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‘Stepping stones’ and ‘access holidays’: The fallacies of regulatory micro-management

by Günter Knieps*, Patrick Zenhäusern**

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Abstract:

Good intentions are no substitute for sound economic regulation. Using the ‘investment ladder’ as the stick and ‘access holidays’ as the carrot is hardly an effective way to generate competition. On the contrary, this approach creates a regulatory spiral. What regulators plead for today is in effect an obligatory sharing regime for nearly all network elements. However, this splitting up of networks into their elements by ad hoc regulatory interventions is destroying consumer welfare. Instead, rule-based regulation of network-specific market power should be implemented by means of a disaggregated regulatory mandate, limiting incentive regulation to essential facilities as a whole.

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1. Introduction

The starting point of joint work with Beat Blankart was at those times when market entry was still forbidden by law in major parts of telecommunications networks in European countries. Therefore, it seemed to be a natural research question to ask what we can learn from comparative institutional analysis. How can one explain the extensive deregulation of interstate telecommunications in the U.S. compared to the lagging telecommunications deregulation intrastate in the U.S. and intracountry in Europe and in Germany in particular? It soon became clear that the normative theory of economic regulation cannot be sufficient to answer such questions. Rather, a political-economy approach, taking into account the role of bureaucracy, has been indispensable (Blankart, Knieps, 1989). In the meantime market entry is allowed in all parts of telecommunications markets in the U.S. as well as in Europe. Nevertheless, sector-specific regulation still plays an important role.

In the earlier years of market liberalisation within the EU the regulatory focus was on initiating service competition with subsequent obligations of different forms of interconnections (including transit interconnections) at regulated low tariffs. Since the EU Review 1999 and subsequent reforms of national telecommunications laws, the focus has increasingly shifted towards the role of infrastructure competition. In long-distance networks the potentials of infrastructure competition have been increasingly realized with the emergence of competing telecommunications networks on the national and international levels. The question arises to what extent infrastructure competition could also be realized in local telecommunications networks which were traditionally considered monopolistic bottlenecks, characterised by a combination of natural monopoly and irreversible costs, and what role regulatory intervention should play in stimulating developments towards infrastructure competition in local networks, too.

The purpose of this paper is to show that while infrastructure competition is indeed an important objective, it should not lead to the fallacies of regulatorily promoted infrastructure competition by means of regulatory micro-management. Ad-hoc discretionary regulatory interventions bear the danger of excessive regu-

lation due to an oversize regulatory basis as well as an unsuitable mix of regulatory instruments. Firstly, the role of mandatory unbundling[1] and the subsequent incentives for competitors to later invest in their own facilities ('stepping stones hypothesis' or 'ladder of investment' approach) first promoted by the FCC in 1997 are analysed. It is shown that the 'ladder of investment' approach either results in an oversized regulatory basis, when the unbundling of competitive subparts of telecommunications infrastructure is made mandatory, or in undue regulation of monopolistic bottleneck parts, thereby destroying the advantages of the natural monopoly with subsequent inefficient cost-duplication. The 'stepping stone hypothesis' has already been criticized from a broad competition policy point of view pointing out the impossibility of regulatory omnipotence (e.g. Oldale, Padilla, 2004). Furthermore, criticism from the perspective of empirical consequences exists, in particular pointing out its ineffectiveness due to the regulator's failure to impose credible commitments to insure that access seekers have incentives to invest in their own facilities (Hausman, Sidak, 2005, p. 69). However, network theoretical analysis to provide a superior alternative to regulatory micro-management is still lacking.

In the meantime a second form of regulatory micro-management termed 'access holidays' gains increasing attention. 'Access holidays' means a significant period during which an investor is free from access regulation. Until now, the basic argument in favour of 'access holidays' is the negative incentive for investments caused by expected regulatory opportunism such that fully compensated ex ante risk associated with project failure is not guaranteed. The idea is that such a holiday will increase investment incentives by allowing profits unhindered by regulatory intervention within a period (e.g. Gans, King, 2003).

The strict application of the 'ladder of investment' approach will lead to increasing regulatory interventions with a subsequent increase of regulatory opportun-

[1] A careful application of the term unbundling is required. Whereas in electricity unbundling describes the separation between electricity generation and transmission networks, in telecommunication unbundling may have different meanings. Unbundling may differ between services and infrastructure, between long-distance and local networks; within the local loop several forms (full unbundling, line sharing, cable canalisation access) are differentiated (e.g. Blankart, Knieps, Zenhäusern, 2007).

ism. This raises the issue of an adequate ‘antitoxin’ to cure the consequences of regulatory activity motivated by the ‘ladder’ approach. However, it is shown that ‘access holidays’ are an inadequate counter-strategy to compensate for regulatory failures caused by regulatory opportunism. ‘Access holidays’ can only be a relevant concept at all, if regulatory problems of network-specific market power still exist. However, to the extent that network infrastructures are monopolistic bottlenecks they should be regulated properly from the very beginning, avoiding regulatory micro-management and a subsequent interventionist ‘chain reaction’.

