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# TILEC Discussion Paper

## EUROPE AND INVESTMENT IN INFRASTRUCTURE WITH EMPHASIS ON ELECTRONIC COMMUNICATIONS

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### Abstract

This essay looks into the influence of European law and policy on infrastructure investment decisions. After a brief survey of how EC law generally affects regulatory decisions concerning infrastructure, the mission paradox arising from the separation of regulatory and operational functions and the creation of regulatory externalities are dealt with in greater length. Afterwards, electronic communications provides the backdrop for an examination of the key issues arising in the current discussion of the appropriate framework for investment in infrastructure. First of all, structural solutions may be attractive, but they also carry certain costs and risks. If they are not retained, behavioural regulation (including regulatory holidays) is called for. Here the *ex ante / ex post* distinction obscures the debate; from a legal perspective, the appropriate standard should be that investors are not subjected to more risk than they would incur with comparable investments elsewhere. An *ex ante* statement of the conditions under which *ex post* intervention will take place might be the best option. Finally, the need for coordination at EC level can be overstated: some measure of divergence is also useful to gather empirical information about the various regulatory solutions. In any event, infrastructure investments are likely to be regulated differently from one location to the other at a fairly granular level, even within a single Member State.

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## INTRO

This essay looks more closely into the influence of European law and policy on infrastructure investment decisions, in the light of telecommunications (or electronic communications as they are now called) in particular. It is structured as follows. The first part surveys how EC law generally affects regulatory decisions concerning investment in infrastructure and highlights two more specific issues arising out of the liberalization experience, namely the mission paradox following from the separation of regulatory and operational functions and the creation of regulatory externalities (1). Then, in order to situate the sector better, the next section explains why electronic communications provides an interesting case study, but also why the conclusions drawn here might not so readily be applicable elsewhere (2). Afterwards, a section goes through the main issues arising in the current discussion<sup>1</sup> of the appropriate framework for investment in infrastructure: the appropriateness of structural solutions, the design of behavioural regulation (if no structural solution is adopted) – including regulatory holidays – and the need for coordination at EC level (3). Some conclusions are then drawn (4).

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<sup>1</sup> In the course of the ongoing review of electronic communications regulation: see the Communication on the Review of the EU Regulatory Framework for electronic communications networks and services COM (2006) 334 final (29 June 2006) and the accompanying Commission Staff Working Document SEC (2006) 816 (28 June 2006).



# 1 THE INFLUENCE OF EC LAW ON STATE INTERVENTION CONCERNING INVESTMENTS IN INFRASTRUCTURE

## 1.1 The role of primary law

As a starting point, matters of investment in infrastructure are in the hands of the Member States.<sup>2</sup> Of course, over the last 20 years, the EC has pursued a liberalization policy in most network industries, accompanied with the creation of significant bodies of European legislation to harmonize the regulation of these industries. This has given a European dimension to infrastructure policy. Nevertheless, before venturing too deep into the specificities of secondary EC regulation, it is useful to outline how primary EC law – the EC Treaty and the case-law interpreting it – can impact upon the actions of Member States when steering investment in infrastructure.

Since it is generally agreed that network industries are economic sectors, they fall under the ambit of the EC Treaty provisions on the internal market and on competition law. This implies that State measures concerning these industries must respect the four freedoms underlying the internal market, in particular the freedom to provide services and the freedom of establishment. Furthermore, State measures cannot distort competition on the market.

For the purposes of the discussion, let us generally classify State intervention according to whether its impact on the economy (i.e. the amount of “displacement” it causes) is heavier or lighter and whether it takes a legal or financial/economic form, resulting in the following matrix:

	<i>Heavier intervention</i>	<i>Lighter intervention</i>
<i>Financial / economic</i>	State ownership of production means	Subsidies
<i>Legal</i>	Monopoly rights	Regulation

Heavier intervention thus encompasses both the use of State-owned firms<sup>3</sup> and the conferment of monopoly rights on firms, whether State-owned or privately owned. In cases of heavier State intervention, Article 86(1) EC applies to confirm that State measures in relation to State-owned firms and holders of monopoly rights cannot breach the Treaty.<sup>4</sup> In practice, the two types of intervention often go hand in hand, i.e. the holder of a monopoly right will also be a State-owned firm. The

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<sup>2</sup> Save for the powers given to the EU concerning Trans-European networks at Art. 154-156 EC, which have so far failed to have a significant impact.

<sup>3</sup> Whether created from scratch or through the nationalization of existing firms.

<sup>4</sup> It will be recalled that the firms themselves are and remain subject to EC competition law.

application of Article 86(1) so far has focused on monopoly rights more so than State ownership.<sup>5</sup> Since the beginning of the 1990s, Article 86(1) EC became more incisive as the ECJ developed its “automatic abuse” line of case-law.<sup>6</sup> Whereas beforehand the creation of a legal monopoly as such did not breach the Treaty, the ECJ has now acknowledged that under certain circumstances, a legal monopoly can be set up so as to encompass other activities which could be provided under competition<sup>7</sup> or so as to be unable to meet demand for its services.<sup>8</sup> In such cases, the Member State actually organizes the monopoly in a way that the legal monopolist is automatically led to abuse its dominant position and thus breach Article 82 EC.<sup>9</sup> Conferring a monopoly which is organized in such a fashion is thus in and of itself a breach of Article 86(1) read in conjunction with Article 82 EC. The monopoly would then have to be lifted. The only escape is Article 86(2) EC: the monopoly will be allowed to remain if it is necessary to enable its holder to discharge its obligations concerning services of general economic interest under economically acceptable conditions.<sup>10</sup> EC law therefore imposes relatively tight constraints on legal monopolies, which must be limited to what is strictly necessary to fulfil the public policy objectives for which they were created and which must not be set up in such a way that the holders of the monopoly will automatically be led to abuse their dominant position. This does not seem unfair, however, given that heavier forms of State intervention in the economy such as the creation of monopoly rights are the most likely to endanger the fulfillment of the policy objectives of the EC.

In contrast, EC law is more lenient with the lighter forms of State intervention, i.e. the grant of subsidies and the use of economic regulation. The former can run foul of the prohibition on State aids under Article 87 EC. However, exceptions are provided for at Article 87(2) and (3) EC. In particular, Article 87(3) EC allows State aid for the development of disadvantaged areas,<sup>11</sup> which can cover subsidies for infrastructure projects, as seen further below.<sup>12</sup> Furthermore, in recent years, State aid law has evolved in such a way as to create a general path for public authorities to inject public funds in

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<sup>5</sup> Monopoly rights qualify as “exclusive rights” within the terminology of Article 86(1) EC. This provision also applies when Member States confer “special rights”, i.e. restrict market access to a limited number of companies, not chosen according to open, transparent and non-discriminatory procedures.

<sup>6</sup> See for a more recent example which summarizes this line of case-law, ECJ, 25 October 2001, Case C-475/99, *Ambulanz Glöckner* [2001] ECR I-8089.

<sup>7</sup> ECJ, 19 May 1993, Case C-320/91, *Corbeau* [1993] ECR I-2533.

<sup>8</sup> ECJ, 23 April 1991, Case C-41/90, *Höfner* [1991] ECR I-1979.

<sup>9</sup> The extension of the monopoly to other services could be seen as a form of tying (Article 82(d) EC), whereas the inability to satisfy demand could be seen as a limitation of production within the meaning of Article 82(b) EC.

<sup>10</sup> Typically by allowing for cross-subsidization among the various products or services under monopoly, as in *Corbeau*, *supra*, note 12.

<sup>11</sup> At Article 87(3)(a) for “areas where the standard of living is abnormally low or where there is serious underemployment” and more generally at Article 87(3)(c) for “aid intended to further the economic development of areas of a Member State which are disadvantaged in relation to the national average” (as interpreted by the ECJ). See Regulation 1628/2006 of 24 October 2006 (Block Exemption Regulation for regional aid) [2006] OJ L 302/29 and the Guidelines on national regional aid for 2007-2013 [2006] OJ C 54/13.

<sup>12</sup> See *infra* under 3.3.4.

support of regulatory objectives. In *Altmark*,<sup>13</sup> the ECJ gave public authorities a relatively unconstrained discretion to set out “public service obligations”,<sup>14</sup> but in return has imposed a relatively strict set of disciplines on the use of public funds to compensate firms which are burdened with such obligations, so as to ensure transparency and objectivity.<sup>15</sup>

When it comes to economic regulation, the evolution of EC law in regulated sectors points to EC law becoming a form of discipline on Member States. The concept of “impact on trade between Member States” which is meant to circumscribe the ambit of the four freedoms has consistently received a wide interpretation, so much so that the four freedoms will end up applying to almost all State measures.<sup>16</sup> The focus then shifts away from issues of applicability of EC law towards the substantive conditions for the application of the provisions of the EC Treaty. The application of EC law is then no longer a matter of preventing Member States from taking certain measures from a limited set (measures which discriminate against goods, services, persons or capital from other Member States), save for limited exceptions. Rather, it is a matter of ensuring that a much broader set of national measures (the so-called “indistinctively applicable” measures), most of which pursue legitimate aims, do not adversely effect the internal market.<sup>17</sup> Since EC law applies to “indistinctively applicable” measures, the justification for and aim of such measures, as well as their proportionality, become key to their assessment under EC law.

