulatory backdrop to long term contracts and capacity trading for natural gas pipelines in the US.¹⁸ Nevertheless, long term contracts have some attractive features and serve to illustrate that there may be alternative options to those currently envisaged and sufficient regulatory flexibility should be maintained to allow their consideration.

Prescriptive versus “neutral” approaches

The draft proposals offer some flexibility in terms of regulatory approach, but only in very prescribed circumstances where particular regulatory approaches (functional separation), business models (FTTH co-investment) or technologies (FTTH with mul-

¹⁵ David Mandy. 2000. “Killing the golden goose that may have laid the golden egg: only the data knows whether sabotage pays.” *The Journal of Regulatory Economics*, 17:2.

¹⁶ Strategic complementarity occurs when investment by one organisation increases the incremental payoff to investment by others. This means that profit maximising behaviour by independent firms will not result in the best outcome. Hence a co-ordinated strategy is required to reach the best outcome.

John Roberts. 2004. *The modern firm*. Oxford University Press.

¹⁷ <http://adjudicator-bts.org.uk/index.htm>

¹⁸ Jeff Makhholm. June 2007. “Seeking competition and supply security in natural gas: the US experience and European challenge.” http://www.nera.com/Publication.asp?p_ID=3198

multiple fibre) are adopted. There are two risks with this approach. First, that it unduly favours the approaches identified as preferred approaches. Second, that it does not leave space for future innovation in terms of business and regulatory approaches.

An approach which offered more flexibility in terms of the default regulatory option and a more nuanced and less prescriptive approach to alternatives might be preferable.

The need for value reflective pricing

Efficient and timely investment

The decision over what investment is the right one and when to make it is fundamentally a judgment. Analysis can help inform the decision, but there is no objective method for making the right investment decision, establishing appropriate ownership and contractual boundaries for the business, and establishing the right products and prices over time. In this environment, there is considerable risk in governments or regulators attempting to second guess entrepreneurial decisions.

The problem is compounded by the fact that investment decisions, demand, pricing and the cost of capital are all endogenous i.e. they depend on one another. It is not possible to fix one without impacting on the others, and questions such as “what is the right risk adjusted cost of capital?” does not have an answer independent of investment choices, pricing and demand.

Intuitively, the reason that conventional cost based regulation and cost reflective pricing will not deliver good outcomes is that we are seeking to maximise value, and value depends on benefits as well as costs. A narrow focus on cost is very unlikely to maximise value since the least cost option – or the option a regulator facing very different incentives to an investor would prefer – is unlikely to be the most valued option. Incentives for investors to weigh upside and downside risk therefore need to be preserved and a cost based approach to regulation, irrespective of allowance for risk, cannot be expected to deliver efficient and timely investment.

Given information asymmetries between end users, managers, owners and regulators efficiency is promoted by allowing parties to keep some surplus (known as “information rents”) in return for the revelation of efficient behaviour.¹⁹ Such rents differ from pure monopoly rents since they promote rather than harm economic efficiency by aligning different parties interests – in this case the interest in efficient and timely investment.

If there were only one investment option under consideration, the problem of incentivising efficient investment is in principle, but not in practice, trivial. One would simply set a price that allows an expected return just sufficient to fund the investment.

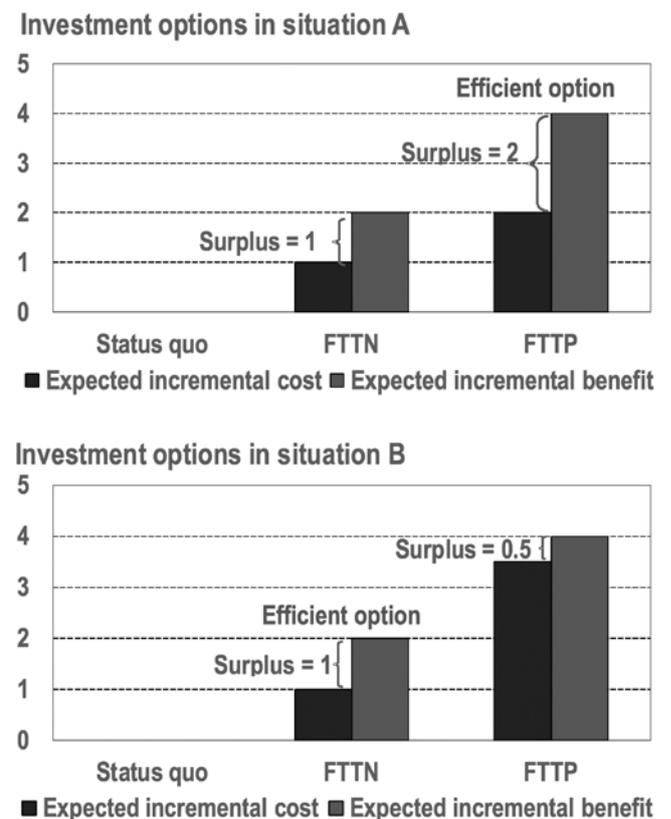
However, as Box A.1 seeks to illustrate, the problem is deeper than choosing the correct return to allow, since in practice there are always multiple investment options (for example, involving

different technologies and/or timing), and the question is not whether to invest or not, but when and how to invest. A binding regulated price or price cap, or the expectation of one, is likely to distort investment choices when there is a portfolio of options.