To provide an alternative to regulatory micro-management the analytical concept of a disaggregated regulatory mandate is applied (e.g. Knieps, 2005; Knieps, 2007, chapter 9). Statutory constraints have to be implemented in order to guarantee an unbiased development of infrastructure and service competition. Regulatory interventions into competitive subparts should be forbidden, whereas network-specific market power in the monopolistic bottleneck parts should be disciplined by adequate regulatory instruments. However, mandatory unbundling in the form of bitstream access is an inadequate regulatory instrument and should not be pursued to split up network infrastructures.[2] If phasing out of monopolistic bottlenecks can be observed (e.g. due to inter-platform competition between digital subscriber line (DSL) and cable modems) mandatory unbundling is superfluous anyway.

The paper is organized as follows. In section 2 the fallacies of regulation-induced infrastructure competition are presented. The concepts of ‘stepping stone hypothesis’ and ‘access holidays’ are explained, then assessed and finally an overview is given of the experiences made with these concepts in the EU and the US, respectively. Section 3 presents the need for a regulatory reform towards rule-based regulation as a remedy to control over-regulation. The concluding section 4 provides recommendations for the future reform process.

[2] Similarly, in competition policy the dominant position of a firm is not subject to intervention, instead measures of competition policy focus on the abuse of the dominant position.

2. The fallacies of regulatorily promoted infrastructure competition

In this section the most prominent concepts for stimulating infrastructure investments by regulatory micro-management are analysed: mandatory unbundling and the 'stepping stone hypothesis' or 'ladder of investment' approach as well as 'access holidays'.

2.1 Systematisation of micro-managed regulation

2.1.1 Unbundling and the 'stepping stones hypothesis'

In the early days of deregulation the question of how regulatory policy can influence incentives to invest for incumbents and entrants led to the issue of mandatory unbundling at regulated access prices (Farrell, 1997; Hausman, Sidak, 2005, pp. 17-18).[3] It was later considerably transformed by the conviction that "the way to promote infrastructure competition is to make available easy and inexpensive access to the assets of the incumbent which are not replicable. At the outside this might include a large numbers of assets, which initially are complements to the entrant's investment, but with time become substitutes." (Cave, 2003, p. 16).[4] This concept immediately makes room for a large variety of regulatory discretion. Access points due to mandatory unbundling may be identified to guarantee an opportunity for entrants of gaining access to unbundled network components at any place of their choice as long as the identity of the non-replicable/complementary assets inevitably varies with the nature of the entrant's strategy. This might be achieved through a decision by the regulator to publish a schedule of prices over time, or to adapt a pricing principle which

[3] "Leasing unbundled elements might become viewed more as a stepping-stone to innovate facilities-based competition, because a carrier who tries to rely permanently on the incumbent's facilities would risk being overbuilt out of business not only by other competitors but also by the incumbent." (Farrell, 1997, quotation can be found in the last section of chapter "4B(2): Two Possible Triggers for Wholesale Deregulation").

[4] The idea of the "ladder of investment" was already indicated in Cave, Prosperetti, 2001, p. 421. For the context of narrowband see Cave, Vogelsang, 2003, p. 724; for the context of broadband see Cave, 2006, pp. 231 f.

would cause prices to rise. The logic of time-variant access pricing principles under which the prices of certain network resources are initially low, even below cost and therefore cross-subsidized, and then rise over time, would be influenced by the regulator's preference for network duplication. According to this concept, it is mainly up to the regulator when and to what extent inter-platform-competition can emerge. The regulator should pick its way.

Due to the low investment that entrants are assumed to make initially, they suffer from a low service flexibility compared with a network operator. Figure 1 illustrates this by considering different access modes and their corresponding total investment activities. Thus, according to the 'ladder of investment' approach, entrants are starting their business activities by reselling services/ elements that are on the one hand not aligned with huge investment activities, but lead on the other hand to a low service flexibility in comparison with the degree of freedom of a network operator. According to the 'ladder of investment' approach this low service flexibility should be compensated by cost-based and non-discriminatory access to specific access points (e.g. Cave, 2003, pp. 16-19). There is a differentiation between 'wide eligibility', where entrants have access to elements irrespective of their own level of investment and 'narrow eligibility' where this right depends upon the steps entrants have already taken on the 'ladder of investment'. Thus, the regulation-induced backing of new entrants is not only understood to enable cost-oriented and non-discriminatory access to monopolistic bottleneck-facilities. It is in fact assumed that assets cannot unambiguously be classified in categories that are easily, with difficulty, or not at all replicable.

