

**COMPETITION IN THE LOCAL LOOP: A STUDY FOR VECAI**

ERIC VAN DAMME

**CENTER FOR ECONOMIC RESEARCH**

TILBURG UNIVERSITY

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## 1. INTRODUCTION

The regulation of network industries has emerged as a key issue on the European policy agenda. One of these network industries is the telecommunications industry of which an overall review of current European regulation is planned for 1999. A recent book<sup>1</sup> that the academic network CEPR (Centre for Economic Policy Research) published together with SNS (the Swedish Center for Business and Policy Studies) identifies 10 conflicting priorities for regulatory policy makers during the transition period from monopoly to competition in these industries. On this list, there are some very general trade-offs (such as short-term versus long-term, equity versus efficiency, slow versus fast, and rules versus discretion) while there is also a very specific one: infrastructure versus service-based competition. It is this latter “conflicting priority” that is the focus of this paper.

This paper results out of a study that was commissioned by VECAI, the Dutch Association of Cable Operators. The central question formulated by VECAI is:

Is competition between infrastructure providers in the local loop a conditio sine qua non for effective competition in the telecommunications market?

In order to provide an answer to this question, I have performed a study of the relevant literature (both the academic literature as well as policy documents from the OECD, several national regulatory agencies, such as the FCC (US), the CRTC (Canada), OFTEL (UK) and OPTA (The Netherlands), and from market participants (KPN, VECAI) and market consultants (NERA, OVUM) and have done independent research. This paper provides an overview of the lessons that I learned.

The answer to the above central question cannot be a simple “yes” or “no”, it has to be more sophisticated and context dependent. There are various alternatives available to generate effective competition and to ensure that the benefits from competition (lower prices, more choice,

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1 L. Bergman, C. Doyle, J. Gual, L. Hultkrantz, D. Neven, L.H. Röller and L. Waverman: Europe’s Network Industries: Conflicting Priorities (Telecommunications), CEPR, London, 1998.

innovation) are realized and which of these is best may depend on the market context and on the institutional and regulatory framework. Competition between local loop infrastructures is one of the possibilities to realize these benefits and it may very well be the most efficient one. As the OECD has remarked, the situation in the Netherlands is favorable for infrastructure competition, as the vast majority of Dutch households are connected to both telephony and cable tv networks, hence, relatively speaking the cost of establishing competing infrastructures in the Netherlands might be low. Hence, in the Netherlands, infrastructure competition might serve the public interests best.

In many documents “infrastructure competition” (i.e. competition on the basis of alternative physical infrastructures) is contrasted with “service competition” (i.e. competition between providers of services that all make use of the same (monopolistic) network), and the question is addressed which of these forms of competition is to be preferred. While it is useful to distinguish these two forms as extreme, “ideal”, models, it should be realized that, in practice, there is a continuum of possibilities and each market player will choose his own preferred combination, given the possibilities that the regulatory system allows. To deal with this diversity, it is necessary to take a more micro economic view and to study the different elements separately. Nevertheless, it may be useful to discuss the issues at this general level first as the essential trade-off can be easily identified there.

On the one hand, once there are competing infrastructures upstream, input prices for downstream service providers will be lower and competition may flourish, this resulting in consumer benefits (lower prices, higher quality, more variety, faster innovation). On the other hand, there is not yet that much competition between infrastructures and considerable investment in upgrading of networks may be needed before there can be viable competition downstream. In the meantime, regulators may stimulate service competition by allowing easy or cheap access to the existing monopolistic infrastructure. The question now is how far the regulator should go in this respect. Obviously, pushing the access price down too low results in depressed demand for the competing infrastructure, which may very well make the investments unprofitable. In short, heavy handed regulation may forestall investment and may keep the monopoly in place. This trade-off was identified in a former study by the CPB (the Netherlands Bureau for Economic Policy Analysis) on the telecommunications market, where it was described as follows:

“the government faces a paradoxical situation: low access charges are good for competition in services but potential harmful for competition in infrastructure and vice versa”<sup>2</sup>

It is this quote from the CPB-book that forms the starting point for this study. The central question is: how to get out of this paradoxical situation?

This essential dilemma is also the most important one identified in the CEPR-study mentioned above. In it, we can read:

Where it is thought that natural monopoly elements are important, it is often argued that competition is best accommodated via service providers being granted access to a monopoly network infrastructure. Although this type of competition may deliver benefits in the short run as prices move closer to costs, it may undermine ex ante investment incentives on the part of infrastructure firms, particularly if access is granted on relatively favorable terms. The diminished significance of natural monopoly elements in network industries means that competition is now recognized to be a more powerful means of achieving both efficiency and equity objectives than monopoly. Differences in opinion about the form competition should take do arise, however. If policy makers encourage competition via service providers, terms of access must be set so as not to undermine ex ante investment incentives. This is especially important in dynamic network industries like telecoms.<sup>3</sup>

In another place, that same CEPR-book describes this trade-off in the following way:

“One important decision ... is the degree to which the speed of competitive entry is important ... An important question is if entrants resell the incumbents' facilities,

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2 Y. Bernardt and M. Canoy: Competition in Communication and Information Services. CPB, Den Haag, 1997

3 CEPR, p. 38-39

will they have the incentive to build their own networks? If there are few incentives for construction of new infrastructure, then the longer term will see little facilities entry. Thus the form and the time pattern of competition matters. Moreover, it is regulation that affects the decision by firms of how and when to enter. Regulation and competition are inexorably intertwined”.<sup>4</sup>

As competition and regulation are inexorably intertwined, the question is what form regulation should take in order to ensure that the benefits from competition are reaped. The CEPR study, however, does not provide a clear answer to that question. In this paper, we attempt to provide elements of the answer. Staying, for a moment, at the aggregate level, two “extreme” regulatory systems may be distinguished. The UK telecoms regulator, OFTEL, is of the view that only infrastructure competition will bring benefits to the consumers and has implemented a policy that is in line with this view. Access to existing infrastructure in the UK is relatively difficult, or expensive, so that market players have an incentive to construct alternative infrastructure. At the other side of the spectrum we find the US system in which there is strong reliance on service competition. In the US, access to existing networks is easy (because of unbundling requirements, the entrants pay only for what they use) and relatively cheap (i.e. it is cost based and the cost are calculated in a favorable way). In between these two “ideal” models, we find the regulatory systems of other countries and overall there is considerable variety.