The problem of incentivising investment which maximises value

Figure A-1 sets out an investment decision problem involving the status quo i.e. zero incremental cost and benefit, and FTTC and FTTH investment options which involve incremental costs and benefits which depend on circumstances (for example, timing or location represented by situations A and B). It is assumed that FTTH is both more expensive and more valuable than FTTC, and that the optimal value maximising investment depends on the circumstances.

Figure A.1: Efficient next generation broadband investment choices



In terms of value (incremental benefit less incremental cost), Option 3 is preferred in situation A (a surplus of 2) and Option 2 is preferred in situation B (a surplus of 1). Under the regulatory approaches considered above – utility style and LRIC – inefficiency could arise as follows. Under utility style regulation, if the return on capital is too low, Option 1 (no investment) would be chosen in both situations, whilst if the return on capital were too high, Option 3 would be chosen in both situations, and this would involve inefficient “gold plating” in situation B. Under LRIC with returns capped, the investor would prefer Option 2 in both situations if the price cap were in the range 1 to 3. If the price

¹⁹ Laffont and Tirole. 2000. “Competition in telecommunications.” MIT Press.

cap exceeds 3, the investor can generate a greater surplus by making the efficient investments in both situations.

If the information required to assess efficient investment in each location were common knowledge, the regulatory problem would be trivial - the regulator could simply offer returns conditional on making the efficient investment in each location. In practice, a judgement is required over which investment to make in each location given uncertainty over the value (and therefore customer willingness to pay) for alternatives. In these circumstances, it is essential that investors face incentives to make the right decision ex ante, in other words, to bear some of the potential risk and reward and to be able to earn information rents.

The conclusion from this analysis is that it is not in general possible to decentralise the investment decision with an arms' length regulated price or pricing approach and achieve efficient value maximising investment. Sufficient price flexibility is required to allow returns to reflect value. In today's environment, where the underlying infrastructure is in the ground, this is less of a concern. In the transition to, and ongoing transformation of next generation access, price flexibility is essential for efficient investment.

Efficient pricing over time

The previous section concluded that regulating overall returns via comprehensive price controls or price caps could distort investment choices since the value of alternative prospective investment options is unlikely to impact much if at all on investment decisions if anticipated regulated prices are "cost based". In this section we turn to the question of how to achieve efficient pricing in support of timely and efficient investment, in particular the dynamic structure of prices including price differentiation over time.

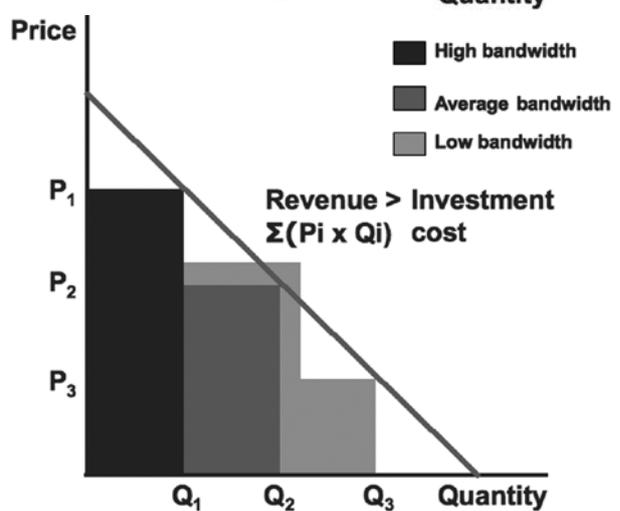
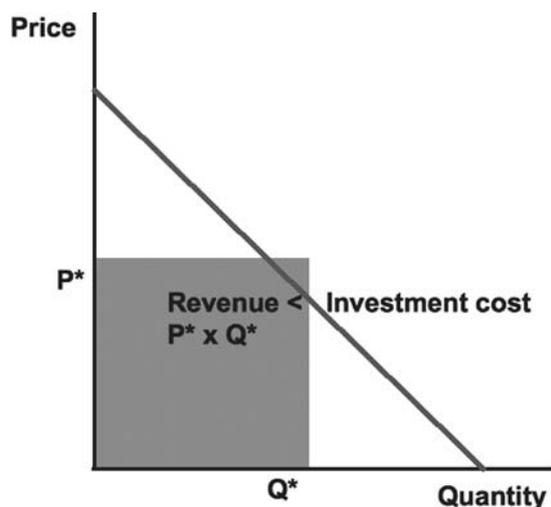
With next generation access a greater proportion of costs will be fixed up-front capital costs which are common across services since a next generation access is a multi-service platform. There will therefore be no sound cost oriented basis for allocating overall access costs across services. Further, there are sound grounds for differentiating prices for different service levels on the basis of demand.

