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# **Regulatory reform of European telecommunications: Past experience and forward-looking perspectives**

by

**Günter Knieps**

**77**

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**Critical comments to the author are welcome!**

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## 1. From legal monopolies towards global entry deregulation

### 1.1 Early liberalisation initiatives on the EU level

A cornerstone for the take-off of the development towards competition in European telecommunications markets was the Commission of the European Communities' British Telecom decision in 1982 and its confirmation by the European Court of Justice in 1985. According to this decision, British Telecom should no longer be permitted to forbid the high-speed forwarding of telex messages between foreign countries by competitive agencies in Great Britain. The procedural setting of this case was most unusual because the Italian government and not British Telecom appealed against the Commission's decision. Moreover, the British government intervened, taking sides not with the Italian government, but with the Commission. The important message of the British Telecom case has been that the Commission of the European Communities is able to apply the Treaty of Rome's competition rules in the European telecommunications administration based on the public law of the different member countries.<sup>1</sup>

Since then, the Commission has initiated a wide-ranging discussion on the possibilities of completing the common internal market for telecommunications in the European Community. Obviously, this effort was strongly related to the Commission's endeavour to complete accomplish the common market by 1992. The "Green Paper on the Development of the Common Market for Telecommunications Services and Equipment" – issued by the Commission in June 1987<sup>2</sup> – proposed that the provision of terminal equipment as well as enhanced telecommunications services should be liberalized within and between the member countries.<sup>3</sup> Basic services (mainly voice telephony) as well as the largest parts of physical networks could still be monopolized by the national telecommunica-

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<sup>1</sup> For a detailed explanation of this case see Schulte-Braucks, "Das 'British Telecom'-Urteil: Eckstein für ein europäisches Fernmelderecht?", *Wirtschaft und Wettbewerb* 3 (1986), pp.202-215.

<sup>2</sup> KOM (87) 290 endg.

<sup>3</sup> In addition, the Commission pleaded for a liberalization of the procurement policy of the national telecommunications administration as well as for an introduction of European-wide telecommunications standards.

tions administrations;<sup>4</sup> however, arguments concerning the public interest of such a monopoly should periodically be investigated.

## 1.2 The period of partial entry deregulation

Under the strong influence of the Commission's Green Paper of June 1987 partial entry deregulation was introduced in European countries. In Germany a new law was passed on 1 July 1989,<sup>5</sup> restructuring the traditional Deutsche Bundespost into three independent enterprises: Postal Services, Telecommunications Services and Postbank, which were finally privatized.<sup>6</sup> There have been controversial debates on the costs and benefits of global entry deregulation. The obstacles to comprehensive entry deregulation did not, however, exclude the possibility of partial entry deregulation. Under partial deregulation we understand free entry into terminal equipment supply and into value added network services (VANS) on the basis of the physical network provided by the network monopolist. There were two reasons why partial entry deregulation was politically feasible. First, partial entry deregulation was a useful measure to avoid large business users placing their telecommunications centers abroad and maintaining only enlarged terminals within the country. This danger was imminent because European countries are relatively small and therefore in a potentially competitive situation vis-à-vis each other. Second, the network monopolist had an interest in allowing partial entry deregulation and promoting VANS competition on its network. For as a public monopoly, the network monopolist was relatively inefficient and unable to exploit the whole innovation potential within the telecommunications market. By means of the exclusive provision of network facilities, however, it could always skim part of the innovation rents generated by private entrepreneurs.

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<sup>4</sup> Only the margin of physical networks (mobile radio and low speed satellite communication) were opened for competition.

<sup>5</sup> Gesetz zur Neustrukturierung des Post- und Fernmeldewesens und der Deutschen Bundespost (Poststrukturgesetz) vom 8. Juni 1989, Bundesgesetzblatt Teil I vom 14. Juni 1989, pp. 1026-1051.

<sup>6</sup> For the telecommunications sector, the Deutsche Telekom AG was founded.