Similarly, under the less developed line of case-law applying Article 3(g) and 10 EC read in conjunction with Article 81 or 82 EC, Member States are prevented from using national measures as a cover for cartels or abuses of dominant position which would be prohibited if they were entered into by private operators.

The above shows that EC law comes to assume a “control” function over national law, providing citizens and firms with the ability to question the real motivation of State action as well as the choices made as to policy, instruments, enforcement, etc. Over time, as case-law evolves, Member State action

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<sup>13</sup> ECJ, 24 July 2003, Case C-280/00, *Altmark* [2003] ECR I-7747.

<sup>14</sup> It is worth emphasizing that, despite all Commission statements implying the contrary, *Altmark* is not concerned with Services of General Economic Interest (SGEIs) within the meaning of Article 86(2) EC. *Altmark* deals with the definition of State aid at Article 87(1) EC, and the ECJ ruled in terms of “public service obligations”, which are presumably left at the discretion of Member States.

<sup>15</sup> At the same time, if a regulatory regime is designed from scratch, it does not seem overly difficult to implement the *Altmark* conditions from the start. Problems arise mostly with existing regimes.

<sup>16</sup> This concept is also present in EC competition law. Its recent evolution was chartered at a symposium “*De EU: de interstatelijkheid voorbij?*” (Amsterdam, 14 November 2005), proceedings to be published.

<sup>17</sup> This is the famous “*rule of reason*” approach launched with ECJ, 20 February 1979, Case 120/78, *Rewe v. Bundesmonopolverwaltung für Branntwein* [1979] ECR 649 (“*Cassis de Dijon*”) for the free movement of

becomes in practice subject to “good governance” requirements imposed via EC law,<sup>18</sup> including for instance openness, transparency, and non-discrimination amongst operators and customers.<sup>19</sup> EC law becomes a force to promote better administration and to fight shadowy operations and favoritism. It provides a vehicle for a healthy – but not fatal – dose of skepticism towards Member State action.

Taking both heavier and lighter forms of intervention together, the thrust of EC law is then to bring Member States, as much as possible, towards lighter forms of intervention, which are less heavily constrained through EC law because they are more easily compatible with the general economic policy objectives of the EC.

## 1.2 Positive harmonization and secondary law

While primary EC law remains relevant to network industries, in practice Community institutions have already come to the conclusion that the mere application of primary law would not enable the internal market and undistorted competition objectives to be achieved. Since the mid-1980s, in step with the Single Market programme, the EC has been pursuing an active policy in network industries, with the Commission taking the lead against often reluctant Member States. The core of the EC policy has been to liberalize the various industries – starting with electronic communications and extending to air transport, rail transport, post and energy.

Other essays in this collection are chronicling the “regime change” that took place in the wake of these policies. Liberalization processes were coordinated at EC level, in particular with a view to harmonizing the resulting regulation so as to foster the internal market and undistorted competition. It would be wrong, however, to credit the EC with all the benefits and burden it with all the shortcomings of liberalization. The EC institutions provided a convenient forum – and EC law a convenient instrument – to effect policy changes that had broad legitimacy (albeit not unchallenged) at national level. Liberalization built upon prior changes which were primarily initiated by Member States, such as the transformation of the agencies providing network services into corporations based

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goods, and later on extended to the other freedoms as well: for services and establishment, see *Gebhard*, *supra*, note 6.

<sup>18</sup> For a nice example of how the application of EC law translates into such requirements, see the line of case-law beginning with *Telaustria*, whereby the ECJ derived from Art. 43 and 49 EC a principle of “transparency” to be applied to public work contracts and concessions which fall outside the scope of secondary EC legislation on public procurement: ECJ, 7 December 2000, Case C-324/98, *Telaustria* [2000] ECR I-10745; 21 July 2005, Case C-231/03, *Coname*, not yet reported; 13 October 2005, Case C-458/03, *Parking Brixen GmbH*, not yet reported and 6 April 2006, Case C-410/04, *ANAV*, not yet reported.

<sup>19</sup> EC law already contains a general principle of non-discrimination according to nationality (Art. 12 EC), to which further grounds have been added at Art. 13 EC with the Treaty of Amsterdam. We are here dealing with another dimension of the non-discrimination principle which is peculiar to economic regulation, namely non-discrimination amongst competing economic operators or amongst their actual or potential customers.

on a private law model (corporatization) and the partial or total opening of such corporations to private capital (privatization).

It is beyond the scope of this essay to look at the past and revisit these changes. They have resulted in the birth of partially or totally market-driven network industries, where firms pursue their private interests. The glorious years of liberalization policy could well be behind, however. In most network industries, EC liberalization policy finds itself at a crossroads. Originally, competition was introduced primarily out of concern for efficiency. Of course, on the surface, a number of accounts would rather present liberalization as the introduction of competition for the sake of it, as a value in and of itself. This is short sighted. Rather, the economic and technical models which justified the maintenance of monopoly rights were exhausted and overhauled, and dissatisfaction was widespread among customers and also amongst the more visionary policymakers. To put it crudely, liberalization was about “trimming the fat” from the incumbent through the introduction of competition, thus forcing the incumbent to become more nimble and more responsive. The incumbent could become more efficient on all fronts, i.e. as regards both static – allocative and productive – and dynamic measures of efficiency. Nonetheless, the dynamic horizon was relatively short-term: increased dynamic efficiency was to come from more innovation using the same asset base.

Now, 10 or more years down the road, the fat has been trimmed (at least to some extent) and the asset base has aged. The time has come for a new wave of investment in infrastructure, but that investment will take place under a liberalized environment. This essay concentrates on the consequences of liberalization for public authorities as they now shift policy focus from increasing efficiency towards steering investment in infrastructure. In particular, public authorities sometimes overlook the consequences of one key element of liberalization processes, present from the outset of the liberalization process in the 1980s, namely the separation of regulatory and operational functions.<sup>20</sup> Separation has two important consequences for our discussion here: the loss of control over operational decisions of firms (which leads to a “mission paradox”) and the risk that the cost of regulation for private firms are not fully taken into account in regulatory decisions (thereby creating a sort of “regulatory externality”). As in the rest of this essay, the discussion is illustrated with examples from the electronic communications sector.

### 1.2.1 The mission paradox

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<sup>20</sup> Now set out at Art. 13 of Directive 2002/21 (Framework Directive on electronic communications) [2002] OJ L 108/33).

Separation of regulatory and operational functions implies of course institutional separation, in that a regulatory authority is created, separate from and independent of any firm, including the incumbent. Once they are established as separate institutions, the incumbent and the regulatory authority must also concentrate on their respective functions. It took many long years for the incumbents to accept that they would no longer be dictating regulatory choices. Conversely, regulatory authorities must also learn to focus on regulation and to let go of operational matters. This is also part and parcel of the choice for liberalization of the market. In other words, the evolution of electronic communications should be primarily a matter for the market to decide, according to what customers demand and what firms can supply. Regulation only comes in when the functioning of the market is not adequate, in line with proportionality and other principles of good governance. Accordingly, for lawmakers and regulators to seek to base regulation on all-encompassing models of the sector is incompatible with the fundamental principles of electronic communications regulation in the liberalized era.

Unfortunately, policymaking still tends not to integrate fully the consequences of liberalization. Higher-level policy statements – as well as some academic work outside of the economic regulation community<sup>21</sup> – concerning the need to introduce new technologies, to carry out investments, to make services available to everyone, etc. often read as if policymaking flowed seamlessly into operations, themselves still in the hands of the incumbent. These policymakers and academics might still be too tied to the former model and might not yet have integrated liberalization in their work. With liberalization, even major operational decisions concerning investment are in the hands of the private firms on the market. The lawmakers and regulators are no longer concerned with “the network” of the incumbent, but rather with the virtual “network of networks” formed by the operations of all the private firms active on the market. Public authorities can then no longer engage in hands-on management, but must rather try to influence the operation and evolution of this elusive network of networks in the desired manner.

Indeed whilst lawmakers and regulators must let go of a network industry such as electronic communications and let it evolve on its own motion, they must also be able to judge whether the sector performs such as to meet public policy objectives, as they might have been defined. In order to do that, they must therefore have an expectation as to how the electronic communications sector should evolve, so as to be able to make an assessment. Therein lies a paradox: authorities must at the same time accept that their mission is not to remove uncertainty (and thus leave the industry on its own) and have an idea of how such uncertainty could and should unfold (so as to be able to carry out the basic regulatory function of assessing whether intervention is necessary).

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<sup>21</sup> Particularly from engineering and technological disciplines.