Since demand for different services and different access service attributes can be expected to change over time – potentially in unpredictable ways - as next generation access and the ecosystem of applications it supports matures, there is a need for price flexibility and differentiation across periods in time. In other words, experimentation in products and pricing is needed to work out what customers want and how much they will pay for it. For example, less might be charged for the access bandwidth required for a voice call versus a HD video call, and the premium on high bandwidth might be expected to grow over time as voice only service revenues are eroded by mobile and demand for services such as two way HD video calling and collaboration

grows. Dynamic value - rather than cost reflective - pricing is an efficient means of promoting investment.

In particular, a single cost reflective price may simply raise insufficient revenue to support timely investment, even where overall willingness to pay exceeds investment costs. Valletti (2005) analyses an example of pricing according to differences in demand and incentives to invest in R&D, and shows that ex ante incentives to invest increase with price differentiation.²⁰ However, it is important to note that literature on the optimality (or not) of price differentiation does not consider the dynamic question when investment choices are involved. The case for price flexibility to allow price differentiation and dynamic pricing can however be illustrated via a simple specific example.

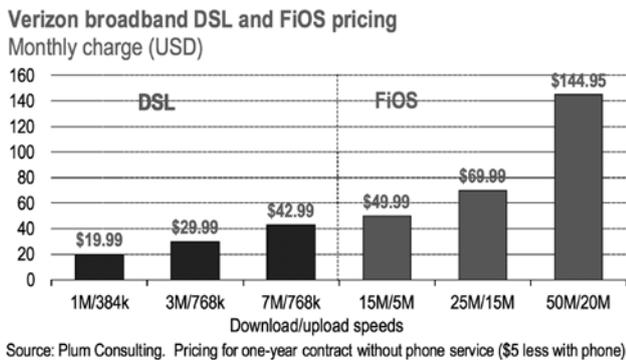
Figure A-3 illustrates how revenue with a single price may be insufficient to support investment even though overall willingness to pay is sufficient. A single tariff yields, at most, the revenue represented by the square $P^* \times Q^*$ which is less than the investment cost shown by the larger square. Figure A-4 illustrates how price differentiation could enable investment to proceed since the overall surplus captured via differentiated pricing is sufficient to support investment.



¹⁹ Tommaso M. Valletti. September 2006. "Differential pricing, parallel trade, and the incentive to invest." Journal of International Economics. Volume 70, Issue 1. Pages 314-32. We note that this analysis "...assumed linear demand curves and that all markets are served under both differential and uniform pricing. This has assumed away the potential market-expanding effects of differential pricing by opening up new markets." In relation to NGA we are of course also concerned also with the opening up of new markets, a prospect that is made more likely if price discrimination is allowed.

Over time the slope of the demand curve (the red diagonal line) illustrated in Figure A-3 and Figure A-4 will change with demand for high bandwidth services growing, and demand for low bandwidth services, particularly the bandwidth required to support voice potentially declining as mobile substitutes for fixed voice. The optimal degree of price differentiation can therefore be expected to change over time, and given the uncertainty over demand for bandwidth now and in the future efficient pricing requires a difficult judgement to be made. Given the uncertainty involved, there is also a need for sufficient pricing flexibility to allow for learning and correction.

The evidence from early deployments of next generation networks shows the importance in practice of product and price experimentation to take-up. Figure A-5 illustrates price differentiation by bandwidth based on the pricing plans offered by Verizon for their “FiOS” FTTH service (alongside a comparison with published price plans for DSL).



Higher prices are charged for higher bandwidth. Further, the differences in prices by bandwidth are not related to differences in access costs which are identical (though higher costs would be incurred in the core network if higher bandwidth plans were associated with higher traffic levels).

A final question is where price flexibility and differentiation is required if separate wholesale and retail prices are available (the Verizon pricing shown is for retail pricing). The answer is that differentiation must be possible at the wholesale level – otherwise downstream service providers will not be able to sustain differentiation on the basis of access attributes such as bandwidth due to arbitrage i.e. a higher price for higher bandwidth would be arbitrated away by others purchasing an average price wholesale access product.²¹ Price flexibility is required at the wholesale and retail level to support price differentiation, dynamic pricing and efficient and timely investment.

Anchor product regulation

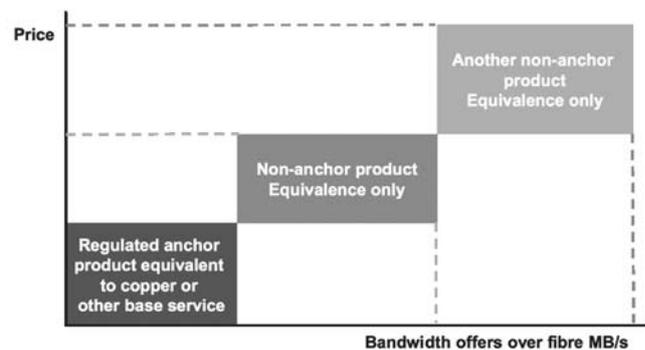
Pricing flexibility, both across services (say bandwidth) and over time, is required to align investor incentives with end user pre-

ferences. Prices should reflect value, rather than costs, to foster efficient and timely investment.