### 1.3 Abolishment of all legal entry barriers

The “Green Paper on the Liberalization of Telecommunications Infrastructure and Cable Television Networks” issued by the Commission in October 1994<sup>7</sup> again strongly influenced the process of liberalization of European telecommunications. The “Full Competition Directive”<sup>8</sup> of 13 March 1996 demanded the member countries to allow free entry into all parts of telecommunications. The new telecommunications laws allowing overall market entry were enacted by the national parliaments during 1996, coming fully into effect on 1 January 1998. In order to make free entry into all parts of telecommunications politically acceptable it was necessary to split the silent coalition between the telecommunications administration and small users. An important solution was the implementation of the concept of a universal service fund into the new telecommunications law.<sup>9</sup> The purpose of the universal service fund is to keep the traditional subsidy of the small users stable and only change the way it is financed from internal to external subsidization. In order to make sure that the small users would not oppose deregulation it seemed to be important to guarantee the price-level of the traditionally internally subsidized services as upper boundary (“social contract” pricing).<sup>10</sup>

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<sup>7</sup> KOM (94) 440 endg.

<sup>8</sup> Commission Directive 96/19/EC of 13 March 1996 amending Directive 90/388/EEC with regard to the implementation of full competition in the telecommunications markets, *OJ L* 74, 22. 3. 1996, p. 13 (the “Full Competition Directive”).

<sup>9</sup> See for example section 2 (§§ 17-22) of the new German telecommunications law TKG (of 25 July 1996) as well as the Telekommunikations-Universaldienstleistungsverordnung (of 30 January 1997).

<sup>10</sup> The literature on price-cap regulation, in contrast, has developed the concept of rate stability in order to restrain monopoly power (as a substitute for rate of return regulation); e.g. Brennan, “Regulation by ‘Capping’ Prices”, US Department of Justice, *Economic Analysis Group D.P.* (1988), EAG 88, 11 September. In this context “social contract” transition methods have been outlined, for example, by Haring, Kwerel, “Competition Policy in Post-Equal Access Market”, *O.P.P. Working Paper* 22 (1987), February.

Under a universal service fund every supplier of a subsidized service has the right to obtain an external subsidy, financed out of this fund.<sup>11</sup> The amount of subsidy depends on the difference between the incremental costs to provide the socially desired services and the “social-contract” prices. The competition for subsidies would also reveal the actual burden of the universal services and the minimum costs of traditionally internally subsidized services. It can not be expected that the traditional carrier will necessarily be the most cost-effective supplier, if new firms with cost-saving technologies (e.g. mobile telephone and microwave systems) enter the market.<sup>12</sup> Therefore, the bidding for the subsidized markets may strongly reduce the volume of required subsidies. In particular, an increase of the universal service fund to finance the traditionally internally subsidized services can be excluded as long as the scope of universal services is not extended.

One possibility of financing the required subsidies through the universal service fund would be the public budget. Nowadays, an increase of the public budget may create strong political resistance. Therefore, a more realistic approach was the concept of an entry tax, which all suppliers of lucrative telecommunications activities would have to pay. This entry tax should be designed in such a way that entrants and incumbent would have to make the same contribution to finance the required subsidies. The entry tax would have to be raised in analogy to the value added tax – depending on the net revenue – in order to avoid any tax advantage for the incumbent when it considers providing value added services on its own basic networks.<sup>13</sup>

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<sup>11</sup> We are aware that, from an allocative viewpoint, cost-oriented tariffs would be superior. However, the purpose was to make the efficiency aim of free entry into telecommunications politically acceptable. Therefore redistribution considerations had to be taken into account (c.f. Blankart, Knieps, “What Can We Learn From Comparative Institutional Analysis? The Case of Telecommunications”, *Kyklos*, 42/4 (1989), pp. 579-598).

<sup>12</sup> Kahn, “The Future of Local Telephone Service: Technology and Public Policy”, *Wharton, Fishman-Davidson Center, D.P. No. 22* (1987).

<sup>13</sup> Blankart, Knieps, *supra*, n. 11, pp. 592-594.