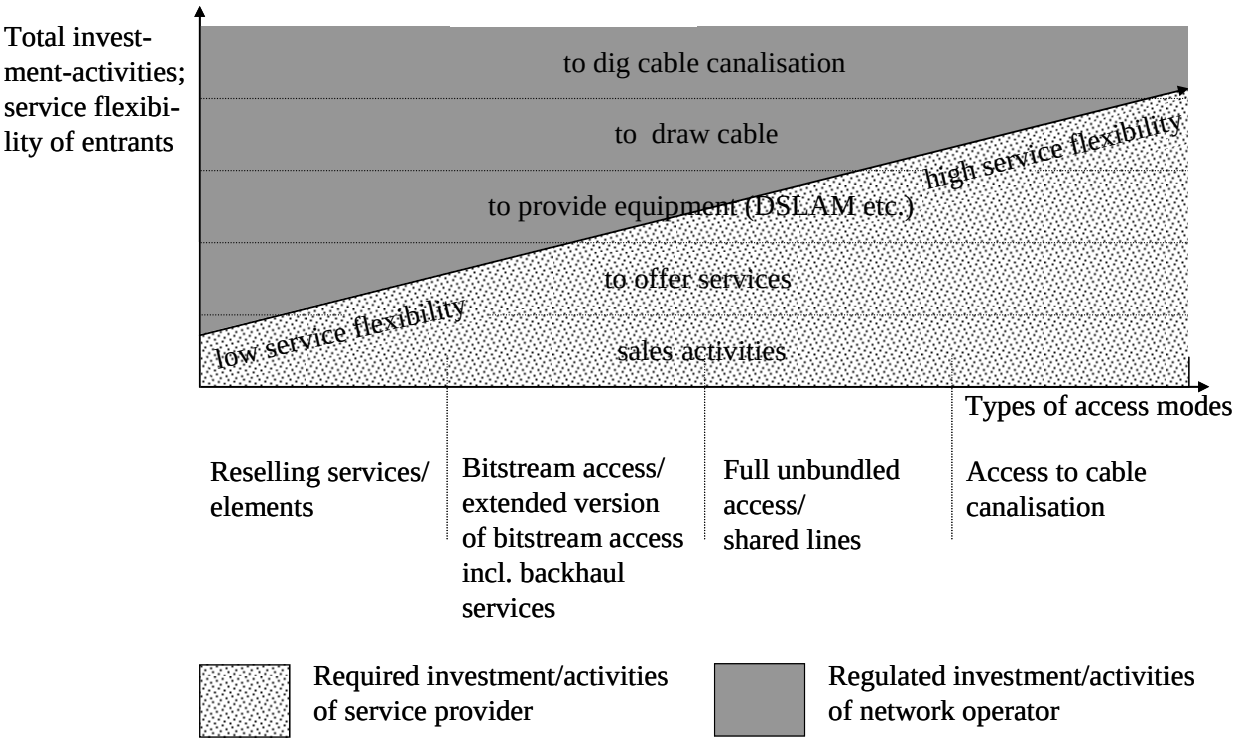

Figure 1 Layout of the 'ladder of investment' approach

2.1.2 Regulation of breather permissions ('access holidays')

Regulatory attention has increasingly shifted towards the incentives for investment and therefore the relation between access pricing and its linkage with investment incentives has been focused on (e.g. Newbery, 2000; Valletti, 2003). In this context there are further concepts besides the 'ladder of investment' approach. Increasing attention has been paid to the idea of a regulation-decreed breather permission, namely so-called 'access holidays', defined as a significant period during which an investor is free from access regulation. Since regulators cannot credibly commit to refraining from 'clawing back' rents after regulated firms have invested sunk costs, a truncation problem would result in rewarding only ex post successful projects, whereas the ex ante risks of project failures would not be compensated. Thus, socially desired investments may be delayed or don't occur at all. Because regulators could not commit to an access price regulation that provides higher prices when the value of the investment turns out to be high than when it turns out to be low, the concept of a period completely

freed from price regulation – hence the term ‘access holiday’ – would have some appeal, because such a holiday might increase investment incentives by allowing profits unhindered by regulatory intervention (Gans, King, 2003, p. 164).

2.2 A critical appraisal of micro-managed regulation

To fully exploit the potential of competition in liberalised telecommunications markets, the regulatory process should be as lean as possible. The regulatory basis should not be extended beyond what is absolutely necessary. Symmetric regulatory conditions should neither advantage nor disadvantage the former network monopolist. “In general terms symmetric regulation means providing all suppliers, incumbents and new entrants alike, a level playing field on which to compete: the same price signals, the same restrictions, and the same obligations. ... But all forms of asymmetric regulation contain an intrinsic bias toward some firms or technologies ...” (Shankerman, 1996, pp. 5 f.).

The ‘ladder of investment’ approach can be characterised as regulatory micro-management leaving a large scope of discretion to the regulator. Neither the regulatory basis nor the application of regulatory instruments is constrained by rules. Rule-based regulatory actions, however, should limit the regulatory basis to areas with network-specific market power characterised as monopolistic bottlenecks (e.g. Knieps, 1997; Knieps, 2005, p. 83; Laffont, Tirole, 2000, p. 98). The conditions governing a monopolistic bottleneck are met when:

(1) a facility is necessary for reaching customers, i.e. if no second or third such facility exists, in other words if there is no active substitute. This is the case when due to economies of scale and economies of scope a natural monopoly exists and a single provider is able to make the facility available more cheaply than several providers;

(2) at the same time the facility cannot reasonably be duplicated as a way of controlling the active provider, in other words when there is no potential substitute. This is the case when the costs of the facility are irreversible.

