


Technological Neutrality in the EC Regulatory Framework for Electronic Communications: A Good Principle Widely Misunderstood

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Introduction

Technological neutrality is a widely accepted but little discussed regulation principle in the EU framework for electronic communication services. European Commission representatives consistently refer to the principle with pride. However, given how little systematic attention has been devoted to the principle's interpretation, there is reason to suspect that technological neutrality is in danger of degenerating into an empty formula evoked to support inconsistent political statements. This suspicion is supported by contradictory conclusions recently derived from the principle. It is therefore high time that

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these contradictions were eliminated through a careful analysis of its precise meaning.

Traditionally, the regulation of electronic communications services in Europe has been technology-based. Different technologies worked as entry barriers, thereby preventing competition among the services based upon them. However, for the last 20 years, digitalisation has led to an increasing convergence of technologies and communications services that allowed the same service to be delivered via networks which are generally regulated differently. Rapid technological innovation has prompted the fear that traditional regulation might reestablish the very entry barriers which regulation in general tries to eliminate, thereby biasing an efficient technological development of the sector. Increasing competition in coalescent markets, as well as the need for more flexible regulation in a dynamic environment, prompts the demand for a "technologically neutral" regulation.

Therefore, the principle of technological neutrality has been especially highlighted by the Commission and is among the five principles underpinning the regulatory framework of 2002. According to these principles, regulation should:

- be based on clearly defined policy objectives;
- be the minimum necessary to meet those objectives;
- further enhance legal certainty in a dynamic market;
- aim to be technologically neutral; and
- be enforced as closely as practicable to the activities being regulated.¹

Technological neutrality defined

The principle of technological neutrality is defined by recital 18 of the Framework Directive 2002/21² as follows:

"The requirement for Member States to ensure that national regulatory authorities take the utmost account of the desirability of making regulation technologically

1 See European Commission. *Towards a new framework for Electronic Communications infrastructure and associated services*. COM (1999) 539; Körber, *Der Grundsatz der Technologieneutralität im Telekommunikationsrecht*, Expert Opinion, Jena 2007, p.7 f.

2 Directive 2002/21 on a common regulatory framework for electronic communications networks and services (Framework Directive) [2002] OJ L108/33.

neutral, that is to say that it neither imposes nor discriminates in favour of the use of a particular type of technology, does not preclude the taking of proportionate steps to promote certain specific services where this is justified, for example digital television as a means for increasing spectrum efficiency.”

The principle of technological neutrality is widely accepted and seemingly clear, but, in fact, poorly understood. In theory, it claims to make free and undistorted market decisions among competing technologies possible. However, it might prove to be a “Trojan Horse”, opening the gates for an extension of regulation to currently unregulated services in coalescent or even newly emerging markets. Therefore, it is important to clarify the principle’s substance as well as its function in the current regulatory framework before turning to common misinterpretations and how to avoid them and finally, applying the principle to the current example of next generation access-regulation, all of which will be discussed in this article.

Technological neutrality clarified

A closer look reveals that the principle performs a twofold function in the current regulatory framework:

- The first part of the definition (“neither imposes . . . the use of a particular type of technology”) constitutes the fundamental rule of technological neutrality. The principle prohibits regulation that would eliminate the (evolutionary) selection function of the market mechanism. It therefore implies that technologically neutral regulation may influence but not pre-empt market outcomes, and that the question of whether regulation policy is technologically neutral cannot be answered without an effects-based economic analysis of the policy measures.³ In short, the principle of technological neutrality limits regulation by emphasising that the market rather than the state should decide about the success or failure of technologies.⁴

Therefore, ex ante regulation first has to be justified by regulatory goals which take priority when weighed against the basic rights (property, freedom of contract) of the incumbent; secondly, ex ante regulation must

be limited to exceptional circumstances in which—according to the “3-criteria test” applied by the Commission—(3) “the application of competition law alone would not adequately address the market failure(s) concerned”, in (2) “those markets the structure of which does not tend towards effective competition within the relevant time horizon” due to the (1) “presence of high and non-transitory entry barriers whether of structural, legal or regulatory nature”.⁵ In short, ex ante regulation must be limited to “bottleneck situations” for which not even the application of the “essential facilities doctrine” of competition law offers adequate solutions (“essential facility plus x”). The mere existence of significant market power (SMP) neither justifies measures based upon competition law (which require additional proof of an abuse of this power) nor, a fortiori, ex ante regulation.⁶