However, alongside greater pricing freedom protection against abuse of dominance is required where platform competition is judged insufficient. Essentially there are two ways of delivering this. Either move to “cost plus” utility style regulation, potentially with some form of risk sharing, or move to an approach where overall returns are not regulated but there is still some restraint on monopoly abuse (LRIC based approaches with periodic review are arguably too open to discretion to provide a credible basis for investment).

An intermediate option that has been suggested is anchor product regulation,²² whereby some basic voice and broadband products are subject to price commitments, whilst other higher bandwidth services are offered on non-discriminatory terms but not subject to ex ante price regulation. Such an approach would also improve the prospects for platform competition and/or contractual relationships that reduce the risk of future pressure for more extensive regulation. Figure A.5 illustrates the concept.

Figure A-6: Tiers of wholesale access pricing



In essence:

- Roughly the same price and service levels available over copper are emulated over next generation broadband i.e. end users are not made worse off by the transition.
- Access prices are not derived on a cost oriented basis since those wholesale prices that are controlled are set on the basis of retail prices on the previous platform on a retail minus basis.
- Non-anchor product prices would be set by the platform owner.

The approach would leave a substantial measure of risk and reward with the investor, whilst ensuring that customers who do not value the new services next generation broadband enables can continue to purchase products over next generation broadband that match the performance legacy products.

²¹ Lewin, Williamson and Cave. 2009. Regulating next-generation fixed access to telecommunications services. Info, Volume 11(4).

²² Brian Williamson. July 2007. “New regulatory approaches to next generation access.” http://www.broadbanduk.org/component/option,com_docman/task,doc_view/gid,944/

An economist's look at the draft Community Guidelines for the application of State aid rules in relation to rapid deployment of broadband networks

Jorge Padilla

Abstract. The European Commission recently issued draft guidelines on the application of EU State aid rules to State measures aimed at promoting the rapid deployment of broadband networks in certain regions. Their objective is

to clarify the rules under which the European Commission will analyze whether the State measures that support the development of broadband networks, and in particular new generation access (NGA) networks, are compatible with EC State aid rules. This paper assesses the guidelines from an economic perspective. In particular, we focus on the potential impact of the proposed approach on the incentives to invest in traditional and NGA networks.

INTRODUCTION

The European Commission launched on 19 May 2009 a public consultation on its draft Community Guidelines for the application of State aid rules in relation to rapid deployment of broadband networks (the "Guidelines").¹ These Guidelines are intended to clarify the conditions under which State measures aimed at supporting the rolling out of high-speed broadband networks or to encourage and support the rapid and timely roll out of NGA networks are consistent with the State aid rules of the Treaty.

The release of the Guidelines couldn't be timelier. The deployment of broadband networks is viewed as an investment of strategic importance in Europe. It is a fundamental part of the Commission's European Economic Recovery Program to drive the recovery of European economies from the crisis,² and, many

Member States have already announced plans to support and accelerate investments in high-speed broadband infrastructure in rural and underserved areas, as well as investments in the deployment of NGA networks.³

In the words of Commissioner Kroes, the Guidelines seek:

"to provide a clear and predictable framework for the application of EU State aid rules in this strategic sector. This is all the more important in the present economic circumstances as investments in this important infrastructure may both help economic recovery in the short term and allow long term benefits for European competitiveness."⁴

Ultimately, the Guidelines should establish a clear and predictable framework for the application of State aid rules in relation to broadband networks so as to facilitate State interventions that foster the rollout of broadband networks without distorting competition where competition is possible; or in other words, without crowding out private investment in this sector.⁵

In this paper we review the Commission's draft Guidelines and discuss their potential implications for the incentives to invest in both traditional and NGA networks. In particular, we investigate whether application of the proposed framework could reduce or enhance private incentives to invest in the rollout of these networks or lead to wasteful duplications of infrastructure.

While we regard the publication of draft Guidelines as a very positive development, our analysis identifies some areas of con-

¹ Community Guidelines for the Application of State Aid rules in relation to rapid deployment of broadband networks, available at http://ec.europa.eu/comm/competition/state_aid/reform/reform.cfm

² Communication from the Commission to the European Council, COM(2008) 800.

³ Guidelines, paragraph 3.

⁴ "State Aid: The Commission consults on draft guidelines for broadband networks," press release IP/09/813, 19 May 2009.

⁵ Guidelines, paragraph 5.

cern. For example, we find that the approach adopted in the Guidelines in connection with the so-called grey areas, i.e., areas with only one competitor, may deter existing operators from investing in upgrading their networks. This approach may also deter, or at least increase the cost of, entry of private infrastructure operators in areas which currently have no infrastructure. And it may also cause the exit of private infrastructure providers in favor of subsidized entrants.

There is also a risk that private investors hold back from improving their traditional broadband networks because of the increased risk of competition from State funded NGA networks. Furthermore, the requirement that new entrants benefiting from State support must grant wholesale access to third parties for extended periods of time is likely to have adverse effects on the incentives to invest of the infrastructure incumbent as well as those of the subsidized entrant and incumbent access-based competitors. This may cause a loss of consumer welfare.