In contrast to the concept of monopolistic bottlenecks regulatory micro-management is characterised by asymmetric regulation. As a consequence, regulation by interventions into competitive subparts will result. This not only disturbs the competitive process of infrastructure and service development, but also creates negative incentives for infrastructure investments. The ‘ladder of investment’ approach is based on the business model of competitors that initially have no network facilities. At its centre is a so-called ‘eligibility’ of new entrants and insofar the regulator’s midwife-function.

However, the infrastructure owner should always have the competence to decide on the business model behind his infrastructure investment – irrespective of whether he is incumbent or entrant – because he has, after all, to bear the financial consequences. If, according to the business models of his competitors, some resources are not replicable, this does not mean that they already fulfil the characteristics of a monopolistic bottleneck. Monopolistic bottlenecks are to be considered as a whole, focussing globally on the relevant infrastructure of the natural monopoly. Within monopolistic bottlenecks the network owner’s business model should be the relevant one. This company should provide non-discriminatory access to monopolistic bottlenecks at cost-covering prices. If certain bottleneck-components are subsidised, incentives for excessive investments are created, ignoring the relevance of the viability of the existing infrastructure.

The ‘ladder of investment’ approach doesn’t promote a phasing out of sector-specific telecommunications regulation. On the contrary, it leads rather to a systematic extension of the regulatory basis and the introduction of new regulation. To be more specific, the concept seems compatible with the EU Commission’s regulatory framework for communications but is detrimental from an economics point of view, because it does not consistently distinguish between monopolistic bottleneck areas and competitive areas. As illustrated in figure 2, the ‘ladder of investment’ approach leads to an oversized regulatory basis. Therefore remedies are implemented in areas where competition is effective. This is specifically the case in connection with all elements that network operators have to offer to competitors beyond monopolistic bottlenecks.