In order to address the normative question of what form of competition and what regulatory system is best, it is, because of the great variety observed in practice, necessary to move beyond the simple infrastructure/service and UK/US dichotomies and to take a more micro view. Therefore, this paper reviews in detail the various issues that arise and how the different regulatory systems cope with them. In particular, we discuss the regulatory systems in Canada and the Netherlands in addition to those from the UK and the US.

Within the European Union variety in regulatory systems is somewhat less because of the common ONP framework. In essence, the ONP framework aims to promote competition and to generate consumer surplus by ensuring interoperability of networks and by insisting that operators with

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4 CEPR, p. 150

significant market power (say those with market shares in excess of 25 %) make available their networks, and various network elements, at cost based terms. As the ONP directives leave crucial aspects open (such as: who is an SMP-operator? what requests for special access are reasonable?), the National Regulatory Agencies have discretion in implementation and differences in regulatory systems may arise even within the EU. Still, the framework is constraining: the EU insistence on cost based access implies that the UK, for example, has had to change its policy. In the UK parties that constructed own infrastructure could get interconnection from BT at favorable terms, hence, access conditions were discriminatory and, therefore not cost based and thus in violation of ONP-principles. One might, therefore worry that the European ONP-framework does not provide enough incentives for investment in alternative infrastructure and whether it is in the long term interests of European consumers. Indeed, in its proposal for research, VECAI showed such worry and this motivated their second question:

Are current ONP-rules barriers for the development of alternative telecommunications networks and, hence, also for viable competition?

It is appropriate to ask this question now as there will be an overall review of the ONP-framework in 1999. An answer to this question can, of course, only be given after it has been made clear what the ONP rules are. We describe these in more detail in section 3 of the paper. In our opinion, there is nothing intrinsic in the framework that forces an affirmative answer to this question, however, a lot depends on how the framework is implemented. (For example, which cost are taken into account?) Hence, also here a more detailed view is necessary. This is all the more important as the rules do leave some (or a lot) of freedom to national operators in the implementation phase. Indeed, the following quote may show that national regulatory agencies have a lot of discretion, in particular concerning the crucial issue of when, and for how long, to insist on cost based tariffs and what exactly it means for tariffs to be cost-oriented:

“tariffs must be based on objective criteria and must in principle be cost-oriented, on the understanding that the fixing of the actual tariff level will continue to be the province of national legislation and is not the subject of open network provision conditions. Where an organization no longer has significant market power in the relevant market, the requirement for cost-orientation may be set aside by the

competent national regulatory authority”.<sup>5</sup>

The quote makes clear that the concept of "significant market power" is crucial, but the European Directives are not very precise at exactly this point. In principle, an operator with a market share in excess of 25% is presumed to have "significant market power", but the condition is neither necessary nor sufficient.<sup>6</sup> In addition, it is ambiguous how market shares are to be determined, furthermore, the way the relevant market is determined (essentially ex ante specification) is different from the way this is done in competition policy (ex post, on the basis of detailed market analysis). Hence, the NRA's have considerable freedom in determining when to impose cost based tariffs, the market delineation need not be the appropriate one, and the NRA's decision is not an easy one.

In addition, there are other aspects where the NRA's have a lot of discretion. The European Directives mandate that access be provided at all points where the request to provide it is reasonable, but as always it is not clear a priori which requests are reasonable and which ones are not. Again this is a point where the NRA's decision is not an easy one. The following quote from a recent paper on EU-regulation makes the point more generally, it argues that the issues that regulators face are not trivial ones:

“However, the commission will have to tread carefully not to be drawn down the path of over-regulation. To choose just one example, should incumbent firms be required to unbundle their services as in the American model in the hope of encouraging entry by firms who will add value in some way and resell? Or should regulators follow the British model of not focusing on unbundling in the hope of encouraging facilities-based entry? The proper course is not clear; either choice

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5 EU Full Competition Directive 96/C/62/04, Annex on Tariff Principles.

6 Market power refers to the ability to raise price above the competitive level for a non-transitory period without losing sales to such a degree to make this unprofitable. The concept of “significant market power” (SMP), however, is different. Whether an operator has SMP is determined by the NRA, who has to take into account (in specified markets), the operator’s market share, its ability to influence market conditions, its share of turnover, its financial strength, its control of access to consumers, its experience, etc.

is sure to provoke complaints.”<sup>7</sup>

This brings us, finally, to the question of the policy lessons for national regulators and to the normative question of what type of regulation serves the public interest best. This question about the lessons for policy, was the third one posed to us by VECAI:

What regulatory model would encourage competition between networks in the local loop?

In a sense, the unconstrained answer to this question is easy: no regulation, with competition policy guarding against anticompetitive behavior of the incumbent monopolist. However, this answer is not satisfactory, as that regulatory model might not suit the consumers very well. Hence, one might choose to reformulate this question as "what regulatory system would serve the interests of consumers best?" Unfortunately, this latter, very general, question is difficult to answer in specific terms. Nevertheless, we attempt to provide some insights. In order to do so, we distinguish on the one hand the various aspects that the regulatory system is supposed to deal with and, on the other, the diverse systems that exist in different countries. As far as the first dimension is concerned, we consider both the wholesale market (interconnection and access) and the retail market (retail price regulation and number portability). The countries that are reviewed are Canada, the Netherlands, the UK and the US. The picture that emerges is a mixed one. The issues are complicated ones and it is unclear whether strong conclusions can be drawn at the moment. We summarize our findings in section 9. For the moment, we just remark that it would not seem prudent to bet all the money on “service competition”.