The remainder of this paper is structured as follows. In Section 2 we provide a succinct overview of the Commission's draft Guidelines. In Section 3 we discuss some possible implications of the Guideline's approach to State aid in so-called grey areas. In Section 4 we consider the various implications, positive and negative, of the requirement to provide wholesale access to subsidised infrastructures. Section 5 concludes.

2. THE COMMISSION'S DRAFT GUIDELINES: AN OVERVIEW

The Guidelines are structured in two parts. In the first part, they describe the Commission's proposed approach to the assessment of State measures designed to support the development of traditional broadband networks. In the second part, they discuss the specific issues that arise in the appraisal of State measure that support the rapid roll out of NGA networks.

A. State aid for traditional broadband projects

The Guidelines describe the Commission's policy and practice in relation to public support for what we may termed as "traditional" broadband networks.⁶ The discussion is based on the experience of more than forty Decisions related to State interventions seeking to support the deployment of traditional broadband networks.⁷

In these cases, the Commission has adopted a favorable view towards State measures supporting the deployment of broadband networks in rural and remote areas, where market operators do not have sufficient incentives to provide adequate broadband services. Conversely, it has been critical with State measures in areas where broadband infrastructure was in place and competition took place.⁸

As is well known, the first step in the assessment of State aid, and this also applies

to broadband, is to consider whether a measure qualifies as State Aid according to Article 87(1) of the Treaty. This requires considering whether (1) the measure is granted out of State resources, (2) it confers an economic advantage to any undertaking, (3) it threatens to distort competition, and (4) it is likely to impact intra- Community trade.⁹

In order to assess whether a given measure constitutes State aid, the Guidelines distinguish between cases where State support takes the form of an equity participation or a capital injection and cases where the Member State considers that the provision of broadband as a public service or a "service of general economic interest" (SGEI). In the first type of cases, the Commission has applied and will continue to do so the "market economic investor principle" to analyze whether the State support constitutes State aid.¹⁰ That is, the Commission will compare the terms under which the State will be remunerated with those that a private investor would have demanded.

The Commission applies the so-called "Altmark conditions"¹¹ to the second category

of cases. The first Altmark condition seeks to ensure that Member States do not abuse their considerable autonomy in determining whether or not a particular service is to be classified as being of general economic interest. The undertaking in question has to be given an explicit mandate to operate the SGEI and this has to be clearly defined. The second condition states that the compensation plan must be established ex ante so as to ensure that the recipient undertaking will not be overcompensated. The third condition prevents (intended or actual) compensation from exceeding the costs incurred in discharging a public service obligation, including the cost of capital (accounted for as a "reasonable profit"). The fourth condition essentially requires that the entrusted undertaking be efficient and stipulates two alternative methods for testing whether this is the case: (a) the public service obligation is awarded on the basis of a public procurement procedure which would select the undertaking capable of offering those services at the "least cost" to the community, or (b) where no such public procurement mechanism is employed, the level of compensation should be based on the costs that would be incurred by a "typical well-run company".

If a measure is found to constitute State aid, the Commission then assesses its compatibility with State aid rules according with Article 87(3)(c) of the Treaty, which states that aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest, may be considered to be compatible with the common market. This assessment involves balancing the positive impact of the

⁶ In other words, broadband networks involving old generation technologies.

⁷ http://ec.europa.eu/competition/sectors/telecommunications/broadband_decisions.pdf.

⁸ Guidelines, paragraph 9.

⁹ Guidelines, paragraphs 10-16.

¹⁰ Guidelines, paragraphs 17-19.

¹¹ Guidelines, paragraphs 20-24. For a discussion of the Altmark criteria, see Urs Haegler and Jorge Padilla, "Compensation for SGEI: An Economists' Look at the Altmark Test and the Community Framework," in J. Derenne and M. Merola (eds.), *Economic Analysis of State Aid Rules- Contributions and Limits*, Lexion, 2007.

State measure against its potential distortions on trade and competition. The Commission will assess the following questions, (a) does the proposed aid address a market failure or other objective of common interest?, (b) is the aid well designed to deliver the objective of common interest?, and (c) are the distortions of competition and the effect on trade limited, so that the overall balance is positive?

The Guidelines address each of these questions and provide a framework of analysis for each of them. The Guidelines deal first with the “objective of the measure”. The Guidelines draw a distinction between white, grey and black geographic areas consistent with the Commission’s approach in recent broadband cases:¹²

- White areas are rural and scarcely populated zones in which no broadband infrastructure exists or is likely to be developed. State support in these areas is generally regarded as compatible with the provisions of the EC Treaty provided that certain proportionality conditions are respected.¹³
- Black areas are characterized by the availability of broadband services over at least two competing infrastructures. The Commission is skeptical about the need for public intervention in these areas and considers that it may crowd out private investment and distort competition. Hence, unless a clearly demonstrated market failure is identified, State measures for the deployment of broadband infrastructure in these areas will be viewed negatively.¹⁴
- Finally, the Commission defines grey areas as those where broadband services are offered to users, but only one network operator is present. Public funding of broadband networks in these areas requires a more detailed assessment in order to determine whether (1) affordable and adequate services are already offered to all potential users and (2) the same goals can be reached by means of less distortive measures.¹⁵