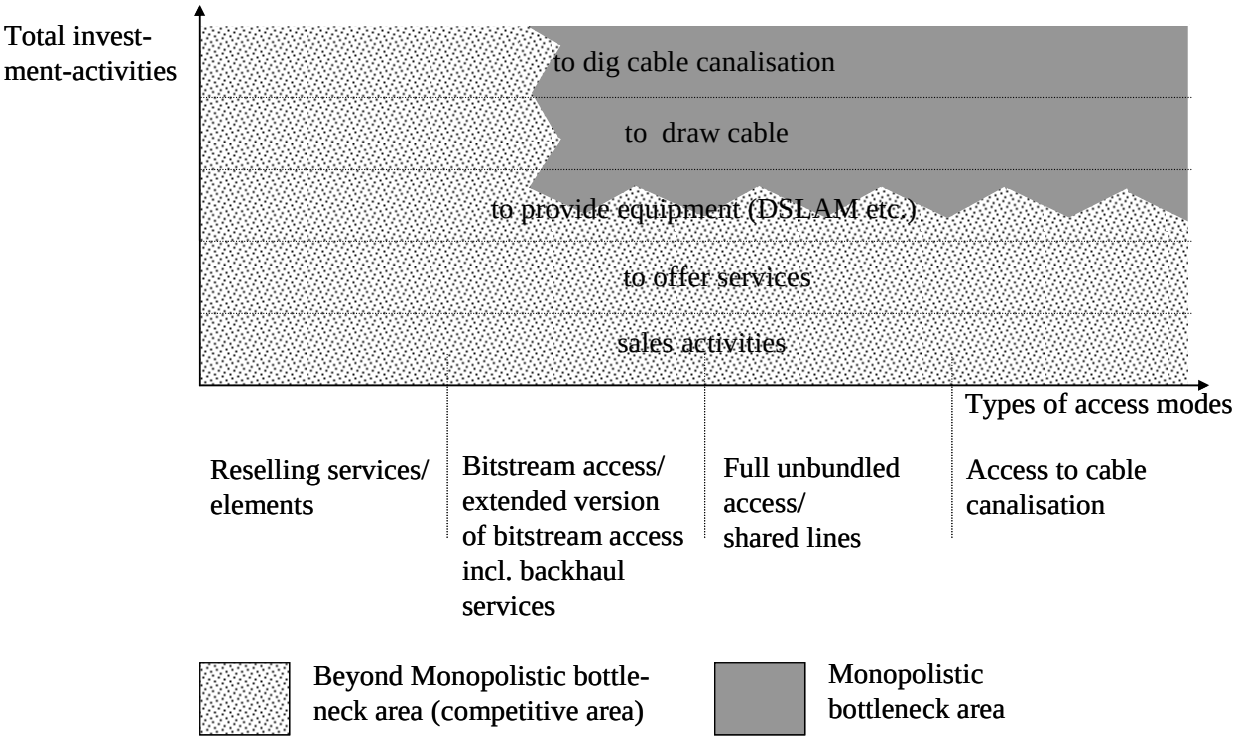

Figure 2 Over-regulation generated by the 'ladder of investment' approach

The 'ladder of investment' approach has already been criticised because of the ensuing network fragmentation (Oldale, Padilla, 2004, pp. 73-75). A network economic analysis reveals that this approach is a sophisticated methodology that leads to market and network fragmentation within and beyond monopolistic bottlenecks. The general principle is that, based on regulated terms, the network owner has to deliver separate elements to his competitors. Instead of an incentive-compatible regulation of monopolistic bottlenecks that have shrunken due to technological development, networks are rather broken up, irrespective of whether they constitute a monopolistic bottleneck or not. Instead of regulating the monopolistic bottleneck as a whole, the corresponding facilities are split up and concomitant economies of scope destroyed. Thus the viability of network facilities is threatened ad libitum, accordant with regulatory discretion. The consequence is higher and presumably uncovered investment risk and therefore lower investment incentives for the incumbent as well as for entrant operators. The idea behind the approach is that a gradual increase in access prices should

motivate competitors who are initially supported by regulation to later duplicate network facilities. In a dynamic environment like liberalised communications markets, where network and service innovations are permanently taking place, this concept is particularly misleading. Players that have not engaged in huge investment so far are better off taking advantage of the option to wait (and see) how regulation is generating further rents for them.

Basic characteristics of regulatory micro-management are asymmetric regulation with particular focus on the incentives to increase investment activities by new entrants. As a consequence of the increasing set of regulatory interventions regulatory uncertainty due to regulatory opportunism will increase. This is an important reason why according to Hausman, Sidak (2005, p. 69), the 'stepping stone hypothesis' is pointless from the empirical point of view.

Neither overregulation nor the absence of regulation within monopolistic bottlenecks is the adequate answer to the regulatory commitment problem. This can already be seen by taking a closer look at the concept of 'access holidays'. From an economic point of view, 'access holidays' can only be a relevant concept if regulatory problems of network-specific market power still exist, that is to say, if a new investment creates network-specific market power. The basic argument in favour of 'access holidays' is negative incentives for investments caused by the fact that regulators are not welfare maximisers and therefore can't give a credible hostage, meaning that they succumb to ex post opportunism. Due to the sequential nature of investment decisions (ex ante) and regulation of access tariffs (ex post) a regulation-induced truncation problem would arise. This would result in only ex post successful projects being rewarded, whereas the ex ante risks of project failure would remain uncompensated.[5] In any case, from an investor's point of view all relevant ex ante risks should be covered. The challenging task is therefore the design of a credible regulatory mandate taking into account the problem of regulatory opportunism.

[5] Under certain conditions it can even be shown that regulated access prices equal to short run variable costs would result in a unique Nash equilibrium and the utility would not invest (Newbery, 2000, pp. 34-36).

A closer look at consecutive implementation procedures shows that the decision as to what investment or which investor should get these ‘access holidays’ may be anything but a simple issue to tackle. If this is to be decided case-by-case – and another practice does not seem to be feasible –, the concept appears to be a standard example of the micro-management of discretionary regulatory absence.

The question arises whether ‘access holidays’ are the adequate answer to the problem of regulatory opportunism from an economic point of view. It can be shown that the problem of regulatory opportunism is not caused by the nature of ex ante irreversible investment per se, but is based on the more general problem that regulatory agencies cannot be committed to welfare-maximising behaviour. Therefore, the regulatory agencies have to be constrained by statutes, not only to enforce the disaggregated regulatory mandate in order to properly discipline market power, but also to allow the compensation of ex ante risks of irreversible investments (Knieps, 2005, pp. 90f.). Thus, ‘access holidays’ become detrimental regulatory micro-management.

2.3 Europe vs. United States: The opposite reform process

From the perspective of the year 2000, the obligation imposed by the European Commission on incumbents to provide fully unbundled access lines, based on a so-called ‘Regulation’,[6] was a severe measure, because it came into force in member states without the procedural need to transform it into national law. But in comparison with the ambiguous foreseeable economic consequences of the ‘ladder of investment’ approach, mere full unbundling can be considered as a less incisive intervention. Unbundled access and line sharing are in the meantime merely special cases of an increasing variety of possible obligations of access to, and use of, specific network facilities according to Art. 12 of the Access

[6] Regulation on unbundled access to the local loop (European Parliament and Council 2000/0185 (COD), 5. Dec. 2000).

Directive.[7] Innovative developments like the decentralised nature of the Next Generation Network should in effect lead to less sector-specific market power regulation, but in the context of such a mindset this calls for the necessity to define further markets besides the current ones assigned by the commission. And as long as Art. 12 of this Directive is in effect, in combination with regulators following a practice in accordance with the 'ladder of investment' approach, market participants can count on further backing by regulators, e.g. having favoured access to elements that are estimated important for succeeding in a Next Generation Network environment. A closer look at the Commission's Decisions on article 7 procedures reveals that the evaluation of significant market power is strongly based on market share estimations. "Although market shares alone are not in themselves indicative of the presence or lack of market power, according to established case-law under EC competition rules (F.N. 8 in original) a market share in excess of 50 % is, in the absence of exceptional circumstances, in itself evidence of a dominant position (F.N. 9 in original)".[8] The criteria in the Commission's Recommendation[9] were only considered (if at all) as supplementary.[10] A consistent and economically well-founded analysis is lacking and it seems that innovators with a large market share are at present also the first to appear on the regulatory radar.