Although the report focuses on telephony and telephony regulation, we wish to stress that the discussion actually pertains to modern telecommunications. Under the influence of technological convergence, the traditional boundary lines between markets for telephony, information services and broadcasting become blurred, and the VECAI questions posed above becomes relevant for all these forms of data communication. Indeed, as it is expected that the market will grow

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7 L. Waverman and E. Sirel: “European Telecommunications Markets on the Verge of Full Liberalization”. J. Econ. Perspectives 11, 4 (1997) 113-127

considerably, the question will become more and more important. The local loop constitutes, for some time to come, a bottleneck facility for providing modern telecommunications services and, for some time still, the pressures for access to this bottleneck will increase. Hence, although the discussion will be couched in terms of telephony it should be read with having the above in mind and should be considered to deal with “access to broadband networks”.

The remainder of this paper is organized as follows. In section 2 we provide an overview of the regulatory issues that the regulator is faced with. In section 3 we provide an overview of the ONP-framework. Section 4 describes some basic economic lessons that the regulator could take into account. It deals with the possible benefits associated with network duplication, the possibilities of anti-competitive behavior of network monopolists, and the inherent drawbacks of rate of return regulation to curb monopoly power. In particular, we discuss some simple economic models of telecommunications in which the costs and benefits of competition in the local loop can be discussed. We show that there may be multiple equilibria: if the regulator opts for heavy handed regulation to stimulate service competition, then alternative infrastructure will not be built and regulation will remain necessary also in the future. If, however, the regulator adopts light handed regulation, there will be investment in alternative infrastructure and there will be no need for further regulation. The welfare ranking of these equilibria depends on several parameters and it is possible that the second equilibrium dominates the first. It thus follows that various beliefs of the regulator may be self-confirming and that a policy of the type “regulation where competition cannot be expected to develop” requires detailed market analysis to be successful: a pessimistic regulator may prevent competition to develop, where competition would flourish if the regulator were optimistic. After having discussed the basic issues at this general level, we then detail the regulatory rules in the Netherlands, the UK, the US, and Canada in the sections 5-8 of this paper. Section 9 concludes by formulating the lessons that can be drawn from our theoretical work and literature study. The lessons identify trade-offs, however, since empirical material is scarce we cannot determine precisely to what side the balance will swing to. We hope, nevertheless, that the structure that we provide will enable a more focused discussion on the pros and cons of infrastructure competition versus service competition.

## 2. REGULATORY ISSUES

In describing the issues that a National Regulatory Agency (NRA) has to deal with, we distinguish between the wholesale market and the retail market. We start with the former.

### 2.1 THE WHOLESALE MARKET

#### 1. Interconnection

Interconnection ensures the interoperability of networks: traffic that originates on one network is interconnected to another network to terminate there. We will sometimes use terminating access as being synonymous with interconnection. In dealing with interconnection, the following regulatory issues arise:

- 1 which network operators should be forced to offer interconnection?
- 2 at what network levels should interconnection be possible?
- 3 what should be the price of interconnection?
- 4 should a (public) reference offer be made?
- 5 should all interconnection agreements be public?

#### 2. Indirect access

We speak of indirect access when a consumer who is connected to a network A has the ability to contract his telecommunications services from another operator B. In this case, A is said to offer indirect access to B; B makes use of the facilities of A to provide the services to the consumer. One form of indirect access is originating access or carrier selection. The customer keeps his subscription with A, but contacts B for calls (through dialing an access code) and pays traffic related costs to B. The regulatory issues that arise in relation with indirect access are:

- 1 who should offer indirect access?
- 2 what types of indirect access should be offered?
- 3 what should be the price of these various forms of indirect access?
- 4 what information about access agreements should be available to other market parties?

It is useful in this context to dwell a little longer on the second question, i.e. on the various types of indirect access. Let us first consider originating access in the case of plain telephony. One question is: how easy should carrier selection be? We may distinguish between carrier pre selection in which the access code is prefixed and the consumer is automatically connected with the operator of his choice, and call by call selection in which the costumer has to choose an operator for each call by dialing the appropriate access code first. There can also be a default option: if no code is selected, the call goes through the network of a certain operator, usually the incumbent. An issue that is important in this context is whether there should be easy access or equal access. With equal access, the costumer has to choose a code for each operator and all codes are equally long, there is number parity. With easy access, it is just not much more cumbersome to select an entrant instead of the incumbent. OFTEL had the consulting company NERA perform a cost benefit study on these various forms of indirect access, the conclusion being that the cost of equal access outweigh the benefits. It was thus concluded that easy access of alternative service providers, through 3 digit codes is sufficient. (See section 6 for more details.) Nevertheless, the EU Numbering Directive (98/61/EC) requires member states to impose an obligation on all operators with SMP to provide carrier pre selection as of 1.1.2000.

Indirect access may be even more important with respect to more modern services like fast Internet access and other services (like video on demand) that require higher bandwidth. The traditional telephony copper local loop cannot deliver such capacity, but modern xDSL technologies allow to upgrade the copper loop. Technically, an appropriate modem is placed on each end of the loop and the regulatory question now is whether indirect access should also be possible to the upgraded loop (this is called ADSL access in the Netherlands) or whether the entrant could reasonably request unbundling of these modems and then provide the modems themselves. This brings us to the issue of direct access.

### 3. Direct access

We speak of direct access to a consumer C when the operator B (who's network originally is not connected to C) leases (or buys) the line segment to C from network operator A. Hence, a part of the access network of A (the local loop between C's connection and the main distribution frame of A's network at the first local switch) is transferred to B. Alternative terms used for direct

access are local loop unbundling and MDF access (MDF = Main Distribution Frame). The regulatory questions again are: who should offer it, in what form, and under what conditions?

In relation to the upgrading of local loops to provide more capacity the question here is whether there should be unbundling of the “naked” copper pair, or whether the loop could be leased including the modems. The latter is called bitstream access. In the past, OFTEL has strongly rejected the idea of forcing BT to offer direct access as this would run counter to the policy of encouraging alternative infrastructure. In light of the increased demand for higher bandwidth services, OFTEL is, at present, consulting on this issue again (see section 6). The Dutch regulator, OPTA, has recently published guidelines on “direct access” to which we will return in section 5.

#### 4. Resale

This is the case when a service provider, without its own network, buys capacity from a network operator and resells it to consumers. This does not seem to be much of an issue in the EU, but it plays an important role in the US. I have little to say about it.