This paradox can be solved if one takes the principles of the current EC electronic communications regulatory framework seriously. When it was hammered out at the beginning of the decade, the intention was to create a regulatory framework which could withstand the test of time and remain adequate as the sector evolved. The regulatory review under way at EC level<sup>22</sup> indicates that the key design choices were by and large right, since they are not challenged by anyone. The two most important design principles of the current regulatory framework for the purposes of the present discussion are (i) reliance on economic analysis (as evidenced by a substantive alignment with competition law) and (ii) technological neutrality. The former implies that the authorities must base their analysis not on technological considerations, but rather on economic and functional considerations. This can be seen most clearly in the regulation of market power (the so-called “SMP regime”), but universal service regulation has also been cast mostly in economic terms.<sup>23</sup> Accordingly, the expectations of the authorities can be formulated in economic terms (no bottlenecks, no network externalities, adequate market performance, etc.). The latter principle is still a work in progress.<sup>24</sup> Amongst possible interpretations of technological neutrality, the most powerful and most meaningful would entail that public authorities do not interfere with technological choices which properly belong to the marketplace.<sup>25</sup> This would dictate that the action of public authorities be carried out at a certain level of abstraction and avoid as much as possible to rely on technological categories which would imply a choice in favour or against a certain technology.

In summary, the ramifications of the basic economic policy choice made 20 years ago for the liberalization of network industries such as electronic communications might not yet have been fully explored. Of course, liberalization does not mean that public policy objectives are abandoned altogether; the polity retains the upper hand over the economy. However, it does imply that lawmakers and regulators must let go of the industry, and in particular that they must reckon with the inherent uncertainty surrounding the evolution of this sector. It would be neither appropriate nor in line with the principles of the electronic communications regulatory framework as set out in EC law for public authorities to want to superimpose a holistic vision (typically a layer model) on the sector and exert significant influence over its evolution. Nonetheless, these authorities must be able to ensure that public policy objectives are fulfilled, which implies that they must have a vision of how the “network of networks” under their supervision is meant to evolve and perform. That vision, however, must focus

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<sup>22</sup> *Supra*, note 1.

<sup>23</sup> Save perhaps for the central issue of which services are to be included in the universal service basket defined at EC level: see Article 15 of the Universal Service Directive (Directive 2002/22).

<sup>24</sup> See Ilse van der Haar, “Technological Neutrality; What Does It Entail?” TILEC Discussion Paper DP 2007-009, available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=985260](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=985260).

<sup>25</sup> A weaker interpretation which would also support the reasoning set out in the main text centers on sustainability: lawmaking and regulation should be so designed that they can withstand technological evolution and do not require updating (or perhaps better, upgrading) every year.

not on technology but on economic and functional categories. It is also bound to be fragmentary: public authorities should only be concerned with those elements in the electronic communications sector which cause concern in view of the expectations based on these economic and functional categories.

### 1.2.2 Regulatory externalities

Another consequence of liberalization is that it highlights the externalities created by the use of regulation as a means of intervention in the workings of the economy when the costs of regulation for private firms are not correctly taken into account in the decisions of public authorities.

Indeed, using regulation is advantageous for public authorities, since it involves limited expense (administration of the regulatory framework), given the costs of complying with regulation and fulfilling the regulatory objectives lie with the regulated firms. This point has not been lost on EC law, where the ECJ acknowledged that the redistributive effects of regulation do not turn it into State aid (which would then be subject to control by the Commission).<sup>26</sup>

Still there are limits to the redistributive effects of regulation in a competitive market setting. These effects can give rise to an externality if they are ignored, i.e. the public authorities or the ultimate intended beneficiaries receive the benefits of the regulatory measures, but the cost is borne by firms. If the externality becomes too important, it will influence the behaviour of firms in a way which was not intended by the public authority. Concretely, if the regulatory environment for investment by private firms creates important negative externalities for these firms (via an intrusive access regime or a universal service obligation), private firms will respond by changing those parameters in their behaviour which they can still control: investment plans will be revised downwards or cancelled altogether.

In earlier years, during the “fat-trimming” phase, it could be argued that the fat, i.e. the monopoly rent, was actually being redistributed. Given that this rent arose out of incumbency, where public funds had been used in the past to build up the monopoly infrastructure, one could argue that it was legitimate to ignore the externality. Nowadays, when on a forward-looking basis new large-scale investments must be undertaken, the situation is different. Rents have largely dissipated; in any event, newcomer firms never enjoyed them. For all these firms, incumbent and newcomer alike, the financing of new investments is made partly out of earnings, and partly obtained from third-parties via financial

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<sup>26</sup> See ECJ, 13 March 2001, Case C-379/98, *PreussenElektra* [2001] ECR I-2099.

markets.<sup>27</sup> There is no obvious reason why these funds should be available for redistribution via regulation.

If public authorities want to exert an influence on investment in infrastructure, therefore, they must take the costs imposed on private firms – into account. So either the intervention takes place in such a way as not to distort investment incentives, or if it is more intrusive, then public authorities must correct the externality by disbursing public money to compensate private firms.<sup>28</sup> Public authorities cannot have their cake and eat it, by shifting the burden of infrastructure investment onto private firms in the wake of liberalization and then expecting these firms to pursue public policy objectives in the same way as former State-owned monopolists could.

In electronic communications regulation, the Universal Service Directive also contains detailed provisions on the use of public funds to compensate the firm providing universal service.<sup>29</sup> It is interesting to note that the Access Directive does not provide for any possibility of public funding to compensate for the cost of SMP obligations, indicating perhaps that it was never foreseen that SMP obligations could have such side-effects on investment incentives as to require public funding.

## **2 THE CASE OF ELECTRONIC COMMUNICATIONS**

### **2.1 What makes electronic communications especially relevant**

when it comes to economic regulation at EC level, the electronic communications sector is always especially interesting.

First of all, electronic communications is the poster child of EC liberalization policies. It is the first sector where the EC pursued a liberalization policy at the end of the 1980s. It remains to this day the most successful instance of liberalization initiated at EC level. It is also the only sector where the Commission used strong-armed tactics, with the help of Article 86(3) EC and competition law

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<sup>27</sup> This does not imply that incumbents and newcomers are in the same position as regards these investments. Incumbents will typically have deeper pockets.

<sup>28</sup> Granting monopoly rights over a reserved sector, with the possibility of cross-subsidies within that reserved sector, is an alternative compensation method. It involves no disbursement of public funds, but it is very approximate when compared to public funding along the lines of *Altmark* or the Universal Service Directive, discussed below. In any event, it is by definition not compatible with a liberalized environment.

<sup>29</sup> Universal Service Directive, Art. 12-14.

proceedings, to bring Member States to support its policy. Finally, electronic communications remains widely perceived as the front-runner amongst liberalized sectors, where the policy and legal developments are the farthest; accordingly, it often serves as an example in comparable sectors, mostly other network industries.

In particular, the shift in policy focus from fat-trimming to investment in infrastructure can be easily observed in electronic communications. Twenty years after the start of electronic communications liberalization, with the 1987 Green Paper, and almost 10 years after the removal of the last monopoly rights in 1998, the ‘fat trimming’ operation has been largely successful, in some areas even beyond expectations. Instead of having large incumbents with competitive fringes keeping them under pressure, in many Member States the incumbent has bled and is still bleeding market share.<sup>30</sup> The competitive fringe has become a set of well-established “mainstream” competitors. Now the initial asset base of the fixed-line incumbent is no longer sufficient to guarantee a satisfactory level of innovation.

As far as mobile communications are concerned, the above narrative never really had much grip in any event, since second-generation services (GSM) were introduced at least on a duopoly basis, later on extended to three or four network operators, not counting the virtual operators (MVNOs) which appeared later.

For the whole of electronic communications, therefore, fostering investment in the infrastructure needed to continue to innovate is thus displacing fat-trimming as the paradigm for market regulation.<sup>31</sup> That makes electronic communications an entirely relevant example for comparable sectors which might find themselves at a similar juncture.

## **2.2 What makes electronic communications different**

Yet some characteristics of electronic communications would also make it a special case, which should not be generalized too quickly.

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<sup>30</sup> Even in the more forward-looking markets, such as broadband access provision, incumbents serve less than 50% of end-users (EC-wide average, the actual figures vary significantly from one Member State to the other).

<sup>31</sup> By paradigm, I mean the higher rationale which stands above the listed regulatory objectives, such as the internal market, undistorted competition or consumer/citizen rights, as they are listed in Article 8 of the Framework Directive (Directive 2002/21). After all, these objectives are not specific to electronic communications regulation, and the existence of sector-specific regulation over and above general instruments which are already meant to pursue these objectives must be explained. Until now, that paradigm has been the introduction of competition as a way to increase the efficiency of the sector. My contention is that it will be displaced by the fostering of investment and innovation.

In all network industries, investment is affected by a measure of uncertainty, if only because of its long time horizon. In electronic communications, however, that uncertainty is especially large, as a consequence of a number of factors.

First of all, technological evolution is as uncertain as it is rapid. In contrast to energy or transport, whose basic products are well-known, limited in number and only slowly evolving, electronic communications is experiencing a constant stream of new products and services.