The European Commission, through its regulatory framework for communications, promotes the 'stepping stone' approach.[11] The FCC did the same through

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[7] Directive 2002/19/EC of the European Parliament and of the Council on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive), OJ L108/7, 24.4. 2002.

[8] Commission Decision of 20 February 2004, Cases FI/2003/0024 and FI/2003/0027, p. 5.

[9] European Commission, 2003.

[10] "On the basis of the analysis of the three criteria (F.N. 5 in original) PTS concludes that the notified markets are characterised by law barriers to entry (F.N. 6 in original). Despite this conclusion, PTS conducts a SMP analysis of the notified markets on the grounds that these markets have previously been regulated (F.N. 7 in original) and that there is a link with the existing regulation in other, related markets" (EC Comments, 24. 06. 2005, Cases SE/2005/0195, SE/2005/0196, SE/2005/0197 and SE/2005/0198, p. 3).

[11] E.g. European Commission, 2004, p. 3.

its interpretation of the Telecommunications Act (§ 251 and 252) during the late 1990s. They stressed the need for 'stepping stones' to further competition to the incumbent local exchange carriers (ILECs) through use of the unbundled network elements-platform (UNE-P) and resale provisions. However, the policy of the FCC was challenged repeatedly by court decisions on the basis of the so-called "necessary" and "impairment" criteria that can be understood as a micro-managed rather than a rule-based interpretation of the essential facilities doctrine. Initially, a decision by the Supreme Court (1999) gave the FCC a reason to interpret their unbundled network elements rules in a "Remand Order" even more tightly, but this was later abrogated by the Circuit Court of Appeals (2002).

At the beginning of 2003, the FCC managed to make the overdue change in regulatory policy, announced in a clear statement by its former Chairman: "The FCC must provide a regulatory framework that promotes facilities-based competition – where companies use their own equipment, rather than leasing it from a competitor – investment and innovation."[12] Subsequently the FCC decided to ease their broadband unbundling requirement on incumbents in early 2003. And with the "Triennial Review Order"[13] later that same year and an "Order on Remand" at the End of 2004[14] all requirements for ILECs to supply unbundled elements from fibre facilities and UNE-P offerings were abolished. In early 2005, the FCC communicated new rules for network unbundling obligations of incumbent local phone carriers, whereby unbundling regulation remains in essence reduced to the obligation that incumbents have to offer a narrowband channel for voice telephony to competitors.

Unbundling of the local loop first began in 1995 in Hong Kong, where this regulation has, however, in the meantime been radically scaled back (e.g. Crandall,

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[12] The citation can be found in a newspaper article that was written by Michael Powell and published on January 9, 2003 in the The Financial Times.

[13] Review of Section 251 Unbundling Obligations, Notice of Proposed Rule Making, FCC Rcd 16978, 2003.

[14] Review of Section 251 Unbundling Obligations, Order on Remand, FCC 04-290, 2004.

2005, p. 15). In the US, where severe unbundled access rules were implemented in 1996 and had a duration of validity of about eight years, based on FCC Data on local telephone companies, most competitive local exchange carriers (CLECs) have ended up using simple resale, not climbing on the 'ladder of investment'. According to empirical data (eg. Hazlett, 2005), the US example shows that the 'ladder of investment' approach indeed doesn't work and regulatory policy had sufficient reasons to abandon it after a long trial period. Crandall et al. (2002, p. 325) also show that there "is little economic justification for regulating any broadband services, included those provided by incumbent local exchange carriers. There is no basis for assuming that monopoly power will develop in the delivery of these services, but there is every reason to believe that regulation will reduce the incentives of carriers to invest in infrastructure and broadband content. Symmetrical regulation of the incumbent carriers and the cable operators is likely to be much worse than no regulation at all." On this note, the FCC expected positive investment incentives in the course of retreating regulations. Thus, this sector-specific regulation was phased out, which should not be confused with 'access holidays'. The abolished unbundling rules gave ILECs a strong incentive to invest in fibre and several of them have started major investment programmes since.