## 2.2 THE RETAIL MARKET

Traditionally, telephony service prices are unbalanced and geographically averaged, i.e. the fixed subscription fee is typically too low to cover the cost of providing access and the tariffs do not reflect the underlying geographic cost differences. The cross subsidies and associated distortions imply that it is attractive for entrants to enter the areas with low costs (cities) or with heavy traffic (business districts). As long as there are cross subsidies, there is no guarantee that only efficient entry will occur: there may be cream-skinning. The task of the regulator is to stimulate efficient entry and at the same time to protect the captive customers. The following issues may be distinguished.

### 1. Rebalancing

This amounts to increasing the subscription fee and decreasing the per minute price for traffic, so as to eliminate the subsidies. This rebalancing is happening (or has happened) in most developed

countries.

## 2. Geographic de-averaging

This amounts to allowing geographic differentiation in order to have the underlying cost differences reflected in prices. In most countries this is not happening yet, frequently the national law insist on uniform tariffs. While this distorts competition<sup>8</sup> and superior alternatives (such as the universal service fund) seem available, we will simply take this as given and refer to our earlier publication on universal service for more details.<sup>9</sup>

## 3. Retail price control

In the starting situation of monopoly provision, there is retail price control to prevent the monopolist from abusing his market power. Traditionally, many regulators made use of rate of return regulation, but more and more we see a movement towards cost plus regulation, or price cap regulation. With price cap regulation, there are questions relating to the length of the review period, the initial price, the per year price decrease, and the question of whether there is a global cap or caps for individual services. With the other forms of regulation, there is the question of how to determine return and/or cost and what rate of return to allow?

## 4. Rebates and predatory pricing

In principle, incumbents could engage in predatory pricing policies to deter entrants from entering profitable markets. The question is whether there is a task for the regulator here. One could (perhaps) prevent the practice by imposing a price floor ex ante, but one could also deal with it ex post through generic competition policy. Again, this is an issue about which I have little to say here, since it is only tangentially related to my assignment.

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<sup>8</sup> This may be deliberate: forcing uniform tariffs on the incumbent makes it less attractive for him to lower prices, hence, entry is made easier.

<sup>9</sup> For a summary, see ESB April 16, 1999.

## 5. Number portability

Number portability means that a customer, who does not physically move to a different location, but who wants to switch from telecoms operator A to operator B can do so and keep his number. The policy reduces consumer switching costs and thus makes the market more competitive. No wonder that operators are slow to implement it. Within the EU, number portability is compulsory as of January 1, 2000. We will not deal with it in this paper.

### 2.3 CONCLUSION

In discussing the questions asked by VECAL, emphasis will be on aspects of

- 1 interconnection,
- 2 indirect access,
- 3 direct access, and
- 4 retail price control,

where the latter is important since if a regulatory price ceiling is set too low, it reduces the scope for competition. To put it differently, since the incumbent is active on both the wholesale and the retail market there is the possibility of anti-competitive behavior through price squeezes (high interconnection rates combined with low retail tariffs). We deal with this possibility in section 4.

### 3. OPEN NETWORK PROVISION

From the earliest days of EU liberalization, it was clear that there could be no internal market in telecoms without open access to public networks. The ONP framework that was adopted in the EU had the aim to promote open and efficient access to monopoly networks and to harmonize conditions of use throughout the Community. Initially the framework applied to public operators with exclusive rights, later, with the development of competition it was amended to apply to operators with significant market power. In this section, we provide a brief overview of the ONP-framework.<sup>10</sup>

The ONP concept was introduced in the Commission's 1987 Green Paper on Telecommunications Services and given substance in Council Directive 90/387/EEC of 28 June 1990. The purpose of the ONP policy was to stimulate entry in the market for value added telephony services and to ensure "fair" competition between incumbent and entrants. To establish these goals, the ONP directives specified that access to networks should be open, i.e. conditions of access should be objective, transparent, published and non-discriminatory. Furthermore, access can be restricted only in cases of essential requirements (e.g. security of network operations).

The full competition directive (Commission directive 96/19/EC of 13 March 1996) extended the ONP-directive to adapt to a more liberalized market, by abolishing all legal barriers for entry into the telecommunications services and network markets. It added the condition that interconnection and access prices should be cost based. This aspect was worked out further in the Interconnection Directive (Council Directive 97/33/EC from June 97) which introduced the concept of operators with significant market power (SMP) and which insisted that operators with SMP are subject to more restrictive ONP-regulation. Specifically, SMP-operators are obliged to provide access and bear the burden of proof that their access charges are cost based. NRA's (national regulatory agencies) can classify which operators have SMP, but normally a market share of 25% is considered to be an indication that the operator has ONP.

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<sup>10</sup> For a more extensive overview, see J. Pelkmans and D. Young "Telecoms-98. CEPS, Brussels, 1998

Three ONP-directives are relevant for our purposes: the leased lines directive, the revised voice telephony directive and the interconnection directive. Each imposes special obligations on market parties that are judged to have significant market power. We now describe the obligations that these directives impose on these, so called, SMP-operators.

Main Obligations imposed on SMP organizations :

1 ONP leased lines directive (92/44/EC, amended 97/51/EC)

- (i) the provision of a minimal set of private circuits,
- (ii) the publication of technical information, tariffs and terms and conditions,
- (iii) the charges for leased lines have to be cost oriented and transparent,
- (iv) the relevant private circuits have to be supplied in non-discriminatory ways.

2 ONP revised voice telephony directive (98/10/EC)

- (i) to keep up to date information on the quality of service and to meet certain quality requirements,
- (ii) to comply with procedures set up by the NRA which deal with situations in which there is interruption, termination, significant variation or reduction in availability of service, at least to those organizations providing telecommunications networks or services,
- (iii) to provide certain additional facilities (calling time identification, direct dial in and call forwarding),
- (iv) to deal with reasonable requests for special access to the network (16.1),
- (v) the tariffs for access to and use of the fixed network must be non-discriminatory, they must be sufficiently unbridled and they must be cost oriented,
- (vi) to operate a cost accounting system that enables to implement (v),
- (vii) discount schemes shall be transparent and be applied non-discriminatory.