The Guidelines also clarify under which conditions the Commission will consider that the aid is “well designed” to deliver the objective of common interest and the distortions of competition and the effect on trade are limited, so that the overall balance is positive.¹⁶ The Guidelines list a series of necessary conditions in this regard, the lack of any of them likely would lead to a negative conclusion in relation to the compatibility of the aid with the common market.¹⁷ Among other conditions,

the Guidelines demand that the subsidized project is awarded via an open tender procedure, the State measure does not fa-

vor one technology over another, that the winner is selected on the basis of the best economic offer, etc. Most importantly, in our opinion, the Guidelines demand that the selected bidder is mandated to provide wholesale access to the subsidized infrastructure at a price that is deemed reasonable according to a benchmarking pricing exercise.¹⁸

B. State aid for NGA networks

The second part of the Guidelines is concerned with the public financing of very high speed NGA networks; that is, networks capable of delivering broadband access services with enhanced characteristics relative to traditional broadband networks.¹⁹

In essence, the Commission’s proposed approach to the assessment of State measures aimed at facilitating and encouraging the rapid deployment of these networks is identical to the approach adopted in the case of traditional broadband networks. However, the Guidelines clarify what are white, grey and black areas for NGA networks:

- An area where an NGA network does not currently exist and where privately funded NGA networks are not likely to be operational in a period of 5 years is regarded as a white NGA area. Public authorities are entitled to intervene in these areas, although if this corresponds to a traditionally grey area, the Member State must demonstrate that the broadband services provided by incumbents do not satisfy the needs of the users in that area, and that there are no less distortive means to accomplish the same goals.²⁰
- The Guidelines refer to black NGA areas, where more than one NGA network exists or are being deployed in the next five years. The Commission considers that there is no need for State intervention in these areas.²¹
- Grey NGA areas are those in which only one network is in place or is being deployed and there are no plans for the rollout of another one in the coming five years. Public investment in these areas deserves careful analysis. In particular, the compatibility of the State intervention requires that the Member State demonstrates that the existing (or planned) NGA network is not enough to satisfy the needs of users in that area, and that there are not less distortive means to reach the same goals.²²

The Guidelines also contain a discussion of the role for State intervention to foster NGA networks in traditional broadband black areas, where broadband services are delivered by competing

¹² Lambros Papadias, Alexander Riedl and Jan Gerrit Westerhof, 2006, “Public funding for broadband networks - recent developments”, Competition Policy Newsletter, number 2006/3, pp. 13-18.

¹³ Guidelines, paragraphs 34 and 35-36. The proportionality conditions are described in paragraphs 41-45 of the Guidelines.

¹⁴ Guidelines, paragraphs 34 and 37.

¹⁵ Guidelines, paragraphs 34 and 38-40. The Commission explains that the assessment will involve the analysis of overall market conditions (prices, type of services), the effectiveness of network access conditions and remedies imposed by the regulatory authority and whether they are conducive to competition, or the presence of entry barriers.

¹⁶ Guidelines, paragraphs 41 and 45.

¹⁷ Guidelines, paragraph 45.

¹⁸ Guidelines, paragraph 45 (f) and (g).

¹⁹ The Guidelines do not provide a separate market definition, but they define what an NGA network is for the purposes of the application of State Aid rules. See paragraph 48 of the Guidelines.

²⁰ Guidelines, paragraphs 63 and 67-68.

²¹ Guidelines, paragraphs 65 and 71.

²² Guidelines, paragraphs 64 and 69-70.

networks. In the Commission's view, existing network operators may have incentives to upgrade their networks and migrate their users to them without any State support, and therefore there is no need for State intervention. Therefore, to be compatible with the common market, State funding of NGA networks in these areas requires that the Member State demonstrates that existing broadband operators do not have plans to invest in the next five years and that network upgrades in previous years have been insufficient to meet consumer demand.²³

Finally, the compatibility of State measures supporting the deployment of NGA networks requires that certain conditions which seek to limit potential distortions of competition are satisfied.²⁴ In particular, and in relation to NGA networks:²⁵

- Third parties must be given access to the network for at least seven years as soon as the subsidized network is in place. The conditions for wholesale access should be designed in coordination with the relevant national regulatory authority (NRA).
- Where feasible, the network benefitting from the State aid should have a point-to-point, multifibre architecture or an alternative architecture that can be unbundled.
- Finally, in traditional broadband black areas where operators already provide advanced basic broadband network services, the aid should not cover the last mile access segment connecting the end users to the Main Distribution Frame.

3. THE GUIDELINE'S GREY AREAS

In this Section we discuss the approach adopted by the Guidelines in relation to the assessment of State measures in support of broadband in the so-called grey areas and grey NGA areas. As stated above, grey areas are those where broadband services are offered to users, but only one network operator is present, and grey NGA areas are those in which only one NGA network is in place or is being deployed and there are no plans for the rollout of another one in the coming five years. In those areas the Commission considers that State intervention may remedy the absence of infrastructure competition and thus improve "allocative efficiency": users will benefit from lower prices and higher quality.