## 2. Market power regulation within the EU context

### 2.1 The concept of ONP in partially entry-deregulated markets

The establishment of the internal market for liberalized services within Europe required a harmonizing of conditions for access to and use of public telecommunications networks and services. The concept of open network provision (ONP) was introduced in the Commission's 1987 Green Paper on Telecommunications Services and given substance in the "Framework Directive"<sup>14</sup> 90/387/EEC of 28 June 1990. Subsequent specific Directives and Recommendations applied the principles of open network provision to leased lines, voice telephony, packet switched data services and integrated services digital networks (ISDN).<sup>15</sup>

The purpose of the ONP policy during the period of partial entry deregulation was to stimulate entry into the VANS market and to ensure "fair" competition between VANS suppliers and the VANS operations of the existing telecommunications organizations. Article 3 of the "Framework Directive" 90/387/EEC therefore laid down several basic principles ONP conditions must comply with. These principles are as follows:

- conditions must be based on objective criteria;
- conditions must be transparent, and published in an appropriate manner;
- conditions must guarantee equality of access, and must be non-discriminatory, in accordance with Community law.

Furthermore, it was explicitly stated that ONP conditions must not restrict access to public telecommunications networks or public telecommunications services except for reasons based on essential requirements (e.g. security of network operations, maintenance of network integrity).

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<sup>14</sup> Council Directive 90/387/EEC of 28 June 1990 on the establishment of the internal market for telecommunications services through the implementation of open network provision, *OJ L* 192, 24. 7. 1990, p.1 (the "Framework Directive").

<sup>15</sup> For an illustrative survey of these developments the reader is referred to European Commission: ONP COMMITTEE Subject: Revision of the ONP Framework Directive ONPCOM 95-31, Brussels, 17 July 1995.

Focussing on the preconditions for competition on the VANS market, only a minimally harmonized offering of those public telecommunications networks and public telecommunications services identified as being in the European interest was required.

EU's ONP policy may also have been pursued as an instrument to avoid structural separation between the VANS activities of the existing telecommunications organisations and their traditional network activities.<sup>16</sup> Since the established carrier was (correctly) considered to be a monopolist on a large part of the market, global regulation of market power was still considered to be necessary, but left to the national regulatory authorities.

## **2.2 The concept of ONP in globally entry-deregulated markets**

The "Full Competition Directive" 96/19/EC of 13 March 1996 changed the "Framework Directive" 90/387/EEC by abolishing all legal entry barriers, thus enabling free entry into the markets for telecommunications services as well as the set-up and provision of telecommunications infrastructure networks. Since the telecommunications infrastructure in Europe is developing towards a set of interconnected networks, owned and operated by many different organizations, the importance of interconnection is strongly increasing. Interconnection takes place among different providers of long distance networks, among providers of mobile or satellite networks and public cable-based long distance networks, and also between long-distance telecommunications service providers to local networks etc. This changing role of interconnection also led to a revision of ONP principles. The basic philosophy behind the EU ONP policy seems to be that the infrastructure should be open to all users in the EU, open to any service provider and open to any provider of elements of the overall infrastructure. The "Full Competition Directive" (sections 4a-4d) extended ONP principles to the new fully entry-deregulated environment, focussing on interconnection and public

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<sup>16</sup> Similar ONP policies can also be observed in other network industries, e.g. railroads and airlines (e.g. Knieps, "Competition, coordination and cooperation – A disaggregated approach to transport regulation", *Utilities Policy*, 3/3 (1993), pp. 201-207).



switched networks. In addition to the well-known criteria of non-discriminatory, reasonable and transparent conditions, the criterion of cost-orientation was explicitly introduced. Priority was given to commercial negotiations between the interconnecting parties involved.

During the period of legal entry barriers, sector-specific regulation of market power was unchallenged. Network industries like telecommunications were exempted from general competition law (so called “wettbewerbliche Ausnahmebereiche”). Sector-specific regulatory instruments (e.g. price controls, tariff approvals) were applied ex ante. After abolishing all legal entry barriers, the question arose whether and to what extent sector-specific ex ante regulation would still be necessary.