3 ONP interconnection directive (97/33/EC)

- (i) to meet all reasonable requests for access to the network at points other than those offered

- to the majority of end users (4.2)<sup>11</sup>,
- (ii) to adhere to the principle of non-discrimination with regard to interconnection, in particular, interconnection must be offered to others on the same terms as they provide to themselves,
  - (iii) the charges for interconnection must be cost oriented and unbundled, based on cost accounting systems which are approved by the NRA for the purpose,
  - (iv) to publish a reference interconnection offer,
  - (v) to keep separate accounts for interconnection activities and other activities, with the interconnection activities being independently published and audited.

We now describe the Interconnection Directive (ICD) in somewhat more detail. This directive aims to ensure that those operators that control bottleneck access to consumers should interconnect with one another to ensure interoperability and universality of service. The framework is reciprocal: those who have these obligations also have the right to interconnect. Different types of operators are distinguished with different packages of rights and obligations applying to them<sup>12</sup>. Specifically, there are so called “Annex 2 Operators” and operators with "significant market power" (SMP). Annex 2 operators are eligible for special terms from operators with SMP. Operators with SMP have special obligations imposed on them: they may not discriminate, their interconnection agreements are public, they must make a reference offer and, most importantly, their interconnection charges must be cost oriented.

Article 4 (1) of the Interconnection Directive states that “Organizations authorized to provide public telecommunications networks and/or publicly available telecommunications services as set out in Annex 2 shall have a right and when requested by organizations in that category, an obligation to negotiate interconnection with each other for the purpose of providing the services in question, in order to ensure provision of these networks and services throughout the community”. Operators who provide public telecommunications services and who control bottleneck facilities are automatically included in Annex 2, other licensed telecommunications

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11 It is not completely clear to me what the difference is between this requirement and requirements 2 (iv) listed above. Does it go further (“aanbieden” instead of “in behandeling nemen”)?

12 There is a third group with no rights and obligations, those not included in “Annex 2”.

operators may or may not be included, the decision being made by the national regulatory authority.

Note that the ICD imposes that the terms of interconnection do not depend on the characteristics of the party that requests it, for example, interconnection terms do not differ according to whether the party that requests it constructs own infrastructure or not. This directive thus forced the UK-regulator to change its system as that was asymmetric. In the UK, individual obligations were imposed on certain operators like BT and other operators which had so called “RCS-status” (relevant connectable system) could impose these obligations. Basically, whether an operator had RCS-status depended on whether it intended to invest in infrastructure, hence, the UK-system effectively was biased in favor of operators that were building competing infrastructure. The directive forced OFTEL to revise its policy, but according to OFTEL changes would not be large as the set of Annex 2 operators would not be much larger than the existing set of operators with RCS-status.<sup>13</sup> See section 6 for more details.

As said above, operators with significant market power (SMP) have special obligations. Furthermore, whether an operator has SMP essentially depends on whether or not the operator has a market share of 25 % or higher. The ICD does not provide much more detail here, it leaves a lot of discretion to national regulators. For example, it is left open how market share should be determined (turnover, number of connection, or other). Furthermore, a market share above 25% is neither necessary nor sufficient, the regulator should take other factors into account as well, and has great discretion in declaring an operator to have SMP or not. Hence, there are a lot of uncertainties still. At present, the NRA's are having consultation rounds to fill in these details. There are remarkable differences between countries. For example, while OFTEL proposes to measure market share by looking at market revenue, OPTA proposes to look at value added. Remarkably, however, the directive specifies the relevant markets in an ex ante way, different from the way the relevant economic market is defined by competition authorities. In particular, the fixed telephone market, the leased lines market and the public market are distinguished.

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<sup>13</sup> OFTEL. Rights and Obligations to interconnect under the EU interconnection directive. Consultation document, March 1998.

Since there are extra obligations on market parties with SMP, the regulation is asymmetric. Concerning the (un-)desirability of asymmetric regulation, we note the following. Players in the telecommunications market occupy asymmetric positions. The question is whether, in order to create a level playing field, the differences in starting positions are neutralized by differences in the rules that apply to these players. In particular, is asymmetric regulation in favor of newcomers necessary to stimulate competition? The position of the OECD with respect to this issue is interesting here. In its Working Party on Telecommunication and Information Services Policies it first (April 1997) argued in favor of symmetric treatment, but, in September 1997 it amended this decision and argued in favor of asymmetric regulation in markets where effective competition is not widely established. Unfortunately, it was impossible for me to access these documents. I guess the argument amounts to pointing that asymmetric, see Schankerman.<sup>14</sup>

Recently, the European Parliament and the Council of the European Union have negotiated an amendment of the ICD. This amendment requires NRA's to:

- (i) encourage the earliest possible introduction of number portability and to ensure that this facility is available by January 1, 2000 at the latest,
- (ii) require organizations with SMP to offer, at January 1, 2000 at the latest, carrier preselection with a facility to override any preselected choice on a call-by-call basis by dialing a short prefix; it shall be ensured that the associated interconnection rates be cost based.

Member states that can prove that the introduction of number portability or carrier preselection would impose an excessive burden can ask for deferment beyond the deadline of January 1, 2000, but still the services should be introduced.

We conclude this section with a couple of remarks on pricing issues. The Working Document on Interconnection Pricing in a Liberalized Telecommunications Market that was issued by the ONP-committee on July 7, 1997 proposes detailed costing and pricing prescriptions for interconnection. It argues that interconnection prices should be based on forward looking long-run incremental costs (LRIC), that such costs should be calculated on the basis of bottom-up (economic/engineering)-models, and that the interconnection charges cannot be capacity-based,

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<sup>14</sup> Mark Schankerman. Symmetric regulation for competitive telecommunications. Info Econ and Policy 8 (1996) 5f

nor linked to retail prices (pp. 17-18).