"The U.S. unbundling framework had been very tedious and intrusive; the past eight years also illustrate that in an environment with increasing competition such detailed regulatory rules are not sustainable" (Bauer, 2004, p. 80). Going back to the European case, one may ask how the lesson from the US may be interpreted and what policy implications are to be derived from this heavy-handed regulatory approach. In this context the question has been raised of how regulation should be designed in order that a Next Generation Network environment and emerging markets in general may evolve and increase welfare, preferably in an undistorted manner (eg. Lewin, 2005). In the EU, the possibility of the regulation of broadband access has not been challenged yet, even though in the meantime its negative investment incentives are well-known. This enhances in a sense the attractiveness of a corrective in the form of the concept of so-called 'access holidays'. For example, the German government announced that it would exempt a fibre optic broadband network planned by Deutsche Telekom

from regulation for two to three years, a move considered as a precedent for other telecommunications markets in Europe (FT.com/Financial Times, November 13, 2005). But as already discussed, both concepts are misleading. Therefore the question arises what a well-founded economic approach to the problems raised but unsolved by micro-managed regulation might look like. The answer to this question has to be formulated with special regard to the market conditions evolving in a Next Generation Network environment.

3. Regulatory reform towards rule-based regulation

Only a disaggregated regulatory mandate on the statutory level (EU Directives and national law) can finally constrain regulatory agencies to limit regulation to monopolistic bottlenecks, exploiting phasing-out potentials. The reference point for regulatory rules concerning access charges should be the coverage of the full costs of the monopolistic bottleneck in order to guarantee its viability. Therefore the regulatory agencies have to be constrained by statutes not only to properly discipline market power, but also to allow the compensation of ex ante risks of irreversible investment.

3.1 Monopolistic bottlenecks and the concept of ‘essential facilities’

When applying rule-based regulation in order to discipline network-specific market power, the concept of ‘essential facilities’ is of crucial importance. A facility or infrastructure is termed essential if it simultaneously

- is indispensable for reaching consumers and/or for enabling competitors to do business,
- is not otherwise available on the market, and
- objectively cannot be duplicated by reasonable economic means.

This concept suggests the connection to the essential facilities doctrine, derived from US antitrust law, which is meanwhile being increasingly applied in European competition law also (cf. e.g. Lipsky, Sidak, 1999). The doctrine states that

a facility is only to be regarded as essential if the following conditions are fulfilled: entry to the complementary market is not effectively possible without access to this facility; it is not possible for a supplier on a complementary market to duplicate this facility at a reasonable expense,[15] and there are also no substitutes (Areeda, Hovenkamp, 1988).[16]

In the context of the disaggregated regulatory approach the essential facilities doctrine is no longer applied case by case – as is common in US antitrust law – but to an entire class of cases, namely, monopolistic bottleneck facilities characterised by a combination of natural monopoly and irreversible costs in the relevant range of demand. The design of non-discriminatory conditions of access to essential facilities must be specified in the context of the disaggregated regulatory approach. It is important in this context to view the application of the essential facilities doctrine in a dynamic context. Therefore, an objective for the formulation of access conditions must be to not obstruct infrastructure competition by regulatory micro-management, but rather create incentives for the symmetric development of infrastructure and service competition by rule-based regulation.

However, the EU-Commission, through its Art. 12 of the Access Directive, opens up the possibility of unnecessary and potentially harmful regulatory intervention. It therefore regrettably takes a step backwards in comparison with its policy in 1998, when an 'Access Notice'[17] extended the role of competition policy, pointing out the importance of the concept of "essential facilities", indispensable for reaching customers (section 68). If this essential principle is not understood as an essential principle, discretionary regulatory behaviour will persist in the long term and micro-management will increasingly guide sector-specific regulation.

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[15] Thus it is not feasible to offer, for instance, a ferry service without access to ports.

[16] Occasionally an additional criterion for applying the essential facilities doctrine is formulated, namely, that the use of the facility is essential for competition on the complementary market, because it reduces prices or increases supply on this market. This criterion, however, merely describes the effects of access.

[17] 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).

3.2 Application of regulatory instruments to monopolistic bottlenecks

The effect of a refusal of access to monopolistic bottleneck facilities can also be achieved by providing access only at prohibitively high tariffs. This shows that an effective application of the essential facilities doctrine must be combined with a suitable regulation of access conditions to bottlenecks with regard to price, technical quality, and timeframe. However, the fundamental principle of such a regulatory policy should be to strictly limit regulatory measures to those network areas where market power potential does indeed exist. A regulation of access tariffs to monopolistic bottlenecks must therefore not lead to a regulation of tariffs in network areas without market power potential. There are two further issues that have to be taken into account: On the one hand, the existence of competition on the service level should not lead to the conclusion that there is no market power potential on the upstream network level, as long as the latter fulfils the criteria of a monopolistic bottleneck (cf. Brunekreeft, 2003, pp. 89f.). On the other hand, there is the question of the minimum regulatory depth necessary to guarantee non-discriminatory access to essential facilities, without, however, disproportionately interfering with the property rights of the regulated firm.[18]

3.3 Incentive Regulation of access charges

The reference point for regulatory rules concerning access charges should be the coverage of the full costs of the monopolistic bottleneck (in order to guarantee the viability of the facility). Particularly when alternatives to bypass essential facilities are absent, the cost-covering constraint may not be sufficient to forestall excessive profits. Therefore the instrument of price-cap regulation should be introduced (cf. e.g. Beesley, Littlechild, 1989). Its major purpose is to regu-

[18] Basically one has to differentiate between, on the one hand, the question whether, due to a monopolistic bottleneck, network-specific market power exists, and, on the other hand, the question what kind of regulatory intervention is suitable. Thus the so-called Hausman-Sidak test argues that a regulatory obligation to unbundle the local loop is not justified, if, even without unbundling, the incumbent is not able to exercise market power with regard to providing telecommunications services to end users (cf. Hausman, Sidak, 1999, pp. 425 f.; Hausman, 2002, p. 138).

late 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 bottleneck components of networks, where market power due to monopolistic bottlenecks is really creating a regulatory problem. In other subparts of networks price-setting should be left to the competitive markets.