The Commission may therefore declare aid compatible under certain conditions. As noted above, the Member State must demonstrate that the existing or planned (NGA) network fails to satisfy the needs of users in that area at affordable prices, and that there are not less distortive means to reach the same goals. In particular, the Commission will assess whether (a) overall market conditions are adequate, (b) access-based competition is effective, (c) there are significant barriers to entry and (d) regulatory remedies can overcome the competition deficit. In addition, in the case of NGA networks, the Commission will

also consider whether the existing NGA network was built on the basis of a privileged use/access to ducts.

In plain English, the Guidelines advocate a lenient approach toward State measures that facilitate the entry of a second infrastructure competitor in those areas where the incumbent monopolist (i) does not seem to provide the right level of service at adequate prices, (ii) infrastructure competitors face barriers to entry, (iii) access-based competition is not effective, and (iv) there are no effective regulatory remedies.

We have a number of concerns with this approach.

First, the positive welfare effects of the entry of a second incumbent operator may be relatively limited. On the one hand, prices may not fall much upon entry. A duopolistic industry structure typically results in lower prices than a monopoly, but the difference may be small if the duopolists tacitly coordinate their prices.²⁶ Tacit collusion is a real possibility in retail broadband, since retail prices are transparent, price wars can be used to punish deviations from the cooperative price, and the duopolists face no countervailing forces (entry is not an option and users have limited, if any, bargaining power). In addition, it is not clear that service levels will necessarily increase following entry. This is because while rivalry will induce competitors to upgrade their products, competition will also dissipate rents and, in the presence of imperfect capital markets, that may mean that fewer resources are available for product and service upgrades. Note that we are not saying that competition will not improve allocative efficiency, it surely will, our limited claim is that the move from monopoly to duopoly in a transparent market where rivals compete not only through prices but also by investing in quality may not yield dramatic improvements in consumer welfare.

Second, the proposed approach may prove too lenient given the difficulty in establishing rigorously when overall market conditions are not adequate. The Guidelines state that in order to reach that conclusion the Commission will consider (1) the level of current broadband (NGA) prices, (2) the types of services offered to residential and business users and, in the case of NGA networks, (3) whether the current or planned demand for new services is likely to be met by the existing NGA network. Our experience in the assessment of excessive pricing cases indicates that (1) and (2) are very difficult tasks indeed and, consequently, the likelihood of error is very high.²⁷ Of course, the Commission may err by concluding that overall market conditions are not adequate when they are, and vice versa, but given the policy stance of the Commission in relation to broadband prices we are concerned that the first type of error (leading incorrectly to compatibility decisions) may prove more likely.

For the very same reasons, the Commission will also find it difficult to determine whether access-based competitors exercise a competitive constraint, albeit limited, on the incumbent network

²³ Guidelines, paragraphs 72-73.

²⁴ Section 2.3.3 of the draft Broadband Guidelines discusses them in detail for traditional broadband networks.

²⁵ Guidelines, paragraph 74.

²⁶ Jean Tirole, *The Theory of Industrial Organisation*, MIT Press, 1988, chapter 6.

²⁷ Robert O'Donoghue and A. Jorge Padilla, *The Law and Economics of Article 82 EC*, Hart Publishing, 2006, chapter 12.

operator. We don't see how to properly assess the indispensability of State support or, in other words, the inability of national regulatory institutions to deal with the potential inefficiencies of the market. Once again, this may lead to too frequent or too infrequent compatibility decisions, but we suspect that in practice the approach proposed in the Guidelines may lead to excessive State interference.

Third, and more importantly, the policy proposed may impact negatively on the incentives to invest of private operators. To understand why, we need to consider the fundamental reason why only one network is active in grey (NGA) areas. In many cases the answer likely will be that, given the significant costs involved in the deployment of a network, the size of the market in those areas (which is a function of its population density and their ability to pay) is too small to accommodate two profitable competing networks.²⁸ That is, some grey areas may be best characterized "natural monopolies". In those areas there is no room for an unsubsidized duopoly. Suppose now that a private firm is considering investing in one of those natural monopoly areas but fears that, once it is entered, the area where it invested its money will be regarded as a grey area and second infrastructure will be legally subsidized. We should expect the private firm to give up its investment, as it correctly anticipates that there is no room for two players in that market and it will be placed at a competitive disadvantage vis-à-vis its State supported competitor. What could have become a grey area with a private monopolist will then remain a white area in the Guideline's jargon, or alternatively it will turn into a grey area with a subsidized monopolist if the Member State where that area is located decides to promote broadband investment in white areas.

Fourth, there is a risk of significant overcompensation²⁹ in grey areas which will be difficult to mitigate by using open tenders where the bidder is selected by comparing competing economic offers. This is because those considering the option to become the second operator will anticipate that with some probability a price war may unfold following entry. In that case, they are likely to bid taking into account the low returns they will obtain during the price war phase as well as the likelihood that they will be forced out of the market by the established incumbent. Consequently, all participants in the tender will increase the subsidies requested and, as a result, Member States may find themselves subsidizing price wars and, moreover, determining the winner with their subsidies. More troublesome is the fact that grey areas may remain grey even after State intervention, as the price war may end up with the exit of one of the players. And if we are right as to the risk of overcompensation, when intervention leaves grey areas still grey, it will be the unsubsidized incumbent who will have to leave the battlefield.