The Commission's Recommendation on Interconnection in a Liberalized Telecommunications Market (October 15, 1997) gave broad support to the Working Document, but added some changes as well. It recognized the need to include mark-ups to cover joint cost and recommended to use activity based costing in order to minimize on joint and common cost. Furthermore, the recommendation gave more scope for top-down cost approaches. As LRIC are low, it is not surprising that entrants argue in favor of these. However, common costs are not incorporated into LRIC and LRIC thus treats incumbents and entrants asymmetrically. This cost concept subsidizes use of existing networks and thus may eliminate incentives to build own infrastructure. The appropriateness of using a bottom up approach may be questioned as well. If the establishment of networks is path dependent, i.e. the efficient way to extend or upgrade the network is based on the current state of the network, there the relevant cost should take the existing state into account.

The Working Document rejects the idea of capacity based pricing for interconnection. Nevertheless, if capacity (at a switch) is binding, then economic efficiency demands that the interconnection price includes a capacity charge, to reflect the opportunity costs of using the switch. Here again, we see asymmetric treatment that favors entrants (as the incumbent bears the cost).

#### 4. BASIC ECONOMIC INSIGHTS

In this section we briefly discuss some lessons that can be drawn from the economic literature on network competition. The literature involved is huge and we do not attempt to provide a systematic overview. Instead we focus on three simple insights:

- (i) That duplication of networks need not be bad as it may result in direct consumer benefits.
- (ii) That without competition in infrastructure, there may be a serious problem of the monopolist trying to lever market power to the service market through vertical price squeezes (raising rivals' costs).
- (iii) That strict rate of return regulation may have negative implications for entry and for consumer surplus and welfare.

We elaborate on these points in each of the following subsections.

##### 4.1 DUPLICATION OF COSTS NEED NOT BE BAD

In public discussions one sometimes hears the argument being made that competitive investment in infrastructure involves duplication and, hence, is wasteful.<sup>15</sup> This argument is only partly true at best; it neglects the other side of the coin, that competitive infrastructure may bring consumer benefits. As total welfare is the sum of profits and consumer surplus, the net effect of duplication is ambiguous in general, but it may very well be positive in certain situations. Below we illustrate by means of a simple example. We consider it useful to discuss this simple principle since consumer benefits are diverse and broadly spread and, hence, tend to get out of sight, certainly in a situation where the other side (investments in actual infrastructure) is very visible.

Consider the following simple example. On the supply side, a certain service can be provided against zero marginal cost once a certain fixed cost  $F$  has been incurred. The demand side is characterized by a downward sloping, linear demand curve, normalized to be given by  $D(p) = 1-p$ . Consider first the case of unregulated, monopolistic supply. The monopolist will choose price  $p_m$  such as to maximize profits  $p(1-p) - F$ . Assuming  $F \leq 1/4$ , the monopolist is willing to supply; he

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<sup>15</sup> For a very recent statement to that extent, see OPTA's consultation document on price caps from April 20, 1999, point 38.

charges  $p_m = 1/2$  and makes profit  $1/4 - F$ . The consumer surplus is given by the area under the demand curve above the price, hence, this is equal to  $1/8$ . The total welfare in the case of the monopolistic supply thus is

$$W_m = 3/8 - F$$

Now consider the case of competition. The fixed cost  $F$  will be incurred twice and Bertrand competition forces the price down to marginal cost. Hence, the firms' revenues are zero and the consumer surplus is  $1/2$ . In this case of duopoly, total welfare (the sum of profits and consumer surplus) is given by

$$W_d = 1/2 - 2F$$

We see that as long as  $F$  is sufficiently small ( $F < 1/16$  in this example) total welfare is larger in the duopoly case than in the monopoly case: if the fixed cost is not too large, it pays to duplicate it as the benefits of competition exceed the additional cost.

The above example is meant for illustration only and it should not be taken literally. Indeed, the model has several shortcomings. We briefly describe these now, but at the same time we describe the general lessons that this example illustrates, general lessons that could also be demonstrated by means of more convincing (but also more complicated) models.

One drawback of the above model is that it treats entry in an unsatisfactory way. Indeed it is not clear why the second firm would enter given that it is not able to recover its fixed cost. The problem is caused by the fact that the model assumes very intense (Bertrand) price competition. With less intense competition, ex post profits of an (efficient) entrant would be positive and the entrant would be willing to enter if its fixed costs are not too large. Of course, less intense competition would imply less pressure on prices in the duopoly case, hence  $W_d$  would normally be somewhat lower. Still, since in the benchmark case the inequality is strict, the argument given would remain valid in a range of cases.

A second aspect in which the above example is somewhat unsatisfactory is that it compares unregulated monopoly to full competition, i.e. it neglects the beneficial role that a regulator can play. Indeed, with perfect regulation, the regulator would force the monopolist to charge price equal to marginal cost, while the fixed cost  $F$  would be covered in some way from the consumer side. This would result in monopoly being best and all duplication indeed being wasteful. In practice, we cannot expect the regulator to be perfect, for example, simply because of the information problems that she faces. Hence, it is more realistic to assume that the regulator can increase the monopoly welfare somewhat, but that she cannot increase it to the first best level. Consequently, the fact remains that, as long as the cost of duplicating infrastructure is not too large, competition is preferred above regulated monopoly. Furthermore, the larger the informational problems that the regulator faces, the less attractive the regulatory monopoly becomes.

Thirdly, the model underestimates the benefits of competition. For example, the entrant might be able to build the network at lower cost, or the second network may lift capacity constraints (important in the case of strongly increasing demand), or it may enable new or different services (product differentiation). The latter aspect may be most important: since competing network owners will have an incentive to avoid too intense competition, they will aim to differentiate their products; in addition investments of the one owner may induce higher investments of the other in turn, this inducing a virtuous cycle.

We summarize the discussion from this subsection in the following proposition.