At the technological level, a number of “paradigmatic changes” are taking place. None of these changes are particularly sudden, having been tipped for the past 20 years. Nevertheless, it seems that they are finally happening now. The backdrop to most of these changes is “convergence”, a concept which has been used and abused to cover a number of different situations.<sup>32</sup> At the most fundamental level, however, all these situations have in common that formerly distinct, vertically-integrated, narrowly-defined sectors, such as fixed telephony, mobile telephony, broadcasting, etc. are coming together in a broadly-defined electronic communications sector,<sup>33</sup> characterized by a much greater diversity in service offerings, business models, demand patterns, etc. The converged sector can only be comprehended with more abstract concepts such as communication, access, community, usage, mobility, information, etc. Any more specific description – for instance at the level of a service such as SMS – is bound to be partial and incomplete.

Convergence implies that electronic communications networks essentially carry data packets, which can be used to convey all sorts of content indifferently. Accordingly, new types of content, which straddle traditional categories – think in particular of so-called “Web 2.0” applications such as YouTube, etc. – appear and generate considerable interest. At the same time, network operators lose control over the content going over their network, unless they themselves move up the value chain into content, a business with which they are generally unfamiliar and ill-prepared to undertake. As the content business booms, network operators fear that their own line of business could become commoditized, all the more now that competition is biting and margins are being compressed.

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<sup>32</sup> The manifestations of convergence now taking place can be briefly sketched as follows. First of all, dedicated fixed voice networks (PSTN) are being folded into all-IP networks (Often referred to as Next Generation Networks (NGNs), following the name given to the regulatory proceeding in the UK in which this change was investigated) for instance in the UK and in the Netherlands. In this manner, a single IP network will carry voice, data and video traffic. Similarly, the next-generation mobile networks (3G, with 4G now in development) also carry voice and data together. This makes it possible to bring new offerings to the market, for instance so-called triple-play packages – where one provider offers voice, data and TV from one single network. As a further step, convergence between fixed and mobile enables “quadruple-play” offers to come to the market.

In addition to the threat of commoditization, network operators also face the prospect of large-scale investments to upgrade their facilities. Indeed, as a general proposition, it is safe to assume that the current networks – both fixed and mobile – will not be sufficient to satisfy user requirements in the long run. Services and applications are ever more bandwidth-hungry, the crunch coming from high-quality video.<sup>34</sup> At this juncture, the backbone (core) of fixed and mobile networks has already been upgraded to fibre, in order to meet bandwidth demands, but the extremities – the local networks – prove more problematic. For fixed networks, various xDSL<sup>35</sup> solutions have enabled the existing copper networks to extend their lease of life for the past 15 years,<sup>36</sup> but ultimately the upgrade to full-fiber networks seems unavoidable. The only question is the timetable.<sup>37</sup> As for mobile networks, the upgrade to 3G networks is proving very costly and could be running behind bandwidth requirements, with cheaper and better performing solutions such as WiMAX rising as alternatives. Indeed the deployment of 3G networks is indicative of the kind of problems which network operators are facing and the type of solutions which they might have to implement. In many countries, especially those which exacted large license fees from operators through spectrum auctions, network operators had to cooperate extensively for network deployment once the bubble burst in 2000 and they were brought back to their senses.<sup>38</sup>

Furthermore, customer demand itself is uncertain. Indeed, besides the few cases of “calculated success” (GSM), recent history is littered with instances of unforeseen technological developments

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<sup>33</sup> As will be discussed below, even the current definition of “electronic communications”, which stops at the boundary with content, is probably too narrow.

<sup>34</sup> There is already enough bandwidth for voice and most data applications. The transmission of video signals is especially demanding, however, despite the progresses made in compression techniques which allow a more efficient use of existing bandwidth. At the same time, it is risky to make bold predictions on bandwidth requirements, since new applications are constantly emerging in an unpredictable fashion (see [Joost](#) or wait until [Twitter](#) starts to include live video as opposed to SMSs and e-mails).

<sup>35</sup> These solutions have in common the digitalization of the local loop (Digital Subscriber Loop or DSL) in order to create extra capacity for data transmission. The most widespread is Asymmetric DSL (ADSL), but it more advanced versions such as SDSL and VDSL are now being introduced. DSL solutions share one characteristic in common: as the capacity increases, so must the distance between the multiplexer and the subscriber (i.e. the length of the copper loop over which the DSL solution is deployed) decrease. The evolution of DSL is thus coupled with the increasing penetration of fibre deep in the local network. These fiber configurations are termed FTTx, with the “x” standing for the level of penetration, ranging from FTTN (local node), through FTTC (curb) and FTTB (building, for apartment buildings) to FTTH (home).

<sup>36</sup> Similarly, cable TV networks have been connected to fiber backbones in HFC (hybrid fiber-coax) architectures.

<sup>37</sup> Because of the uncertainty surrounding technological evolution and demand (see below), the timetable is difficult to predict. Already at the beginning of the 1990s, the deployment of full-fiber networks was advocated. With the benefit of hindsight, that would have been a major mistake to sink fiber in the local networks then – at great cost for the firms and by the same token at great social cost – given that xDSL technologies have allowed copper loops to remain useable until now. Accordingly, it is impossible to fix a cut-off date in the future as of which full-fiber networks will be indispensable.

<sup>38</sup> See the Commission decisions concerning the UK and Germany: Decision 2003/570 of 30 April 2003, *UK Network Sharing Agreement* [2003] OJ L 200/59 and Decision 2004/207 of 16 July 2003, *Network Sharing Rahmenvertrag* [2004] OJ L 75/32.

which shook up the sector (rise of the Internet), as well as predictions which failed to materialize (convergence stories of the early 1990s) or were outright failures (work on HDTV standards in the 1990s). Predictions only become harder to make in a competitive environment where customers have choices, both synchronic and diachronic (older and future offerings are also in the picture). Therefore, in addition to the uncertainty as to technological evolution, the evolutionary factors have been expanded beyond mere supply-driven technological progress to include hitherto less relevant demand-side factors such as network effects,<sup>39</sup> response to customer needs, etc. As a consequence, marketing and advertising might now be as important as a factor as intrinsic technical quality in determining technological evolution.<sup>40</sup> This only adds up to the uncertainty.

The upgrade to 3G networks provides illustrates this reality well. Gone are the days when engineers developed basic services such as fixed or mobile telephony, which fulfilled widespread needs and were in any event offered to prospective customers on a take-it-or-leave-it basis. Indeed with the perspective of penetration rates beyond 80%, it is reasonable to embark on large-scale network deployment.<sup>41</sup> Now demand is much more uncertain. In comparison to 2G (GSM/GPRS) networks, 3G brought increased data rates, improved features and some new services,<sup>42</sup> but not a revolutionary new proposition. Accordingly, the uptake of 3G has been slow, and most of all the uptake of new 3G services, on which operators are relying to earn returns on their investment, has been even slower.<sup>43</sup> The same can be observed in the fixed realm: the Internet is bustling with new and innovative services, all of which seem to respond to some demand. Nevertheless, none of these services seems set to become as widespread as voice communication or even e-mail. Blogging and other user-driven Web 2.0 applications are all suitably hyped, but they do not reach more than a small fraction of the general population. Whether they ever will is open to question.<sup>44</sup>

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<sup>39</sup> A sense of community or belonging.

<sup>40</sup> Witness the golden age of ISDN as a beefed-up Internet access technology in the 1990s and the prevalence of SMSs today: none of these two technologies were designed for the respective uses which made them famous. Good marketing and network effects did the trick. Another prime example, outside of the realm of electronic communications, is the iPod: technology-wise, there was nothing innovative about this product (MP3 players were already on the market), but design and marketing savvy turned it into a milestone.

<sup>41</sup> It can be recalled that the deployment of GSM networks in the 1990s was not going to be such a major success (and a profitable business) until pre-paid subscriptions were introduced. This enabled the penetration rate to surge to 90% and beyond (even above 100% of the population in certain countries!) and mobile telephony (GSM) to become more or less a social requirement.

<sup>42</sup> For instance watching video on mobile telephones, which is not possible at 2G data speeds.

<sup>43</sup> As was put in an industry presentation, consumers are buying the nice 3G phones, but keeping the 3G features switched off.

<sup>44</sup> It could be a chicken-and-egg problem, in that the requisite amount of technical proficiency and patience with the constraints imposed by limited bandwidth limits the take-up of such services to the more dedicated users. It could also be a generational issue, with the penetration rate then increasing in step with the proportion of the general population who grew up with the Internet (i.e. born after 1980).

The uncertainty is compounded, in the current context, by the liberalization wave of the 1990s, which led to more open markets. This implies firstly that technological progress is now a competitive factor, thus increasing the chances that operators and providers will try to introduce differentiated technological solutions and leave the market (i.e. customers) to choose what it prefers.<sup>45</sup> Moreover, competitive pressures might accelerate the rate of technological evolution. Of course, one could say that this flurry of innovation takes place at higher levels and that basically, electronic communications is moving from a number of discrete narrowband offerings to a more generic broadband communications offering; however, this would ignore that demand will largely be dictated by higher-level applications and services.<sup>46</sup>

In sum, network operators are facing the following conundrum: they are fighting against the commoditization of their business and they are also losing control of the factors influencing demand, as the rents are moving upwards to content, service and application providers. They are more or less compelled to invest further in their networks (given the competitive situation): incremental investments can only take operators so far, and in the long term multi-billion-range expenditures to improve local networks (with fiber and with next-generation mobile technology) are unavoidable. Furthermore, customer demand is more uncertain than before.