- The second part of the definition contains a prohibition of discrimination (“nor discriminates in favour of the use of a particular type of technology”). To such an extent, the principle of technological neutrality describes a specific, substantive and relative prohibition of discriminatory practices (i.e. practices directly or indirectly distinguishing between technologies without proper justification).⁷

— As a specific prohibition of discriminatory practices, technological neutrality is a quite particular anti-discriminatory rule as it protects technologies and thus property rights instead of legal subjects.⁸ A technology is a method to turn inputs into outputs and it competes for these inputs against other technologies. Such competition takes place in markets as well as in firms so that protection against discrimination of technologies goes further than a purely market-based prohibition of discrimination against market participants or

⁵ Recital 9 of the Commission’s Market Recommendation [2003] OJ L114/45.

⁶ See Laffont and Tirole, *Competition in Telecommunications* (Cambridge, MA: MIT Press, 2000), s.6 *et seq.*, 16 *et seq.*, 97 *et seq.*; Doll and Nigge, *Die Prüfung des Regulierungsbedarfs auf TK-Märkten nach dem neuen TKG*, MMR 2004, 519, 522; Möschel, *Der 3-Kriterien-Test in der Telekommunikation*, MMR 2007, 343, 344; Körber, *Der Grundsatz der Technologieneutralität*, p.39 *et seq.*, 67 *et seq.*

⁷ See Körber, *Der Grundsatz der Technologieneutralität*, p.11 *et seq.*

⁸ The consequences of this peculiarity were first explored by Kamecke, *Technologieneutrale Regulierung* (2007) and Körber, *Der Grundsatz der Technologieneutralität* (2007).

³ Kamecke, *Technologieneutrale Regulierung von elektronischen Kommunikationsdienstleistungen*, Expert Opinion, Berlin 2007, Ch.2.

⁴ See Kamecke, *Technologieneutrale Regulierung*, Ch.2.1.1, p.7 f; Körber, *Der Grundsatz der Technologieneutralität*, p.11.

services.⁹ Nevertheless, regulations pertaining to services can indirectly also discriminate against technologies.

— As a substantive prohibition of discriminatory practices, the principle is understood as pertaining to effects. The principle is therefore directed against substantive distortions of competition calling for a more economic approach to regulation policy.

— As a relative prohibition of discriminatory practices, the principle has the aim of making regulation, as far as this is possible and reasonable, technologically neutral. The principle does not per se forbid the consideration of technological differences.¹⁰ Even distortions of competition can be justified by regulatory goals such as stimulation of competition, digitalisation, public security, etc. The relative nature of the principle is closely linked to the transitional nature of current regulation law and its bridge building function, leading the telecommunications sector from its previous state of technology-based regulation to a not yet achieved state of effective competition merely monitored by competition law.

— Last, but not least, the principle is directed towards the state. It aims to counter distortions of competition that are generated by public measures. In this context, the main function of the principle as a limit to regulation has to be taken into account. Technological neutrality, therefore, is to be achieved in the process of regulation, not by regulation. The principle is best served by reducing regulation in order to let the market decide.

Technological neutrality misunderstood and how to avoid common errors

The definition thus far developed can be universally applied. It does not depend on the regulation context.

⁹ See Kamecke, *Technologieneutrale Regulierung*, Ch.2.1., s.10 *et seq.*

¹⁰ Accordingly, some Member States treat Voice over Internet Protocol (VoIP) services differently from a Public Switched Telephone Network (PSTN voice). For example, Germany does not demand emergency call functionality for “technically new public telephony services” until the end of 2008. Therefore, explicit exceptions of technological neutrality are quite common.