**Proposition:**

1. *Competition brings consumer benefits, which should be traded off against the possible additional cost that it entails. Even if competition involves inefficiencies in production (for example because of duplication in infrastructure), it may result in total welfare gains.*
2. *Ceteris paribus, competition is beneficial if it induces little productive inefficiencies (cost of network duplication not too large) or if it is intense, such that it has a large impact on consumer surplus.*
3. *Regulation tilts the trade-off in favor of monopolistic supply, but, because of the*

*imperfections in the regulatory process (among others due to information problems), a regulator will in general not be able to implement the first best and, as long as competition does not introduce too much wasteful investment, it is to be preferred.*

#### 4.2 VERTICAL PRICE SQUEEZES AND RAISING RIVALS' COSTS<sup>16</sup>

While in the previous subsection we focused on the direct benefits of competition for consumers, we move on to discuss now benefits to firms who compete on the downstream (service) markets from having access to competing upstream infrastructure. As the downstream competitors will pass on some of these benefits to consumers, the model thus shows that there are indirect benefits to infrastructure competition as well. We note that here the same qualifying remarks should be made as in the previous subsection: the model is deliberately kept as simple as possible, hence, it is not particularly realistic, however, the insights that it generates survive in richer settings.

Consider a situation in which there is a firm that is both active on the upstream (infrastructure) market as well as on the downstream (service) market. For simplicity we assume that one unit of service needs one unit of infrastructure to be delivered to consumers (hence, service and infrastructure are perfect complements). Again for simplicity, abstract away from cost: both marginal and total cost are assumed to be zero. Finally, assume that this firm has a monopoly on the infrastructure market, but that it faces competition (for simplicity from one firm only) in the service market. We model competition in the service market à la Cournot, hence service firms take demand as given and choose their output quantities simultaneously, with total output then determining price and profits. (We view Cournot competition as a convenient shortcut for imperfect price competition, remarking that capacity choice followed by price competition is equivalent to Cournot competition.)

In our setting, the competing service firm is depending on the integrated firm to deliver the necessary infrastructure. The question addressed is whether this integrated firm will have the proper incentives to deliver this infrastructure. We will see that this is not the case, not even if the

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<sup>16</sup> This section is based on work of N. Economides, in particular, see Raising Rivals' Costs in complementary goods markets, March 1998.

regulator is powerful and well-informed.

Suppose that the regulator imposes ONP-prices, i.e. the upstream monopolist cannot discriminate between its own service division and the competitor and is, furthermore, forced to deliver the input good at marginal cost (here equal to zero). Still in this extreme (favorable) case, it should be expected that the monopolist has non-price instruments with which he can make life of the competitor more difficult, think of delivering somewhat lower quality or of delivering, or negotiating, with lower speed than feasible. The reluctance of KPN to provide interconnection services to Versatel and the reluctance of that company to share base station sites for mobile with Dutchtone provide two examples of the tactics that we have in mind. We represent such tactics by an additional cost  $r$  (per unit of service) imposed on the competitor. Hence, the situation we have in mind is that the integrated firm first decides on the level  $r$  of additional costs which it wishes to impose on its competitors; given  $r$  there is competition on the downstream market and  $r$  is chosen to maximize profits.

Let us first analyze competition in the service market. Label the integrated firm by 1 and the competitor by 2. Let  $q_i$  be the service output of firm  $i$ . Demand is now given by  $p = 1 - q_1 - q_2$ . Knowing  $r$  and deducing  $q_2$ , the service division of the integrated firm will choose  $q_1$  such as to maximize its profits

$$\max_{q_1} (1 - q_1 - q_2) q_1$$

Similarly, the competitor will choose  $q_2$  such as to maximize its profits

$$\max_{q_2} (1 - q_1 - q_2) q_2 - r q_2$$

where the additional term reflects the additional costs imposed by the infrastructure division of the competitor. In equilibrium, the output quantities are given by

$$q_1 = (1+r) / 3$$

$$q_2 = (1 - 2r) / 3$$

with the resulting price for service being

$$p = (1 + r) / 3$$

These equations show the following effects of raising rivals' costs:

- (i) It forces the competitor into a less aggressive mood, he is forced to produce less,
- (i) This in turn allows the integrated firm to increase its output and to capture more of the market,
- (ii) Which in turn leads to a price on the service market that is higher, hence, consumers suffer,
- (iii) As a consequence of (i) and (ii) the integrated firm profits from raising its rival's cost: both the price and its produced quantity go up, hence, revenues increase,
- (iv) A simple computation, on the other hand, shows that the service firm is hurt by increases in  $r$ : its revenues go down.

In sum: the integrated firm has an incentive to raise its rivals' cost; it increases its overall profit by doing so, however, not only is the competitor hurt by this strategy, the consumers are hurt as well. In the case where the regulator would have no control over  $r$ , the integrated firm would push  $r$  to the limit, in this case  $r = 1/2$ , where it is no longer attractive for the competitor to be on the market. Hence, it would drive the competitor from the market by raising the competitor's cost and would restore the monopoly.

The example shows that non-price instruments are important for a regulator as well. The Dutch regulator OPTA has well understood this point: it forces KPN to provide interconnection services to Versatel and it forces KPN to share sites with Dutchtone. Still the question remains whether such policies are sufficient to eliminate all strategic manipulations of the incumbent infrastructure provider. Most likely this is not the case, especially because of problems of information, verification and implementation. While extremes can be avoided, it is unlikely that the regulator

can impose the first best. It is in this sense that competition between infrastructure providers could be preferred. In our example, if there would be a competitive infrastructure provider, the integrated firm would lose all its possibilities to raise its rivals cost, for, if it would, the competing service provider would then always turn to the competitive infrastructure.

We summarize the main lessons from this subsection in the following proposition.