### **2.3 Sector-specific market power regulation versus general competition law**

The “Interconnection Directive”<sup>17</sup> 97/33 EC, which was adopted in June 1997 and implemented into the Member States’ national laws by 31 December 1997, went further than the “Full Competition Directive” by introducing a two-tiered approach to ONP regulation. Providers of public telecommunications networks or public telecommunications services which are classified as possessing significant market power are subjected to more restrictive ONP regulation. This entails the general obligation to provide network access (section 4 (2)), the burden of proof that interconnection charges are cost-based and the possibility of ex ante regulation of interconnection charges (section 7 (2)), as well as principles for cost accounting systems (section 7 (5)).

According to the “Interconnection Directive”, an organization with a market share of over 25% in a given telecommunications market is considered to possess significant market power (section 4 (3)). Nevertheless, the major responsibility for ONP regulation has still been left in the hands of the national regulators.

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<sup>17</sup> Directive 97/33/EC of the European Parliament and of the Council of 30 June 1997 on interconnection in telecommunications with regard to ensuring universal service and interoperability through application of the principles of open network provision (ONP), *OJ L* 199, 26.7. 1997, p. 32 (the “Interconnection Directive”).

ry authorities. National regulatory agencies have the authority to determine whether an organization has significant market power. According to section 4 (3) they are free to decide whether an organization with more or less than 25% is to be classified as possessing market power in the sense of the “Interconnection Directive”. Moreover, principles for interconnection charges and cost accounting systems (section 7), including supervising whether tariffs are cost-based etc. are considered to be the responsibility of the national regulatory authorities. Thus, the “Interconnection Directive” laid down the general principles of future ONP regulation but left the responsibility for the concrete regulation of interconnection to the regulatory authorities of the individual Member States.

Meanwhile, the EU Commission tended more towards a differentiated regulatory approach. The Access Notice of the European Commission<sup>18</sup> extended the role of competition policy, pointing out the importance of the concept of “essential facilities”, indispensable for reaching customers (section 68). Thus the European Commission’s recommendation on leased line markets has been based on a differentiated analysis of the question of market power. According to this assessment by the Commission the remaining market power is clearly located in the area of the local leased lines, whereas long-distance telephony is considered to be a market where workable competition exists.<sup>19</sup>

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<sup>18</sup> European Commission, Notice on the application of the competition rules to access agreements in the telecommunications sector (Framework, Relevant Markets and Principles) (98/C265/02), *Official Journal of the European Communities*, 22. 8. 98, pp. 2-28).

<sup>19</sup> “Major commercial investments in long-distance optical fibre infrastructure are underway in Europe, and it is expected that several thousand kilometres of optical fibre will become operational by the early part of 2000, linking all major European cities. This massive investment in alternative infrastructure is expected to create for the first time significant competition for the incumbent operators’ leased line offers, in particular on their long-distance and cross-border leased line markets. However, new entrants may not be able to provide complete end-to-end leased lines to meet all their customers’ needs, and will often have to rely on the incumbent to provide a short-distance leased circuit to link the customers premises to the new entrant’s network (a “leased line part circuit”). This is particularly the case for new entrants wishing to serve Small and Medium Enterprises (SMEs).<sup>(FN)</sup>” Commission of the European Communities, Commission Recommendation on leased lines interconnection pricing in a liberalised telecommunications market, Brussels, 24.11.1999, C (1999) 3863, p. 4).

## The 1999 EU Review

The basic goal of the 1999 Review of the European Commission<sup>20</sup> was to consider to what extent phasing out of sector-specific market power regulation should take place. The key objectives stated at the beginning of the reviewing process were the maximization of the application of the general European competition law, the minimization of sector-specific regulation, a rigorous phasing-out of unnecessary regulation and the introduction of “sunset clauses” (ONP COM 98-42, p. 3).