However, the relativity of the prohibition of discrimination as well as the requirement of a more economic approach lead to context-dependent conflicts between the principle of technological neutrality and the other four regulation principles: in general, but particularly with regard to the clearly specified goals upon which every regulation has to be based. Therefore, it is understandable that context-dependent implications develop which we observe, for instance, by comparing current political debates regarding the role of technological neutrality for state aid rules,¹¹ frequency regulation¹² and the regulation of electronic signatures.¹³ In the following part of the article, we will concentrate on the role of technological neutrality in the context of access regulation. We will address several common misunderstandings surrounding the principle on the levels of market definition, market analysis and remedies. Furthermore, we will show how the principle can be applied correctly, taking economic reasoning as well as the other regulatory principles and the principles of competition law into account.

Misunderstanding: “technological neutrality modifies the standards for market definition”

It is a common mistake to use technological neutrality to replace, or at least blur, a careful market definition, settling for a mere finding of similarity between two services (e.g. fixed/mobile, ADSL/VDSL). This perfunctory test is often combined with the demand to regulate both services in the same manner.

This is wrong because every economic analysis of a competitive environment is necessarily based on thoroughly defined relevant markets. Again, the misunderstanding originates from a lack of economic analysis,

¹¹ See Decision 2006/513 on the State Aid which the Federal Republic of Germany has implemented for the introduction of digital terrestrial television (DVB-T) in Berlin-Brandenburg [2006] OJ L200/14; for a detailed exposition of the case see Körber, *Der Grundsatz der Technologieneutralität*, p.24 *et seq.*

¹² Almost every response to the “Call for Input” of the European Commission (2006) discusses the implications of technological neutrality for the regulation of frequencies. Because of the numerous violations of the principle in the past, see http://ec.europa.eu/information_society/policy/ecommi/ info_centre/documentation/public_consult/review/index_en.htm [Accessed February 26, 2008].

¹³ The trade-offs involved here are discussed carefully by Bert-Jaap Koops, “Should ICT Regulation be Technology-Neutral?” in Bert-Jaap Koops *et al* (eds), *Starting points for ICT regulation, deconstructing prevalent policy one-liners* (The Hague: T.M.C. Asser Press, 2006), Vol.9, pp.77–108. Available at <http://ssrn.com/abstract=918746> [Accessed February 26, 2008].

potentially working with an intuition that a simple market analysis may fail to capture important aspects of technological neutrality. As pointed out earlier, technological neutrality applies to competition in markets as well as in firms. The implementation of technological neutrality always requires that the competition of technologies in markets is not distorted without justification. For this analysis, the relevant markets must be defined before the principle of technological neutrality can be applied according to the principles of competition law, primarily applying the test of demand-side substitutability¹⁴ which does not allow for the consideration of regulative goals because such consideration would blur the competitive assessment.¹⁵

Therefore, the principle of technological neutrality has no positive relevance for the market definition other than emphasising the importance of a strictly competitive assessment based on a “more economic” analysis. On the contrary, three negative conclusions have to be drawn to avoid widespread misconceptions: first, the principle does not stipulate that different technologies cannot constitute separate markets¹⁶; secondly, the principle cannot be construed as calling for the identical regulation of services belonging to different markets, and thirdly, the principle does not demand or even justify taking the goals of regulation—or even the goal to regulate—into account when defining markets.

Misunderstanding: “technological neutrality can be achieved by neutrally worded market recommendations”

Technologically neutral regulation is often sought by simply deleting textual references to specific technologies, e.g. by removing the expression “metallic loops” from the definition of Market 11 (now 4) of the Commission’s former market recommendation.¹⁷

This is wrong, because market definition in regulation law pertaining to Art.15(1) of the Framework Directive 2002/21 aims at identifying markets warranting ex ante regulation according to the “3-criteria test”. A formalistic approach tends to create overly broad market definitions and, consequently, creates excessive regulation because the Commission’s market recommendation indicates a need for ex ante regulation which is usually followed by national regulatory authorities. Therefore, the objective of technologically neutral market recommendations is best served by a thorough, more economic market-by-market analysis according to the “3-criteria-test”.¹⁸ Within this test, the application of technological neutrality makes sense as it opens a wider view on possibly emerging alternative technologies. Although not necessarily being substitutes already, alternative technologies can reveal the ability to potentially lower market entry barriers.