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<sup>45</sup> Alternatively, if it is thought that a single solution should be adopted *beforehand*, market players (equipment and software manufacturers, operators, providers) might fight a standards battle behind the scenes before a technological advance is brought to the market. Witness the high-stake game which surrounded the specification of the 3G standard.

<sup>46</sup> At the same time, in electronic communications, demand for networks is not always necessarily derived from demand for services. The interplay is more complex. The supply of networks is rather lumpy, given the need for large-scale rollouts, whereas the demand curve for electronic communications services seems to be more continuous. So while demand for services definitely influences network rollout (as of a certain level of pent-up demand, it is worth investing in network capacity), a large-scale rollout will typically anticipate on demand. The extra capacity might then trigger a quicker rise in demand for services, along the lines of the famous saying “build it and they will come”.

### **3 MAJOR ISSUES CURRENTLY RAISED IN ELECTRONIC COMMUNICATIONS**

The Commission is currently carrying out a review of EC electronic communications regulation,<sup>47</sup> which is expected to lead to concrete proposals in the coming months. A key topic – if not the main topic – in the discussions so far has been how to find the right regulatory policy to foster investment. The discussions have already highlighted a series of fundamental issues which are tackled here, namely:

- the appropriateness of structural solutions, in particular the separation of certain elements of electronic communications networks (the local networks) from other activities;
- in the alternative, the optimal behavioural regime, especially lighter regulatory treatment for vertically-integrated firms conducting major infrastructure investments (often brought under the heading of “regulatory holiday”);
- in any event, the extent of coordination required at EC level.

#### **3.1 Structural solutions – functional separation**

It is widely expected that the Commission will endorse the UK model of functional separation, whereby investors in local infrastructure – in particular incumbents holding SMP – are required to place their local infrastructure activities in a separate subsidiary. The rationale behind that policy is that the local infrastructure is likely to remain a natural monopoly – or at least a bottleneck - in most locations in the EU. By putting such infrastructure in a separate subsidiary, the needs of all firms competing to use the local infrastructure will be better served, since the incentives for discrimination will vanish if not disappear altogether.

The experience in the UK – as well as in other network industries such as rail transport – shows that separation is perhaps more geared towards ensuring a level-playing field between competitors than fostering innovation and investment in the non-competitive activity. The benefits of vertical integration are lost: the firm in charge of non-competitive activity no longer receives clear signals from the rest of a larger firm, so as to guide investment decisions. Rather, the non-competitive activity is exploited under a heavily regulated regime, which provides few incentives for dynamic efficiency.

More fundamentally, regulating by drawing lines through an industry – be it between local infrastructure and the rest, or between transport and production – often implies that lawmakers and regulators base their action on more or less elaborate models which should reflect the structure of the

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<sup>47</sup> Supra, note 1.

industry. Sometimes the models are even meant to anticipate on the evolution of the industry. The industry is divided up, each of the parts is then defined<sup>48</sup> in the law or regulation, and depending on where a firm's activity falls within that set of legal definitions, legal consequences follow. In my view, this approach is flawed. It ignores the consequence of liberalization sketched above. The regulatory authorities must let go of the sector and avoid regulating according to all-encompassing models.

### 3.2 Behavioural solutions, including regulatory holiday

If structural solutions are not used, it is interesting to look at how regulation can be designed to minimize the negative impact on the investment incentives of vertically-integrated firms. We look more precisely at the two main parameters of regulation, namely its timing (A) and its intensity (B).

#### 3.2.1 Timing: the abusive use of *ex ante* and *ex post*

A key issue in economics is whether regulatory intervention takes place *ex ante* (defined as prior to any investment being conducted) or *ex post* (once the investment has taken place). There two different strands of thought appear to lead to opposite conclusions. If one follows a more public choice approach, where the risk of government failure is a central concern, *ex ante* intervention must be done with great caution. The overarching concern is to avoid Type I errors (false positives, i.e. unwarranted regulatory intervention), which are perceived as more damaging than Type II errors (false negatives, i.e. failure to intervene when warranted). Type I errors deprive society from the benefits of what would have been allowable activity, and it is doubtful whether that activity can be resumed once the error is corrected. In contrast, Type II errors, if caught, can be corrected by subsequent intervention and corrective measures for the period where the error was made. Given that *ex ante* intervention is by definition more prone to error because of its speculative nature and that Type II errors can be corrected *ex post*, *ex ante* intervention should be minimized so as to reduce the risk of Type I error.

A game theoretical analysis takes a different perspective. On the assumption that investment is a two-stage game, if the investor plays first, uncertainty as to the behaviour of the regulator (interventionist or not) will lead the investor to be cautious with investment or even to refrain from it. If the regulator plays first and discloses its position (however interventionist), then the investor can decide in full knowledge about the behaviour of the regulator, without discount for uncertainty, and will simply invest in accordance with the incentives given by the regulator. Game theory would therefore support *ex ante* intervention. This analysis is subject to a key caveat, however: the timespan for infrastructure investments is considerable (20 years and above), and in practice it is difficult to see how a public

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<sup>48</sup> See in the Framework Directive for the definitions of “electronic communications networks”, “electronic communications services”, “associated facilities”, etc.

authority can make a credible regulatory commitment for such a long period. Ultimately, the legislature can always respond to the political climate of the moment and decide to cancel a commitment made years ago, even if it was made by the legislature itself.

These two lines of analysis appear to contradict each other, however it should be underlined that whereas public choice is concerned with the intensity of intervention (including whether there should be any intervention at all), game theory is more concerned with timing, independently of intensity.

A number of interested parties (network operators, potential investors, etc.) have collapsed the two lines of analysis together as follows. From a game-theoretical perspective, it follows that regulatory authorities should commit themselves early in order to remove uncertainty on the side of the investors. However, in the light of the high level of uncertainty as to the evolution of electronic communications, as sketched out earlier, the risk of Type I error at an early stage is overwhelming, and therefore it would be advisable to refrain from regulatory intervention. In the end, thus, the regulatory authority should commit early on to not intervening at all and let investors carry out their investments unhindered by regulation. This is the reasoning behind the German proposal to grant Deutsche Telekom a “regulatory holiday” for its investments in broadband infrastructure (see further below).

On the legal side, the arguments for an *ex ante* commitment to minimal regulation (if any) are coated with the mantle of legal certainty: there would be too much legal uncertainty without prior commitment, so that investments would not be undertaken. At the outset it must be underlined that legal uncertainty is a different issue than the market uncertainty – due to technological evolution and the vaguaries of demand – described earlier.

The reasoning set out in the previous paragraphs is problematic in a number of aspects. As a preliminary remark, the *ex ante* – *ex post* distinction is not as hermetic as economic literature would make it. Typically, decisions which would be qualified as *ex ante* are actually taken on the basis of historical data on the sector<sup>49</sup> and *ex post* decisions have a few *ex ante* elements in most cases.<sup>50</sup> Similarly, it is inaccurate to assimilate *ex ante* intervention with sector-specific regulation and *ex post* intervention with competition law.<sup>51</sup> In the end, the distinction is best understood as a matter of

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<sup>49</sup> For instance, the SMP decisions are never taken in a complete vacuum. There is historical experience with the various markets, the players on these markets and their behaviour.

<sup>50</sup> Even in the “purest” *ex post* competition law case, where a firm is under scrutiny for past behaviour with documented effects on a well-known relevant market, will involve some *ex ante* aspects in the remedies, which are meant to prevent future recurrences of anti-competitive behaviour (unless only a fine is levied).

<sup>51</sup> As far as competition law is concerned, MCR decisions are by nature *ex ante*, and a number of decisions under Article 81 and 82 EC (especially where interim relief is involved) actually fall between *ex ante* and *ex post*, in that the market is known, the allegedly anti-competitive behaviour is known, but its actual

degree: *ex ante* intervention takes place on the basis of a larger number of analytical assumptions and extrapolations than *ex post* intervention, which is based on a more solid evidentiary basis.

Similarly, it is worth examining the concept of legal uncertainty in greater depth. In a study for the Commission,<sup>52</sup> London Economics surveyed private firms and explained what the latter understood by legal uncertainty, which included three distinct concerns: (i) the law is not clear, (ii) NRA decisions across the EU go in different directions and (iii) the law is insufficiently monitored and enforced. For a lawyer, it is strikingly odd that these three concerns would be lumped together. After all, they are distinct and call for different solutions: (i) lack of clarity in the law can be addressed with further elaboration (through the legislature or a regulatory authority), (ii) greater coordination between NRAs can improve the coherency of the overall decision practice and (iii) a patchy enforcement record requires more resources to be devoted to enforcement (or a more efficient use of existing resources). All in all, the legal certainty moniker is used to cover concerns that do not belong together. Concern (iii), in any event, is somewhat foreign to the discussion. Let us then assume that investors are seeking in fact to have as much clarity on the substance and as much coordination between the NRAs as possible.