On 12 July 2000 the European Commission presented its “1999 Review Package”, with five proposals for Directives of the European Parliament and the Council and one proposal for a Regulation: an ONP Framework Directive,<sup>21</sup> an Access and Interconnection Directive,<sup>22</sup> a Licensing Directive,<sup>23</sup> a Universal Service Directive,<sup>24</sup> a Personal Data/Protection of Privacy Directive,<sup>25</sup> and a Proposal for the regulation of unbundled access to the local loop. In the meantime the latter proposal has been passed by the European Parliament and the Council and was enacted in January 2001.<sup>26</sup>

The legal instrument of regulation has not been used before in European telecommunications policy. In contrast to a directive (“Richtlinie”), a regulation (“Verordnung”) is the most powerful legislative tool made available by the EC Treaty. It shall be binding in its entirety and directly applicable in all Member

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<sup>20</sup> Cf. European Commission, Directorate General XIII ONP COMMITTEE, Subject: The 1999 Review of the Telecommunications Regulatory Framework, ONP COM 98-42, Brussels, 11 September 1998.

<sup>21</sup> Proposal for a Directive on a common regulatory framework for electronic communications networks and services (COM (2000) 393).

<sup>22</sup> Proposal for a Directive on access to, and interconnection of, electronic communications networks and associated facilities (COM (2000) 384).

<sup>23</sup> Proposal for a Directive on the authorisation of electronic communications networks and services (COM (2000) 386).

<sup>24</sup> Proposal for a Directive on universal service and users' rights relating to electronic communications networks and services (COM (2000) 392).

<sup>25</sup> Proposal for a Directive on the processing of personal data and the protection of privacy in the electronic communications sector (COM (2000) 385).

<sup>26</sup> Regulation on unbundled access to the local loop (European Parliament and Council 2000/0185 (COD), 5. Dec. 2000).

States. This means that regulations automatically become part of each Member State's legal system without the need for any intervention by national governments or national legislators. Unlike directives, which require national implementation measures,<sup>27</sup> regulations become law in all Member States as soon as they are enacted. The incumbent operator with significant market power is obliged to provide full unbundled access, as well as shared access to the copper local loop under transparent, fair, and non-discriminatory conditions. The implementation of price regulation is left to the national regulatory authorities. As long as the level of competition in the local access is insufficient to prevent excessive pricing, national regulatory authorities are required to ensure that the principle of cost orientation is applied.

Both the draft for the ONP Framework Directive and that for the Access and Interconnection Directive leave the planned extent of the future sector-specific market power regulation in long-distance networks in the dark. Compared to the Interconnection Directive, Article 13 of the draft for the ONP Framework Directive provides a new interpretation of the criterion of "considerable market power", moving in the direction of establishing the criterion of dominance on a given market as a prerequisite for sector-specific market power regulation. But this is only an apparent step forward. Article 14 gives the commission discretionary power to identify a variety of markets for which the introduction of sector-specific regulatory measures should at least be considered. The draft for the Access and Interconnection Directive (Article 12) already indicates that sector-specific regulation may be extended to competitive markets (e.g. mobile telephony) as well as newly developing innovative markets (e.g. the Internet). This would be a definite step backward from the Access Notice of August 1998, which extended the role of competition policy, pointing out the importance of ensuring non-discriminatory access to essential facilities.

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<sup>27</sup> This does not rule out the fact that directives may have direct effect in Member States, provided that the provisions of the directive are sufficiently precise and unconditional.

### 3. Phasing out sector-specific regulation in competitive telecommunications

#### 3.1 The proper identification of sector-specific market power

Criteria like relative market share, financial strength, access to input and service markets etc. can only serve as a starting point in order to evaluate the existence of market power; but the development of an ex ante regulatory criterion creates a need for a more clear-cut definition of market power. This is even more important, because “criteria for conjecturing a dominant position” (“Vermutungskriterien”) on the basis of market shares can lead to wrong criteria for government intervention in the telecommunications sector.