The task of properly formulating market recommendations has to follow, temporally as well as substantially, the economic assessment as accurately as possible. Compared to current regulation, which often prescribes unnecessary technical details, this may call for market recommendations with a more technologically neutral wording. The proper definition of an access point to wholesale broadband lines (also referred to as bitstream access) for instance, requires the specification of the technical properties of the signal transmitted. Typical technical properties for common bitstream accesses could, for example, be defined by a maximum capacity of up to 16 Mbit/s per line.¹⁹ With such a technologically neutral definition, it can be entirely left to the regulated undertaking whether it meets these requirements with a copper or a fibre connection.

Similar logic has provided the reasoning for the Commission’s latest deletion of the word “metallic” in the definition of the local loop market (Market 4 of the

14 See European Commission notice on the definition of relevant market for the purposes of Community competition law [1997] OJ C372/17.

15 Compare *Bundeskartellamt*, Opinion of April, 26, 2006 concerning the identification of new markets in the telecommunications sector, Answer to Question 2; Körber, *Der Grundsatz der Technologieneutralität*, p.33 f, 48 f.

16 *Bundeskartellamt*, Opinion of April, 26, 2006 concerning the identification of new markets in the telecommunications sector, Answer to Question 2.

17 See for example, ERG, *Consultation document on regulatory principles of NGA* (ERG (07) 16) (http://www.erg.eu.int/doc/publications/consult_regprinc_nga/erg_cons_doc_on_reg_princ_of_nga.pdf [Accessed February 26, 2008]).

18 See earlier section “Technology neutrality clarified”; Körber, *Der Grundsatz der Technologieneutralität*, p.56 f. Furthermore, following the example offered by §10(2) of the German Telecommunications Act of 2004 (TKG), this test should be implemented in the EC regulatory framework as well as in national laws as a binding statutory obligation. The national authorities should re-apply the test on the national level on a regular basis, rather than, as has thus far been the practice, sporadic basis. In this regard, a strengthening of national competence is desirable.

19 16 Mbit/s is practically the maximum speed when using modern ADSL2+ technology available for broadband connections established at the main distribution frame (MDF).

new recommendation).²⁰ In this context, the request for a technologically neutral wording may serve to clarify that on the level of the “3-criteria” test, other technologies have to be taken into account when identifying entry barriers or potential competition respectively. For example, the new Market 4 explicitly demands to evaluate long-term competitive effects regarding local end-customer access by technologies like WiMax, TV-cable, etc. However, on the whole, the technologically neutral wording confuses more than it clarifies. The local loop is essentially a medium used to transmit any type of electronic communications signals. Nonetheless, metallic wires and fibre lines are not perfectly substitutable, since the respective electromagnetic or optical signals they transmit differ significantly in their technical as well as their economic properties. The word “metallic” in the old market recommendation did not express a preference for a certain technology but a reference to a certain bottleneck—the allegedly “inherited” copper network—and to certain services offered through this bottleneck. A technologically neutral wording blurs this historical justification for regulation as well as it considerably broadens the scope of the wholesale and retail services affected by the market recommendation. The principle of technological neutrality does not in itself justify such an extension. It does not even affect the stage of market definition. On the contrary, the broad “technologically neutral” wording of Market 4, proposed by the Commission, would only be mandated if:

- the test of demand-side substitutability would require the inclusion of services that are not delivered through metallic wires; and
- such broader defined markets would still warrant ex ante regulation according to the 3-criteria test.

The principle of technological neutrality comes into play only if these two requirements are fulfilled and if ex ante regulation is deemed necessary by the national regulatory authority. In this case, regulation should be exercised in a technologically neutral manner.

Furthermore, such changes in wording cannot overcome the following “access paradox” inherent in every access regulation: it is the goal of access regulation to create competition in integrated value chains by creating access markets. Towards this end, the technology-dependent access point at which competitors have a chance to enter the market must

20 Recommendation of relevant markets, publication in the forthcoming Official Journal. Market 4 refers to the former Market 11.

be identified. Of course, this remedy changes the investment incentives so that it violates technological neutrality unless it is justified by the regulation goals. The whole construction of technologically neutral access regulation therefore rests on a fundamental conflict²¹ which should be acknowledged rather than hidden behind technologically neutral wording. It goes without saying that a regulation specific to a certain sector can never be totally technologically neutral.