Regulation of infrastructure access charges should be limited exclusively to price-capping. The basic principle underlying price-capping regulation is that price levels should be regulated in areas where there is network-specific market power. The benefits of price-capping in terms of efficiency improvements and future investment activities can only unfold if price-capping is applied in its "unadulterated" form and not combined with input-based profit regulation. Individual pricing agreements amount to over-regulation that is harmful to competition.

4. Recommendations on the EU Communications reform process

Looking forward to the reform process of the EU regulatory framework for communications the basic question arises, which policy consequences are to be drawn. The particular focus lies on the phasing-out potentials of sector-specific regulation due to increasing platform competition.

4.1 Exploiting further phasing-out potentials of sector-specific market power regulation

In a liberalised market, technological development is mainly a result of competition, not an expression of market power. Competitive and technological development has led to a competitive market for long-distance transmission capacity (cf. Laffont, Tirole, 2000, p. 98). As a consequence, all markets on the retail level as well as those markets on the wholesale level focussing on long-distance

networks should be excluded from the list of markets that might possibly be regulated.

Monopolistic bottlenecks in the local loop of traditional telecommunications networks are also partly diminishing. Although it is not possible at this point to predict exactly how long it will take for the monopolistic bottlenecks in the local loop to disappear completely, there cannot be any doubt that the regulation of monopolistic bottlenecks has to be viewed in a dynamic context, so that the potential for phasing out sector-specific regulation in telecommunications can be fully exhausted. Network access possibilities depend on the peculiarities of the different relevant geographic markets; in any case all relevant alternatives should be taken into account in order to localise the remaining monopolistic bottlenecks. Although monopolistic bottlenecks should be considered as a whole, due to technological progress, as already mentioned, its boundaries may shrink. The boundaries of local loops may shrink from encompassing local networks including local switches and copper cable to only cable canalisation. In particular, the search for alternative network upgrading strategies, for example, including fibre optic and upgraded copper cables (by DSLAMs) should not be distorted by regulatory intervention. As long as wireless broadband services are still not regarded as substitutes for wire-based broadband services, cable canalisation is presumably the only facility for which non-discriminatory access may still be justified.

4.2 Implementing pragmatic ‘double’ and ‘triple play tests’

Since the comprehensive opening of the telecommunications market, the pressure of innovation has increased as well in local networks. This has led to considerable technological variety (e.g. optical fibre, wireless networks, interactive broadband cable networks, satellite technology) and a consequent increase in varieties of network access. As a consequence, broadband technologies are losing the characteristics of a natural monopoly. Thus, effective platform competition becomes relevant, where alternative providers have control of all aspects of their networks and the subsequent services. Because of these rapid develop-

ments, the local loop facilities in bigger cities and agglomerations are increasingly losing their character of monopolistic bottlenecks. Thus, one of the most important recommendations for the EU communications reform process is that sector-specific market power regulation is to be withdrawn totally in all geographic areas where parallel infrastructures are in place. Therefore, in order to gain a complete overview of the competition potentials it is necessary not only to focus on the traditional copper cable technology (in the local loop), but to also take into consideration the existence of alternative (broadband) access technologies. These alternatives vary within different parts of a country, but also between different countries, depending on the different histories of the networks and the strategies of the market participants etc.

It is important that the phasing-out potential should be properly identified, including the emergence of new access alternatives. Three kinds of transmission qualities may be differentiated, according to the range of products (narrowband, 'semi-high speed' and high speed) provided. Firstly, regarding narrowband communications services, phasing-out of sector-specific market power regulation should take place, where alternatives (e.g. GSM-networks) are available. Secondly, in places where alternative traditional 'semi-high speed' broadband networks (DSL-infrastructures, interactive broadband cable networks etc.) are available simultaneously, sector-specific regulation is completely detrimental ('double play test'). Thirdly, where customers can choose between several providers that simultaneously offer high speed internet access and services comparable to video on demand on their networks, sector-specific regulation again is no longer justified ('triple play test'). In an environment where broadband services are offered based on more than one infrastructure owned by different players, it is no longer justified that one of them should be asymmetrically regulated. Such an environment fosters specific market participants, but not competition and consumer welfare as such. The tests mentioned have to be applied on a geographical basis and should explicitly be understood as a disaggregated regulatory mandate on the statutory level (EU Directives and national law).

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