It is important to identify the regulatory basis by means of Stigler’s concept of entry barriers, focussing on the long-run cost-asymmetries between incumbent and potential entrants:

“A barrier to entry may be defined as a cost of producing (at some or every rate of output) which must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry”.<sup>28</sup>

The sector-specific characteristics of network structures (economies of bundling) are not a sufficient reason to conclude that market power must exist. It is necessary to differentiate between those areas in which active and potential competition can work and other areas, so-called monopolistic bottleneck areas, where a natural monopoly situation (due to economies of bundling) in combination with irreversible costs exists. It can be demonstrated that the regulation of network-specific market power is only justified in monopolistic bottleneck areas. In all other cases, the existence of active and potential competition will lead to efficient market results. The pressure of potential competition can be sufficient to discipline the behavior of the active supplier, even if he is the owner of a natural monopoly. Such networks are called “contestable”.<sup>29</sup>

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<sup>28</sup> Stigler, Barriers to Entry, Economies of Scale, and Firm Size, in: Stigler (Ed.), *The Organization of Industry*, Irwin, Homewood, Ill. (1968), pp. 67-70, at p. 67.

<sup>29</sup> Cf. Baumol, Panzar, Willig, *Contestable Markets and the Theory of Industry Structure*, Harcourt Brace Jovanovich, San Diego (1982).

An essential condition for the functioning of potential competition in order to discipline a firm already providing network services is that the incumbent firm does not have asymmetric cost advantages in comparison with potential entrants. In contrast, if sunk costs are relevant, consumers, who would intrinsically be willing to switch immediately to less costly firms, cannot do this.<sup>30</sup> Sunk costs are no longer decision relevant for the incumbent monopoly, whereas the potential entrant is confronted with the decision whether or not to build network infrastructure and thus spend the irreversible costs. The incumbent firm therefore has lower decision relevant costs than potential entrants. This creates scope for strategic behavior of the incumbent firm, so that monopoly profits (or inefficient production) will not necessarily result in market entry.

Market entry therefore cannot be expected easily, if sunk costs are sufficiently high. Therefore we can conclude that sector-specific ex ante regulatory intervention in order to discipline market power can only be justified in non-contestable networks (monopolistic bottleneck areas), i.e. where bundling in combination with irreversible costs is relevant. The basic concept of the disaggregated identification of network-specific market power can be illustrated by the following table:

**Table 1**

submarket	with sunk costs	without sunk costs
natural monopoly (bundling advantages)	(1) monopolistic bottlenecks	(2) potential competition (contestable networks)
no natural monopoly (bundling advantages exhausted)	(3) competition among active providers	(4) competition among active providers

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<sup>30</sup> Cf. Knieps, Vogelsang, “The Sustainability Concept under Alternative Behavioral Assumptions”, *Bell Journal of Economics*, 13/1 (1982), pp. 234-241, at p. 239.

An interesting question is the relation between “pure economic” analysis and real life networks (and the services that are provided via those networks). What about the reality of “contestable networks”? It seems obvious that, as soon as competition works, the behavior of markets for network services becomes more complex than is assumed in the “simple” model of the theory of contestable markets. Examples may be strategies of product differentiation, price differentiation, creation of goodwill etc. However, even strategic behavior on competitive markets for network services should not lead to the opposite conclusion to re-regulate these markets. In contrast, the very point of the disaggregated approach is the development of the *preconditions* for competition on the markets for network services. The only purpose of the theory of contestable markets is therefore the localization of stable network specific market power, which systematically hampers the development of competition on the vertically related markets for network services. Whereas strategic behavior and informational problems do not lead to stable market power on the markets for network services, monopolistic bottlenecks – due to sunk costs – do create stable market power even if all market participants are well informed. The development of a set of rules for dealing with transactions across the boundary between contestable networks and monopolistic bottlenecks is therefore important in order to guarantee the preconditions for competition on the markets for network services.