Misunderstanding: “technological neutrality justifies regulation”

Quite often the “desirability of making regulation technologically neutral” (recital 18 of the Framework Directive 2002/21) is misunderstood as stipulating the “desirability of regulation”.

This is wrong because, according to this definition, technological neutrality is to be sought in the process of regulation, not by regulation. One must first determine if regulation is justified at all. The principle does not in itself justify regulation. To the contrary, as was shown in an earlier section of this article, the principle emphasises that technology-related regulation in general, as well as regulatory distinctions based upon technological differences, require proper justification. In the case of access regulation, this requirement will typically restrict the scope of technologically neutral remedies. The introduction of more than one regulated access point, for instance, requires that each one of them is justified by the regulation goals and hence by the additional competition it creates. Otherwise, regulation that establishes additional access points violates technological neutrality. As a consequence, technological neutrality never allows a large number of access points in one value chain.

Misunderstanding: “technological neutrality mandates identical regulation of all competing services”

The principle of technological neutrality is understood in a formalistic and exclusionary way on the remedies

21 This conflict coincides with the conflict between competition and the protection of property rights, discussed in the *Microsoft* case. The only author who points out that this conflict might not be so severe is Gerald R. Faulhaber, “Policy-induced competition: the telecommunications experiment” in *Information Economics and Policy*, (Elsevier, 2003), Vol.15(1), pp.73–97, who comes to the conclusion that access regulation is unsuccessful if there are significant violations of technological neutrality.

level. It is supposed to mandate identical regulation of all competing services.

This is wrong. Even if two services compete in one market, the principle must neither be applied in a formalistic nor in an exclusionary way. On the contrary, as was demonstrated earlier in the article, the principle has to be understood as a substantive and relative prohibition. As a substantive prohibition, the principle is understood as pertaining to effects. It is therefore directed, first, against unjustified regulation in general and, secondly, against distortions of competition caused by discrimination (i.e. unjustified differentiation) between technologies. As a relative prohibition of discriminatory practices, the principle does not per se forbid the consideration of technological aspects. On the contrary, taking technological aspects into account can be mandated in order to avoid distortions of competition resulting from “technologically blind regulation”, and even distortions of competition can be justified by regulatory goals such as stimulation of competition, digitalisation, public security and suchlike.²²

For the technological neutrality of access regulation, the effects-based approach is of particular importance because the obligation to provide communication services at regulated prices and conditions affects all competing services in a uniform manner. Such an approach creates an option for every customer in this market. As a consequence, the customers would only buy a competing service if it promises at least the same net utility as the regulated service. In particular, no buyer would be willing to pay more than the regulated price for a perfect substitute for the regulated service. The supplier of a competing differentiated service in the market can only charge a differential rent since he is restrained by the regulated price serving as an upper limit.

The same argument holds not just for regulated access. Once effective competition has been generated in one stage of the value chain, it is not possible to bypass competition with technologies which simply avoid the regulated access point. If such alternatives are offered to customers they have to compete with the services produced by the firms who use the regulated service as input, so that this artificial competition controls market power all the way down the value chain.

22 See Körber, *Der Grundsatz der Technologieneutralität*, p.15 f., 20 f.; Markert in Immenga and Mestmäcker, *GWB*, 4th edn (2007); Anh 1 TKG/31.

Misunderstanding: “technological neutrality calls for an extension of regulation to new services”

As was indicated in an earlier section of the article, the principle is abused as a “Trojan Horse” to extend regulation from “old” to “new” services in coalescent or even newly emerging markets.

This is wrong because, on a general level, the principle’s orientation towards market self-regulation clearly argues for a conservative and minimal approach to regulation, which in turn allows technological innovations to develop and compete with each other freely until the market determines success and failure. The normal development in the communication sector proceeds in small steps. Elements of new technology are included in the communication networks and allow vertically differentiated (sometimes only slightly superior) services to be offered. If successful, the stepwise differentiation continues, the market becomes increasingly segmented, then finally, a new market emerges. In exceptional cases, differentiation occurs instantly to a greater extent and a new market can be seen at once. Such effects normally involve large investments into new infrastructure.