More fundamentally, the claims of interested parties as set out above remain stated preferences. As long as the major policy decisions on infrastructure investment have not been taken, so that the absence of regulatory intervention remains an option, it is understandable that interested parties will state that they would prefer that option. Let us assume for the sake of argument that public authorities do decide to commit *ex ante*, but not to refrain from regulation. Rather, they propose a relatively detailed regulatory regime comprising third-party access obligations and price regulation. If the range of possible options is suddenly reduced to a choice between significant *ex ante* regulation and the possibility of some regulatory intervention of unknown intensity later on, that the demand for an *ex ante* regulatory commitment would likely disappear. In other words, we do not know the real preferences of interested parties, and their claims must therefore be discounted if not altogether ignored.

Should regulatory intervention then, if any, be carried out *ex ante*, i.e. should a regulatory regime be imposed from day one, before investments have even taken place? Here again, the risk of Type I error in a context of high uncertainty appears too considerable: why should the NRA, standing at a distance

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effects on competition are not fully known, since the intervention aims to prevent these effects from occurring.

<sup>52</sup> London Economics, *An assessment of the regulatory framework for electronic communications: growth and investment in the EU e-Communications sector* (July 2006), available at [http://ec.europa.eu/information\\_society/policy/ecomms/info\\_centre/documentation/](http://ec.europa.eu/information_society/policy/ecomms/info_centre/documentation/).

from both supply and demand, be able to predict accurately how major investments will work out? Furthermore, according to both the game-theoretical analysis and the legal certainty argument, unpredictability is a greater problem than timing. It was seen above that the *ex ante* / *ex post* distinction is much too sharply drawn. Using a more nuanced timeline, it seems that the most appropriate course would be to refrain from heavy intervention *ex ante*, while at the same time setting out clearly the parameters under which any *ex post* intervention would take: an *ex ante* commitment to intervene *ex post* only under certain circumstances. In addition, setting out the parameters for intervention at the outset could moderate the temptation for public authorities to renege on commitments later on, since the polity can already agree on which future outcomes are acceptable or not (as opposed to binding itself to a present-day assessment which might prove completely off the mark).

### 3.2.2 Intensity

Investors need a measure of stability to be able to plan their investment. Of course overly intrusive regulation reduces the incentive to invest. What is then the appropriate regulatory course?

#### 3.2.2.1 *The mirage of regulatory holidays*

Claims for a “regulatory holiday” to foster investment now abound, as introduced above. They appear to be misguided. They assume that the relationship between competition law and sector-specific regulation in the EU is governed as in the USA. There, as the Supreme Court confirmed in *Trinko*,<sup>53</sup> if sector-specific regulation has a “structure designed to deter and remedy anticompetitive harm”, if it “performs the antitrust function”,<sup>54</sup> then competition law will no longer be applicable once a regulatory determination has been made. A regulatory authority can thus grant a true regulatory holiday: once it has conducted an economic assessment so as to fulfill the “antitrust function” and come to the conclusion that no intervention was needed, the application of antitrust law will also be excluded. This is what the FCC has done in recent years when it implemented broadband deregulation.<sup>55</sup> In contrast, in the EU, the application of sector-specific regulation cannot prevent competition law from applying as well, as the Commission has ruled in *DT*.<sup>56</sup> In the EU, due to its place in primary EC law, the application of competition law cannot be excluded *a priori* simply

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<sup>53</sup> *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko*, 540 US 682 (2004).

<sup>54</sup> *Silver v. New York Stock Exchange*, 373 U. S. 341, 358 (1963), cited in *Trinko*, *ibid*.

<sup>55</sup> See the summary of the proceedings in P. Larouche, “Contrasting legal solutions and the comparability of US and EU experiences”, in F. Levêque and H. Shelanski, eds., *Antitrust and Regulation in the EU and US: Legal and Economic Perspectives* (Cheltenham: Edward Elgar, forthcoming 2007).

<sup>56</sup> Decision 2003/707 of 21 May 2003, *Deutsche Telekom AG* [2003] OJ L 263/9 [hereinafter *DT*]. This decision is before the Court of First Instance of the European Communities for review.

because a regulatory authority has already conducted an examination of the same market.<sup>57</sup> Accordingly, if a Member State in its wisdom would decide to grant a regulatory holiday to firms – leaving aside a probable breach of EC law<sup>58</sup> – it could only remove the threat of regulatory intervention from the NRA pursuant to national electronic communications legislation. Whilst that might be the most immediate and significant threat, competition law remains applicable. Even if the NCA would somehow also be tamed by the Member State in question, the Commission can still intervene pursuant to EC competition law. What is more, current EC competition policy is to foster private enforcement of competition law, so that the competitors or customers of the firm could seriously disturb its regulatory holiday through competition law claims brought before national courts.

Furthermore, abstaining from any regulation (granting a regulatory holiday), while appealing to investors, is difficult to justify from a social perspective. Given the uncertainty surrounding the evolution of the electronic communications sector, a regulatory authority cannot safely predict that no concerns would arise in the future, so as to justify an immediate commitment to refrain from regulation. For instance, it cannot be excluded that over time, the new infrastructure in which investment is being poured would become a bottleneck and enable its holder to extract monopoly rents or engage into exclusionary behaviour. This could happen because of strategic behaviour on the part of the investor, but it could just as well be an “unintended” consequence of technological evolution, economic conditions, decisions by competitors or a shift in demand, among others. So there must be some room to intervene in pursuit of public policy objectives.

### 3.2.2.2 *The general risk associated with investment as a standard*

How are the parameters for intervention to be set if investment is not to be discouraged? Some inspiration can perhaps be obtained from German legal doctrine. In contemporary German legal thought, members of society are all expected to bear some risk, the so-called general level of risk associated with carrying out an activity or even with human existence in society (*allgemeines*

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<sup>57</sup> See Larouche, *supra*, note 55. D. Geradin, “Limiting the scope of Article 82 EC: What can the EU learn from the US Supreme Court’s judgment in *Trinko* in the wake of *Microsoft*, *IMS*, and *Deutsche Telekom*?” (2004) 41 CMLRev 1519 would explain the contrast between the two rulings differently.

<sup>58</sup> The Commission has taken a very hard stance on the German legislative proposal to grant regulatory holidays to Deutsche Telekom, opening a fast-track infringement proceeding against Germany. According to the press releases, the Commission sees two infringements of EC law. Firstly, the German law would breach the objectives of the electronic communications framework, in effectively weeding out competition on the higher-speed broadband market (VDSL). Secondly and perhaps more importantly, such a legislative action would run counter to the scheme of electronic communications regulation, whereby these types of decisions belong to the NRA and not to the executive or the legislature, and must be taken only after the notification and comment procedures of the Framework Directive have been complied with. See “Commission launches “fast track” infringement proceedings against Germany for ‘regulatory holidays’ for Deutsche Telekom”, Press Release IP/07/237 (26 February 2007) and “Telecoms: Commission takes next step in infringement proceedings because of Germany’s ‘regulatory holiday’ law” Press Release IP/07/595 (3 May 2007).

*Lebensrisiko*).<sup>59</sup> Similarly, there is no risk-free investment in our day and age; every investor is expected to be able to live with a certain level of risk surrounding its investment. A regulatory holiday in the US style – including relief from competition law – appears excessive precisely because it amounts to shifting entirely onto the public authority the risk surrounding the evolution of the market, more specifically the risk that the evolution of the market would be such as to warrant regulatory intervention to ensure the fulfillment of public policy objectives. The investor who benefits from a regulatory holiday is thus placed in a privileged position, certainly in comparison with investors in other sectors. As a guiding principle, I would suggest that *the law should strive to place investment in infrastructure projects on the same footing as investment in comparable large-scale projects not involving infrastructure*. This does not mean no risk of regulatory intervention, but a commensurate amount of risk.

The one regulatory risk to which every investor is exposed is that, once the investment is made, competition law would subsequently come to apply in such a way as to affect returns adversely. It can be left open whether competition law is in itself sufficiently well circumscribed to minimize the disincentive on investors;<sup>60</sup> in any event it is applicable across the whole economy.<sup>61</sup>

Beyond that, public authorities should tread carefully. For instance, it would be advisable to place specific regulatory risks (i.e. the risk that sector-specific regulation would apply) in the shadow of competition law. This is precisely the thrust of EC electronic communications regulation, in particular the SMP regime, with its reliance on economic analysis. Typically, SMP regulation remains close to competition law: markets are defined along lines similar to competition law, SMP is assimilated to dominance, and the available remedies are broadly in line with what could be imposed under competition law.<sup>62</sup> The main difference is institutional: sector-specific regulation is enforced more systematically and more swiftly than competition law. To the extent that SMP regulation goes beyond what is possible under competition law, it relies on economic analysis in any event.

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<sup>59</sup> This has repercussions for instance in tort law, where damage representing no more than the realization of this *allgemeines Lebensrisiko* (as opposed to damage emanating from a specific risk for which the defendant is accountable) is not recoverable.

<sup>60</sup> A number of Commission officials, from the Commissioner down, have claimed in recent times that after more than 40 years of experience in its application, EC competition law would have become predictable. This was a key argument for the modernization – read decentralization – of competition law enforcement as well as for the alignment of electronic communications regulation with competition law. With all due respect, a fair measure of scepticism is warranted against such a claim.