### 3.2 End-to-end regulation versus disaggregated regulation

Regulatory instruments can be differentiated according to whether they are limited to the bottleneck areas (disaggregated regulation) or applied globally (end-to-end), including the competitive segment.<sup>31</sup> Since the application of regulatory rules is not cost-less and may also be abused strategically to disturb market forces, the advantage of the disaggregated regulatory approach is the strict limitation of the regulatory basis to bottleneck services. Its disadvantage, however, is that incentives may be created to discriminate against firms in vertically re-

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<sup>31</sup> E.g. Laffont, Tirole, *Competition in Telecommunications*, MIT Press, Cambridge, Massachusetts, London, England (2000), chapt. 4.

lated competitive segments.<sup>32</sup> This should be kept in mind when designing *adequate* rules for disaggregated bottleneck regulation.

It is well known from the positive theory of regulation that regulators have strong incentives to overregulate, mix regulatory instruments in an unsuitable way, favour the application of detailed regulation and call for a heavy-handed supervision of firms.<sup>33</sup> This is the very reason why an a priori “framing” decision to limit the regulatory basis to some extent is of particular importance.

This leads to the disaggregated regulatory approach which not only identifies network-specific market power properly as monopolistic bottlenecks but also designs a combination of regulatory instruments limited to the bottleneck.<sup>34</sup> Price cap regulation limited to monopolistic bottleneck services must be combined with additional regulatory instruments (e.g. accounting separation) and technical regulation (e. g. number portability, preselection) in order to deal with the problem of non-discriminatory access. Although the bundle of these instruments cannot be perfect, it moves regulatory attention into the right direction.

The aim of future regulatory policy should not be the global regulation of markets. Instead, only a disaggregated regulation of non-contestable networks is justified. The aim is then to localize the market power in monopolistic bottleneck areas and discipline this market power by regulatory intervention. Asymmetry of market power due to monopolistic bottleneck facilities, however, does not by itself require asymmetric regulation. Instead, the symmetry principle requires that all firms have access to local telecommunications networks on terms identical to those of the incumbent (nondiscriminatory access). The symmetry principle demands that only bottleneck facilities are regulated, irrespective of whe-

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<sup>32</sup> E.g. Mandy, “Killing the Goose That May Have Laid the Golden Egg: Only the Data Know Whether Sabotage Pays”, *Journal of Regulatory Economics*, 17/2 (2000), pp. 157-172.

<sup>33</sup> E.g. Stigler, “The Theory of Economic Regulation”, *Bell Journal of Economics*, 2 (1971), pp. 3-21; Knieps, “Costing and Pricing of Interconnection Services in a Liberalized European Telecommunications Market”, in: American Institute for Contemporary German Studies (ed.), *Telecommunications Reform in Germany: Lessons and Priorities*, Washington D.C. (1998), pp. 51-73.

<sup>34</sup> E.g. Knieps, “Phasing out Sector-specific Regulation in Competitive Telecommunications”, *Kyklos*, 50/3 (1997), pp. 325-339, at p. 331.



ther the owner is the incumbent or a newcomer, for example a cable television provider who upgrades his traditional local cable network.<sup>35</sup>

### 3.3 The remaining regulatory problem in the local loop

Since the comprehensive opening of the networks, massive investments in alternative long distance infrastructures have been undertaken. In the area of long distance infrastructure there is now both active and potential competition. Competition fulfills the function of mitigating market power. It can be expected that private bargaining of interconnection/access conditions between the different owners of long-distance networks will lead to economically efficient solutions. As a consequence, the European Commission would be well advised to restrain from recommending regulations within the area of long-distance telecommunications networks.

It is traditionally assumed that local networks constitute monopolistic bottlenecks, for which neither active nor potential substitutes are available. The European Commission also still proceeds from this assumption and concludes that there is a remaining need for regulation of the incumbent operator's local access network, including the local components of leased lines.<sup>36</sup>

When applying the rules of competition in order to discipline network-specific market power, the "Access Notice" of the European Commission<sup>37</sup> strongly emphasizes the concept of the "essential facility". A facility is to be considered as essential, if it fulfills the conditions that it is indispensable for reaching customers, because there is no second or third such facility, i.e. there is no active substitute available, and if the facility cannot be practically or reasonably duplicated in order to discipline the active provider, i.e. there is no potential substitute available. Clause 69 specifically assumes that an enterprise that controls the access to an essential facility has a dominant position as defined by Art. 82 (former Art. 86, Treaty of Rome).