Regardless of whether the new elements of technology compete in the access regulated market or in a downstream service market, technological neutrality never requires an extension of existing regulation.

With regards to newly emerging markets it is, of course, possible that new persistent market power develops. However, until this happens, technological neutrality does not call for an extension of regulation. As with any other market, the question of whether a new market warrants ex ante regulation has to be determined by applying the “3-criteria test” to the specific new market. Furthermore, recital 27 of the Framework Directive 2002/21 emphasises the need for a cautious approach to ex ante regulation of newly emerging markets which “should not be subjected to inappropriate obligation”. This requirement is important because in newly emerging markets, high market shares do not necessarily indicate sufficiently permanent single market power to warrant ex ante regulation, and because transitory market power may have beneficial effects in a dynamic environment.²³

23 This intuition goes back to J. Schumpeter, *Theorie der wirtschaftlichen Entwicklung: Eine Untersuchung über Unternehmerrisiko, Kapital, Kredit, Zins und den Konjunkturzyklus*, 6th edn (Berlin: Duncker & Humblot, 1918), but it is also spelled out in the literature on optimal patent protection.

In the context of coalescent markets (i.e. if a regulated market grows together with a formerly unregulated market, thereby increasing customer choice and competition), the response to this development can never be more regulation, but rather deregulation. In this case, product differentiation itself generates new competition and can therefore never lead to an uncontrolled part of the market where there was sufficient competition before. Thus, in this case neither the principle of technological neutrality, nor the regulation goal can call for more regulation.²⁴

Technological neutrality applied: the example of next generation access

Over the last two years, there has been intense political debate regarding the regulation of the new Very High Rate Digital Subscriber Line (VDSL) technology which Deutsche Telekom began installing in selected German cities in 2005. The German Government has vested interest in a fast realisation of this path-breaking infrastructure project. Therefore, the German Government raised the limits for ex ante regulation of new markets in the new §9a of the Telecommunication Act (TKG), although the Commission considers this provision a violation of the European Regulatory Framework.²⁵ The principle of technological neutrality played a major role in this discussion. The supporters of “regulation holidays” always stress that the importance of temporary monopoly rents for the development of new technologies justifies a temporary exemption from regulation.²⁶ The opponents of these plans point out that VDSL does not create a new market since these services can also, for the most part, be supplied with standard Asymmetric Digital Subscriber Line (ADSL) technology and that technological neutrality therefore requires an extension of broadband regulation to the new

technology.²⁷ The European Commission eventually²⁸ followed the second argument, forcing the German regulation authority to also extend their broadband market definition to the new VDSL technology. The reasoning of the Commission is not convincing in this instance. On the contrary, it underlines that a thorough clarification of the principle of technological neutrality is desperately needed.²⁹

First, we found it surprising that no one seems to question that technologies, in this case the VDSL technology introduced by Deutsche Telekom, are the object of access regulation. Access regulation fixes conditions and prices of services which have to be offered by the regulated firm at a defined access point. These services are in turn produced with certain technologies so that technologies are indeed affected by regulation, but they are not the object of regulation. In view of such contradictions, it is imperative for the Commission to take up the question of whether regulation has to be extended to the services offered by VDSL. This question does not make sense if these services are not different from the ones offered by ADSL. The question must be answered with “no” (i.e. that regulation extension is unnecessary) if the services are different because in this case they are innovations and thus explicitly protected from regulatory interference.

The second violation of technological neutrality originates from a standard misunderstanding of technological neutrality. Regulation is often perceived as a nuisance to the regulated firm, comparable to a tax or an environmental protection requirement; that is, as a burden which an unregulated product does not bear. As we pointed out earlier, this is not the case for access regulation because every offer in the regulated value chain suffers uniformly from the competition with the regulated element so that technological neutrality does not justify extended regulation in this context.