In sum, we believe that the Guideline's approach to the assessment of State intervention in grey (NGA) areas may lead to expensive and unnecessary network duplications, distort competition and crowd out public investment.

4. MANDATED ACCESS AND STATE AID: AN EXPLOSIVE MIX

As noted above, a subsidized broadband network infrastructure in white or grey areas will have to provide wholesale access to third parties for at least 7 years. In existing black areas where there is no current or planned NGA network, wholesale access should be granted for a longer period of time. Finally, if the infrastructure to be build is publicly-owned, wholesale access should not be limited in time. The logic of this requirement is to ensure that access-based competitors discipline the pricing of the subsidized network operator so that prices and quality levels are kept in check.

We have two main concerns with this requirement.

First, there are reasons to believe that this requirement, which is meant to limit distortions of competition and protect consumer welfare, may actually harm welfare in grey (NGA) areas by distorting the incentives to invest of the infrastructure incumbent and, perhaps less intuitively, those of the subsidized entrant and incumbent access-based competitors.

Private companies will invest in upgrading their networks or deploying higher quality networks when the expected return is sufficiently high. Measures mandating access at regulated low prices reduce the expected return of investment and hence have a negative impact on the incentives to invest. Existing infrastructure competitors will choose not to upgrade their networks or deploy new, faster networks if they fear that the return to investment will be capped by access-based competitors. Likewise, firms considering entering the market with their own infrastructure, with and without State support, will think twice if the profitability of that strategy is artificially reduced. Finally, existing access-based competitors, like all incumbent infrastructure competitors, will see some of their assets stranded, which will reduce their ability to compete and, in particular, to climb the so-called "ladder of investment" to become infrastructure competitors.³⁰ They will also have less incentives to upgrade their offerings if competition with the new access-based competitors reduces the rate of return of those investments.

Of course, the negative effect on investment incentives should be balanced against the positive effect of mandated wholesale access, which is due to the reduction in retail prices caused by the increase in the number of offers available to end users. However, this balancing exercise is extremely difficult: the Commission must take into account the level of access prices, the elasticity of investment to access prices, the value for end-users of the services that could be available in upgraded/new infrastructures, etc. When investment is highly price elastic, which is more likely in situations of limited credit availability when the cash flow sensitivity of investment is higher, and the value of the new services is high, the best way of serving the interests of consumers is by setting high access prices or in the extreme re-

²⁸ An alternative reason may be the exercise of market power, but that problem can be addressed effectively using standard regulation and competition policy tools.

²⁹ In the sense of the Atmark judgment.

³⁰ Alison Oldale and A. Jorge Padilla, "From State Monopoly to the "Investment Ladder": The Logic and Limits of the NRF", Alison Oldale, in A. Nilsson and Bergman (eds.) The Pros and Cons of Antitrust in Deregulated Industries, Swedish Competition Authority, 2004.

moving the obligation to grant access. Under these assumptions, the long-term negative impact on the incentives to invest of the compulsory access requirement more than offsets its short-term benefits.

Second, this requirement may also cause an overcompensation problem in grey (NGA) areas in the sense of the Altmark judgment, as the subsidized entrant will demand more funds in order to be compensated for the rents lost to the access-based competitors. There is nothing surprising in this: the net cost of serving a grey (NGA) area is bound to be greater if infrastructure entry is necessarily followed by access-based entry. The problem is that, since the incumbent will not be compensated for that extra layer of access-based competition, it will be placed at a competitive disadvantage with the subsidized entrant. Once again, this requirement may cause the sort of competition distortions that it was meant to avoid: the subsidized entrant may be able to foreclose the incumbent so that the net effect of the State measure is to crowd out private investors.

5. CONCLUDING REMARKS

The draft Guidelines that have been commented in this paper provide useful clarification in relation to the Commission's

approach to the assessment of State measures in support of the rapid roll out of broadband network. They are both timely and necessary and we largely agree with the approach adopted in them. In particular, we concur with the view that broadband deployment may play a key role for economic growth and employment and that public investment in unserved areas is justified from a common interest viewpoint. We also agree that there is no justification for State measures to support out the roll out of broadband infrastructure when there is effective infrastructure competition among private providers.

We have some concerns, though. They mainly relate to the so-called grey and grey NGA areas where the goal of the State intervention is not to facilitate the deployment of infrastructure where such an infrastructure is not available, but rather to foster infrastructure competition. We fear that State measures seeking to promote competition may end up distorting incentives to invest and crowd out private companies in favor of subsidized entrants. Subsidizing entry does not constitute appropriate public policy in our view. Even when we accept that market power can be regarded as a form of market failure, though arguably a very different sort of market failure than that most often addressed with State resources, entry subsidies are likely to distort competition even when they result in increased rivalry and market fragmentation.