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<sup>35</sup> See also Shankerman, "Symmetric regulation for competitive telecommunications", *Information Economics and Policy*, 8 (1996), pp. 3-23, at p. 5.

<sup>36</sup> Commission of the European Communities, *supra*, n. 19, p. 1.

<sup>37</sup> European Commission, *supra*, n. 18, pp. 2-28.

Obviously, monopolistic bottlenecks can be characterized as essential facilities. To the extent and as long as local networks constitute monopolistic bottlenecks, ex ante regulation seems justified. Non-discriminatory access to essential facilities has to be guaranteed. However, it is important to view the application of the Essential Facilities Doctrine in a dynamic context. Therefore, one objective in the formulation of access conditions must be not to impede infrastructure competition, i.e. not to destroy incentives for either research and development activities or innovations and investments on the facilities level. This is the only way to reach a balance between service and infrastructure competition.

Since unregulated tariffs would allow excessive profits to the owners of monopolistic bottlenecks, the instrument of price-cap regulation should be introduced.<sup>38</sup> Its major purpose is to regulate the level of prices, taking into account the inflation rate (consumer price index) minus a percentage for expected productivity increase. It seems important to restrict such price-cap regulation to the non-contestable parts of telecommunications networks, where market power due to monopolistic bottlenecks is a regulatory problem. In all other subparts of telecommunications networks price-setting should be left to the competitive market forces.

Concentrating on the regulation of the “last mile” does indeed constitute the one remaining task of a tailored sector-specific market power regulation. Non-discriminatory access to this bottleneck facility must be guaranteed for all competitors. The EU Regulation on unbundled access to the local loop contains an obligation for full unbundling as well as line-sharing. In order to guarantee competition on long distance telecommunications markets global access to local networks seems already sufficient.<sup>39</sup> In any case, one variant of non-discriminatory access to the local loop should be considered sufficient to overcome the monopolistic bottleneck problem.

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<sup>38</sup> E.g. Beesley, Littlechild, “The regulation of privatized monopolies in the United Kingdom”, *Rand Journal of Economics*, 20/3 (1989), pp. 454-472.

<sup>39</sup> Engel, Knieps, *Die Vorschriften des Telekommunikationsgesetzes über den Zugang zu wesentlichen Leistungen: Eine juristisch-ökonomische Untersuchung*, Nomos-Verlag, Baden-Baden (1998).

Local network competition started with business customers in urban centres. There the preferred access technology is optical fibre.<sup>40</sup> However, after the granting of licences for point-to-multipoint microwave systems, the wireless local loop has also gained increasing importance.<sup>41</sup> Consequently, ever since the comprehensive opening of the telecommunications market, the pressure of innovation has increased in local networks, too. This has led to considerable technological variety (e.g. optical fibre, wireless networks, CATV networks, satellite technology) and a consequent increase in product variety. Because of these rapid developments the local loop facilities in bigger cities and agglomerations in Germany are increasingly losing their character of monopolistic bottlenecks.

Competitive conditions cannot be expected to change all of a sudden and simultaneously in all local loops. Therefore it is necessary to examine at regular intervals which subclasses of local loops still constitute monopolistic bottlenecks and in which subclasses there is already workable active and/or potential competition – for example because of wireless local loop facilities or alternative cable providers. The European Commission would indeed be well advised to exploit the increasing potential for phasing out sector-specific regulation in competitive European telecommunications.

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<sup>40</sup> Cf. Distelkamp, Möglichkeiten des Wettbewerbs im Orts- und Anschlußbereich des Telekommunikationsnetzes, *WIK Diskussionsbeitrag* Nr. 196, Bad Honnef, (1999), pp. 94.

<sup>41</sup> Regulierungsbehörde für Telekommunikation und Post, Jahresbericht 1999, p. 24.

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