The third—and most fundamental—mistake according to every standard, however, is the statement by the Commission, justifying the regulation with the statement that the as yet unrealised investment plans of

24 See Körber, *Der Grundsatz der Technologieneutralität*, p.78 f.

25 See “Commission launches ‘fast track’ infringement proceedings against Germany for ‘regulatory holidays’ for Deutsche Telekom”, (Rapid Press Release, IP/07/237, 2007).

26 See for example Baake, Kamecke and Wey, *Neue Märkte unter dem neuen Rechtsrahmen*, (Berlin, 2004) or see <http://www.diw.de/deutsch/produkte/publikationen/diwkompakt/doc/diwkompakt.2005-006.pdf> [Accessed February 26, 2008].

27 See for example Commission of the European Communities, eCommunications Consultation Task Force. *Germany: analysis of Market 12—wholesale broadband access*. 2005, p.4, available at <http://www.ectaportal.com/extranet/upload/File/Market%20Reviews/Germany/vDSL%20Germany%20Final%2002-11-05.doc> [Accessed February 26, 2008].

28 See the letters written by the European Commission to the Bundesnetzagentur: SG-Greffe (2005), D/207790, Letter of December, 12, 2005, Case DE/2005/0262 and SG-Greffe (2006), D/204686, Letter of August 21, 2006, Case DE/2006/0457.

29 See Körber, *Der Grundsatz der Technologieneutralität*, p.80 f.

Deutsche Telekom are sufficient to prove the success of the new technology. At this point, there is no perceivable interpretation of the definition of technological neutrality left, which is compatible with a regulation authority deciding about success or failure before the marketable services were even introduced. On the contrary, *ex ante* regulation in this situation tends to reduce the competitors' investment incentives, thereby making the VDSL the *de facto* standard and effectively imposing the use of a particular type of technology. This result is, by definition, the situation which the principle of technological neutrality aims to prevent.

The fourth violation of the principle of technological neutrality is a simple and very explicit version of the misunderstanding that technological neutrality calls for an extension of regulation to new services, as the Commission justifies the extension of the regulation with the argument that VDSL offers exactly the same services as established ADSL broadband technologies, ignoring that this argument implies that VDSL is already sufficiently controlled by the existing access regulation so that a further technology-dependent remedy is not justified.

Fifthly, the development of the VDSL technology was from the very beginning connected with an innovation which contributes to the convergence of communication markets, as Deutsche Telekom has used VDSL to (re-)enter into the market for TV-transmission services by offering a corresponding product for about a year now. With this innovation, VDSL became a direct competitor to the standard TV-cable operators, so that the call for regulation is a further example of misunderstanding the principle of technological neutrality.

All these astonishing arguments are readily understood if one accepts the hypothesis that the European

Commission tries to implement an "open network" approach which guarantees access wherever a competitor wants to enter the net. This approach ignores the basic fact that communication nets are private property, thereby denying the central conflict between competition (that is access) and property rights (that is the free choice of trading partners). In particular, the reasoning in the corrigendum to the second 2006 letter of the European Commission to the German Bundesnetzagentur (Federal Network Agency) shows that this spirit has indeed influenced the decision. Here the Commission argues:

"Even if DT were required to keep its ADSL infrastructure operational throughout Germany in parallel to its VDSL infrastructure being rolled out, there may be a risk that without giving access to its VDSL infrastructure, alternative DSL-operators may be prevented from competing effectively with DT at the retail level in the relevant market."

With this statement, which was particularly important to the Commission as it was sent as a correction one day after the original letter, the Commission demonstrates that it does not acknowledge conflicts between the protection of private property and the regulation goal. Even the slightest (unlikely) chance of market exclusion is enough to impose access regulation, while even the strongest competitive control by an allegedly almost perfect substitute is not enough to consider a rule of reason argument. Most importantly, this rejection of property rights not only holds for parts of the network "inherited" from the former public monopolist,³⁰ but also for the VDSL technology which has been developed, paid for and installed many years after the Deutsche Telekom privatisation.³¹

30 Even though some of the shareholders will strongly object to the use of the word "inheritance" here.

31 Compare German Constitutional Court judgment BVerfGE 115, 205. In this ruling (concerning the obligation of Deutsche Telekom to disclose business secrets), the German Constitutional Court decided that such new network structures must be distinguished from "inherited" structures.