<sup>61</sup> This is yet another reason – at a more theoretical level – why competition law should not be covered by any regulatory holiday.

<sup>62</sup> All the more now that Regulation 1/2003 has expanded the remedial powers of the competition authorities – or confirmed their breadth, according to some.

### 3.2.2.3 *Proposal*

In the light of the above, public authorities should set out *ex ante* a scenario for the evolution of the sector, based of course not on technological but on economic and functional considerations.

Presumably, considering the uncertainty, it would be preferable to set out negative scenarios, i.e. undesirable outcomes, defined as a set of parameters which would trigger intervention if they are found to have occurred. For instance, the authority could announce that it would find it objectionable if:

- bottlenecks were created or recreated, giving their holder excessive market power;
- no access agreements at all were concluded with third-party competitors (acting in good faith), given that the expectation is that allowing such access would allow for increasing returns on investment; or
- initiatives to ensure industry-wide interoperability or compatibility were thwarted.

As for those public policy objectives which cannot be placed entirely in the shadow of competition law, for instance universal service and citizen rights, public authorities could limit the disincentive to investors by committing at the outset to attach appropriate financial compensation to any subsequent intervention. For instance, if an investor wants to roll out fibre at the local network level where commercially feasible, public authorities could commit already not to include fibre-based connections within the scope of universal service without appropriate compensation for the net costs.

The approach sketched out above would have the advantage of providing a measure of certainty to investors so as to reduce the disincentives arising from the risk of regulatory intervention, yet without forcing public authorities to determine immediately the content of regulation and thereby very likely commit Type I errors.

## **3.3 The need for coordination across the EU**

Another concern of investors, as mentioned above, is the lack of coordination among NRAs.

Here as well, claims should be taken with a pinch of salt. Of course, if all NRAs are in line with each other *and* they take a hands-off approach to regulation in order to foster investment, it is easy to see why investors would be satisfied. But if NRAs coordinate their actions perfectly and opt for heavy *ex ante* regulation of markets where large investments are being conducted, would investors be so keen on coordination or would they not prefer some level of divergence, so that at least some NRAs take a lighter regulatory path? In other words, what is the value of coordination and how much of it is needed?

### 3.3.1 Arguments for coordination: spillovers/externalities, transaction costs, level-playing field

The arguments in favour of coordination are well rehearsed and can be summarized quickly. First of all, there are cases where NRAs decisions produce spillover effects or externalities in other jurisdictions. There coordination is required to avoid regulatory failure: the regulation of roaming provides an example where NRAs could not be brought to act, because their actions were imposing costs on the firms within their jurisdiction for the benefit of users from other jurisdictions.<sup>63</sup> In cases of spillover effects and externalities, the case for coordination is fairly strong; at the same time, given repeated interactions between the NRAs on various files, there are incentives to coordinate without outside compulsion.<sup>64</sup> Secondly, transaction costs are also frequently invoked: it is expensive for firms (and sometimes also for users) to deal with different regulations across the Member States of the EU. Contrary to spillovers/externalities, however, the transaction cost argument must be seen in a broader context: after all, there might be greater benefits from having different regulatory solutions, which offset transaction costs. A variant of the transaction cost argument is the level-playing field argument: regulation should be the same across the EU because regulatory divergences create an imbalance between operators (at least in fixed communications), depending on where their home base is. Here as well, there might be good reasons for Member States to opt for one or the other regulatory option, even when taking into account the impact on the level-playing field. Despite their relativity, the transaction cost and level-playing field arguments resonate very deeply at EC level, since they link with the two central EC policies, market integration and undistorted competition respectively.

### 3.3.2 Local circumstances and local preferences

On the other side, there are two main reasons which some level of divergence between NRAs might be tolerated. The first one is fairly intuitive: perhaps local differences justify different approaches. The second one is less straightforward but nonetheless important given the high level of uncertainty: there should be some room for “learning-by-doing” or what I would call “regulatory emulation”.

The first reason why a measure of divergence can be desirable is that local circumstances differ. Of course, electronic communications regulation makes room for NRAs to reach different conclusions because the facts (industry structure, geographical configuration, population density, etc.) of their respective jurisdictions are different. In that case, the role of NRAs would be narrow, limited to a fact-

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<sup>63</sup> This does not imply that the course of action ultimately chosen by the Commission – the introduction of an EC-level regulation on roaming outside of the regulatory framework for electronic communications – was appropriate. In fact, one could argue that the Commission indulged in regulatory opportunism there, given that it was meant to be committed to the Framework Directive and the market analysis of its SMP procedure for the imposition of these types of obligations.

<sup>64</sup> To some extent, one could argue that the NRAs had coordinated in the case of roaming, since none acted. However, it seems also that the NRAs could have been captured by the firms in their respective jurisdictions.

finding function. The NRA would then deliver added value because of its closeness to the playing field, which makes it better able to ascertain the situation accurately. Nevertheless, it would essentially be “filling in the blanks” in order to complete processes where the main decisions have been taken elsewhere.

It seems that a broader vision is more adequate. It would also ascribe a policy-making function to the NRA. The NRA would then not only engage into fact-finding, but also enjoy the ability to make certain policy determinations, to the extent that the trade-offs made earlier in the decision-making chain would need further refinements. The EC electronic communications framework does not expressly choose between these two models, but there are a number of significant indicia which point towards the broader definition.<sup>65</sup>

Furthermore, the practice since 2003 shows that NRAs see themselves as endowed with policy-making functions and actually engage into policy-making. At any rate, the NRAs acting collectively in the ERG do deal with policy issues, which would imply that they individually possess the power to deal with those issues.

Moreover, as is clear from the discussion earlier in this essay, the regulatory decisions taken by NRAs – especially when it comes to investment in infrastructure – are best seen as trade-offs against a background of uncertainty. There is no right answer, and thus it can be expected that different authorities – two or more NRAs or an NRA and the Commission – would reach different conclusions, without necessarily implying that one authority is completely mistaken.

### 3.3.3 Regulatory emulation

Considering the inherent uncertainty surrounding most of the major regulatory decisions, some measure of “learning-by-doing” seems appropriate, in order to avoid the risk of massive failure if all authorities followed the same approach, imposed in a top-down fashion. In addition, NRAs are closer to the playing field and can respond more flexibly to new developments than when their action must be coordinated at EC level. An important pre-condition for these positive effects to occur, however, is that NRAs do take a European approach and engage with the work of their peers.

Such a bottom-up emulation process is not necessarily indicated in all cases. A trade-off must therefore be made between the advantages of consistency and those of learning-by-doing via slight discrepancies. The former are mostly static and the latter, dynamic. Obviously, where there is broad

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<sup>65</sup> Including the list of policy objectives at Article 8 of Directive 2002/21, the latitude left to the NRAs in the choice of remedies and their powers concerning scarce resources.

consensus already (e.g. retail markets), it might be preferable to insist more on consistency. Where a number of reasonable options are open to the regulatory authority, in contrast, allowing some measure of divergence might be sensible in order to reduce the risk of failure, even if it imposes some costs in the shorter term. Experience will then help discerning which option turns out to be more adequate. At first sight, one might think that such situations arise only as regards remedies, but emulation might also be useful for certain issues relating to market definition<sup>66</sup> and the assessment of SMP.<sup>67</sup>

Where relying on emulation is appropriate, we should witness how NRAs from smaller jurisdictions would attempt to innovate on regulation (“maverick” behaviour) in order to try to position their jurisdiction better in comparison to larger jurisdictions. Other NRAs would keep a close eye on these developments, in order to see which of the maverick NRAs appeared to have made the best choice for its jurisdiction. Discussions would ensue within and outside of the ERG, with some benchmarking and other similar exercises, until some best practice(s) would emerge. NRAs from larger jurisdictions would typically refrain from maverick behaviour, given that the gains to be achieved for them would be dwarfed by the risk of losses in case regulatory choices turn out to be inappropriate. They would move at a later point, and their decisions would most likely establish what the best practice was found to be.

Unfortunately, in electronic communications, we have witnessed something quite different. Typically, an NRA from a large jurisdiction takes the lead in conducting market assessments and deciding on remedies. Historically, this role fell to the British Ofcom (and its predecessor Oftel), but it appears that other NRAs, in particular the French ARCEP, are also assuming this role nowadays. The Commission is closely involved with this NRA, and will endorse its approach. Subsequently, in its Article 7 comments on draft measures presented by other NRAs, the Commission will stick to the line set out in the first major case, all the more if it considers that it must achieve “consistency” and “coherence” across the EU. As a consequence, NRAs from smaller jurisdictions are prevented from engaging in maverick behaviour. Similarly, NRAs – from larger or smaller jurisdictions – which come late with their draft decision will have little if any room to stray from the “consensus”.

### 3.3.4 Division within Commission as to appropriate level of coordination

The task of balancing between the need for coordination and the benefits to be achieved by allowing NRAs to reach different decisions has been delegated to the Commission on a case-by-case basis,

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<sup>66</sup> E.g. whether cable and DSL are on the same market for broadband access (Market 12) and transmission of broadcasting signals (Market 18).

<sup>67</sup> E.g. the presence of collective dominance for mobile call origination (Market 15) or the impact of countervailing buyer power on the SMP findings for smaller providers of call termination (Markets 9 and 16).

through a review of NRA decisions, more specifically a review of the market definition and the SMP determinations proposed by the NRAs.

Indeed the SMP procedure (pursuant to which most NRAs decisions are taken) rests on a division of tasks between the Commission and the NRAs: the Commission, via the Guidelines on market definition and SMP<sup>68</sup> and the Recommendation on relevant markets,<sup>69</sup> already carries out a significant portion of the SMP procedure. In so doing, it effectively sets the parameters for the work of the NRAs.<sup>70</sup> As the recitals to Directive 2002/21 indicate,<sup>71</sup> the Commission is entrusted with this work in its capacity as “guardian of the Treaty”, given that (i) EC competition law, where the Commission has the lead role, is used to provide guidance for market definition and assessment; and (ii) some coordination is needed in the interest of the internal market. When subsequently reviewing draft NRA decisions under the procedure of Article 7 of the Framework Directive, the Commission can impose a two-month suspension of the NRA draft measure with a possible veto if ‘it considers that the draft [NRA] measure would create a barrier to the single market or if it has serious doubts as to its compatibility with Community law and in particular the objectives referred to in Article 8 [of Directive 2002/21].’ Article 7 must be seen in the same light: the Commission must be consulted because of its obvious interest in competition law and the internal market, and it even receives a limited veto right to safeguard these interests. A mere divergence of opinion between the Commission and the NRA (or between NRAs) is not sufficient to justify a Commission veto.

Unfortunately, the Commission tends to see itself rather as a form of review instance, which then double-checks on the decisions made by the NRAs.<sup>72</sup> In its Article 7 practice since 2003, the Commission has indeed allowed diverging measures (or at least diverging lines of reasoning) to stand in a number of situations. Yet in its Communication on the Article 7 procedure<sup>73</sup> and in its 2006 Review Communication,<sup>74</sup> the Commission sets a different standard, namely “consistency” or “coherency” across the EU. These terms are not defined any further, yet it is difficult to escape the

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<sup>68</sup> Commission Guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services [2002] OJ C165/6.

<sup>69</sup> Commission Recommendation 2003/311 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 communications networks and services (Recommendation on relevant markets) [2003] OJ L 114/45.

<sup>70</sup> See P Larouche ‘Coordination of European and Member State Regulatory Policy – Horizontal, Vertical and Transversal Aspects’ in D Geradin and N Petit (eds) *Which Regulatory Authorities in Europe?* (Edward Elgar Cheltenham 2005).

<sup>71</sup> See in particular Recitals 27-28.

<sup>72</sup> This view has been prominent in recent speeches of Commissioner Reding, where she praises the review procedure of Article 7 of the Framework Directive as enabling “two pairs of eyes” to bear upon every case.

<sup>73</sup> Consolidating the internal market for electronic communications, COM(2006)28 (6 February 2006) at 6, 9.

conclusion that they mean a single harmonized solution across the EU.<sup>75</sup> In addition, in the current round of review, the Commission is proposing to extend its veto power over the remedies part of NRA decisions as well. That proposal is problematic. It might be preferable to work instead with the ERG: the Common Position on Remedies can be further improved, and the ERG should be encouraged to engage more systematically in benchmarking and peer review.

It is interesting to note that, while the Commission advocates a high level of coordination – close to harmonization – for NRA decisions under electronic communications regulation, it also manages to be very responsive to local circumstances in the application of State aid law to major infrastructure projects in the electronic communications sector. These projects consist essentially in the laying of broadband networks in various technical configurations (typically based on fibre). Often, Member States extend financing to enable such networks to be rolled out in allegedly disadvantaged areas. Over the past years, the Commission has accumulated considerable practice in the area, with some 22 decisions up to the end of 2006. As summed up by Commission officials,<sup>76</sup> the Commission distinguishes on a geographical basis between “white”, “grey” and “black” areas. “White” areas are those where no broadband services are available, and there State aid for infrastructure will usually be allowed within certain limits. “Grey” areas are those where some broadband services are already provided (generally using ADSL over the existing network): the Commission is more cautious here, given the presence of some offerings. “Black” areas are characterized by the presence of two or more competing broadband networks, usually relying on the cable TV network (HFC) and the legacy telecommunications network (ADSL). In these areas, broadband deployment is thus already under way in a competitive environment, and the Commission will not accept that the State injects public funds to pre-empt (or “crowd out”) private operators by establishing a third, unique fiber-based network. There has been only one case of a “black” area so far, concerning a project in Appingedam.<sup>77</sup>

These cases, especially *Appingedam*, are very revealing of how the Commission construes the hierarchy between the various policies of the EU concerning electronic communications infrastructure. As long as no competition issue arises (in the white areas, which are not served at all), the Commission will allow State aid to roll out infrastructure, knowing full well that this is the only possibility for broadband services to come to the area in question. Under the circumstances, the best

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<sup>74</sup> *Supra*, note 1 at 4, 8-9.

<sup>75</sup> The Commission decision vetoing the draft measure of the German NRA illustrates well the difference between the standard outlined above and a “consistency/coherency” standard: Decision of 17 May 2005, Case DE/2005/144, available at <forum.europa.eu.int>. The Commission vetoed the draft measure because it departed from what other NRAs had done, without however explaining how that measure would have hampered the internal market or significantly clashed with Community law.

<sup>76</sup> L. Papadias, A. Riedl and J.G. Westerhof, “Public funding for broadband networks — recent developments” [2006] 3 Competition Policy Newsletter 13.

which can be hoped for is service-based competition. In the grey areas, the situation is more ambiguous: rolling a fibre-based network could bring competition to the existing offerings, thereby delivering infrastructure competition. Furthermore, fiber-based networks are introduced more rapidly than otherwise would be the case, in line with the general policy objectives concerning broadband. At the same time, the existing offerings – usually ADSL on the legacy electronic communications network – could be a poor match for fiber-based broadband, especially if the latter is publicly financed so as to bring down its cost. In the end the network to be rolled out with State support could end up alone on the market, which might not be a desirable outcome. In the black areas, the advantage of immediate broadband rollout is cancelled through the probable substitution of a single fiber-based network in place of existing competing infrastructures, in fact moving from infrastructure to service competition. Despite lofty political statements about the significance of broadband, the more germane policy choice in favour of infrastructure-based competition takes priority.

Conceivably, sector-specific regulation could also be articulated along these geographical lines. In white areas, a fair amount of regulation is likely to be required in the long run, in order to keep in check what is in fact a network monopoly. In black areas, on the other hand, if infrastructure-based competition takes hold, sector-specific regulation can probably be reduced to the minimum. Grey areas would lie somewhere in between.

In the end, as far as the need for coordination among NRAs is concerned, the Commission is thus divided between those applying and monitoring sector-specific regulation, who tend to favour a high degree of consistency – close to harmonization – between NRA decisions, and those implementing State aid policy, who have understood that it is impossible to follow the same policy throughout the EC. Even at Member State level, it is doubtful whether one size fits all. Infrastructure policy would then have to be determined on a regional or local basis.

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<sup>77</sup> Decision 2007/175 of 19 July 2006, *Broadband infrastructure in Appingedam* [2007] OJ L 86/1.

## 4 CONCLUSIONS

European law influences most Member State decisions concerning investment in infrastructure, in one way or another. Primarily law – the four freedoms and the competition rules contained in the EC Treaty – pushes Member States towards lighter solutions (subsidies or regulation) – and imposes some discipline on their actions. Most importantly, in network industries, national law is largely implementing decisions taken at EC level and reflected in secondary EC law (directives). The latter have been adopted mostly as part of liberalization processes designed to “trim the fat” off incumbents by exposing them to competition and forcing them to become efficient. As the regulatory focus shifts to the promotion of investment in infrastructure, certain characteristics of the current EC regulatory framework risk being overlooked, especially the separation of regulatory and operational functions and the need to factor the costs imposed on private firms in regulatory decisions.

The electronic communications sector provides an interesting case-study of the above, although it is affected by uncertainty concerning technological evolution and demand, to such an extent that it is perhaps in a category of its own among network industries.

The review of electronic communications regulation currently under way at EC level highlights the main regulatory debates surrounding investment in infrastructure. First of all, structural solutions – essentially separation of vertically-integrated companies – are put forward, but they are perhaps too drastic and they evidence a deep involvement of regulatory authorities with the operation of firms. Secondly, behavioural solutions raise problems of their own, both as regards timing (*ex ante* or *ex post*) and intensity (how much regulation). This essay proposes a way forward, based on legal and economic considerations, whereby regulatory authorities would set out *ex ante* a series of undesirable scenarios which would trigger intervention if they materialize. These scenarios should track competition law closely so as not to subject investors to more risks than in other sectors. Finally, it is open to discussion how much coordination is needed at EC level: while uniformity might appear desirable at first sight, there are also virtues to letting NRAs, under certain conditions, develop slightly divergent solutions so as to gain practical insights. In any event, the optimal regulatory approach is likely to vary even from one region to another within a single Member State.