**Proposition:**

1. *An integrated firm that is both active on the infrastructure market and on the service market and that has a monopoly on infrastructure has incentive to squeeze rivals on the service market as it can increase its overall profits by doing so,*
2. *Not only are the competing service providers hurt by such a strategy, the consumers are hurt as well as a consequence of the fact that competition will be less intense,*
3. *ONP-principles and anti-discrimination provisions can help to combat anti-competitive behavior of incumbent infrastructure providers, but because of information problems and other imperfections in the regulatory and legal process, these should not be expected to produce a first-best outcome.*
4. *Eliminating the monopoly on the infrastructure by allowing infrastructure competition reduces the attractiveness of the (former) infrastructure monopolist of the strategy of raising rivals' cost; with fully competitive infrastructure market, the problem of leverage is eliminated completely.*

#### 4.3 REGULATION AS AN ENTRY DETERRENT

In this subsection we focus on the influence of retail regulation on market entry and we show that strict regulation may be counterproductive as it may deter market entry. The basic argument is simple: if the regulator forces retail prices to be low, then competitors have little room to compete and they may well decide not to enter. If they do not enter, the monopoly is kept in place and regulation will also be necessary in the future; if then again there is strict regulation, the situation perpetuates and competition may not develop at all. If, on the other hand, the regulator opts for light regulation, it may be easier to enter the market and competition may develop naturally, making regulation superfluous. In such circumstances, what should the regulator do, should it go

for light-handed or for strict regulation? If all is well, the regulator will base its decision on a market analysis and on an assessment of how likely it is that entry will take place. As we point out, the interesting aspect now is that multiple equilibria may exist, different expectations will be consistent at the same time. If the regulator is pessimistic about entry it will set a low price and entry is indeed unlikely to occur. If, on the other hand, the regulator is more optimistic, it will set a higher price and entry will indeed be more likely.

We start with a very simple setting. A monopolist has invested  $I$  (per capita) in (sunk) infrastructure and uses this to produce a service for consumers at constant marginal cost  $c$ . For simplicity, we assume that consumers' demand is inelastic, they are willing to buy up to one unit of the service as long as the price does not exceed 1. Again for simplicity, we consider only one period. The monopolist is supposed to be regulated under a rate of return regulation scheme. Assuming, without loss of generality, the interest rate to be zero, the regulator will set a price so that the net profits are zero,  $p - c - I = 0$ , hence

$$p = c + I \tag{4.3.1}$$

The price is equal to marginal cost, plus a mark up that is sufficient to cover the fixed cost of infrastructure.

Now introduce the possibility of entry into this market. Assume there is an entrant who, by sinking cost  $D$ , can produce the service at cost  $s$ . Assume initially (and for simplicity) that, if entry takes place, there is price competition à la Bertrand. The entrant will thus enter if its total price,  $D + s$ , is not larger than the regulated price. Obviously, if this possibility occurs with positive probability, then (given our assumption of Bertrand competition) the monopolist will make zero profits in some cases and the regulated price as in (4.3.1) is no longer sufficient to cover the fixed investment costs. A regulator that uses rate of return regulation is forced to allow for a higher price if there is a positive probability of entry.

The argument generalizes to other forms of competition. Since competition puts downward pressure on revenue, investors will receive a lower return on their investments if entry occurs and they will have to be compensated with a higher return in the case of no entry. In essence, we find

this argument also in the OPTA consultation documents. There it is argued that regulation will be based on the WACC (weighted average cost of capital) of KPN and this WACC will be determined by means of the CAPM. We read statements that increased competition leads to increases in  $\beta$  which in turn translates in higher prices.

Returning to our simple example, let  $\pi(p)$  be the probability that entry occurs if the regulator sets the monopolist's price at  $p$ . Given Bertrand competition (i.e. the winner, the firm with the lowest price, takes all), the zero profit constraint,  $(p-c)(1-\pi(p)) = I$ , now translates into

$$p=c+\frac{I}{1-\pi(p)} \quad (4.3.2)$$

Since  $\pi(p) > 0$ , we see that any solution to (4.3.2) is larger than the solution to (4.3.1). Hence, in this simple model, consumers are hurt by the possibility of entry. This is a direct consequence of our “winner takes all consumption”. With Bertrand competition, there is no need for the entrant to set a price below the regulated price, hence, consumers do not profit when entry occurs. In a more realistic model, the entrant would be forced to set strictly lower prices than the incumbent in order to attract costumers and consumers would thus benefit from entry.

There are now several possibilities with respect to the solution of (4.3.2). One theoretical possibility is that there is no solution at all, that the right hand side of the equation is larger than the left hand side for all values of  $p$ . In this case, taking the possibility of entry into account, the investors always expect to loose money, no matter what price the regulator sets. Alternatively, there are multiple solutions to (4.3.2) (we are assuming here that  $\pi(1) = 1$ , hence, that entry is very likely if the regulator allows the monopolist to set the monopoly price.) This situation is depicted in figure 1 where we have graphed the LHS and the RHS of Eq. (4.3.2)

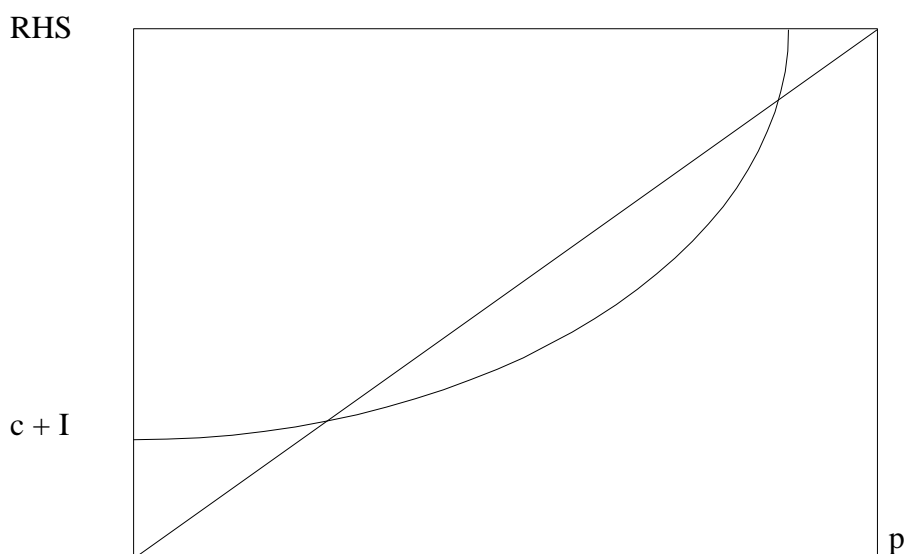


Figure 1: Multiple equilibria

In the case depicted in figure 1, there are two prices consistent with rate of return regulation, a low one and a high one. In the case at hand, it is easy what a regulator that is only interested in the consumer side should do, he should set the low price, but this is because of our extreme (and unrealistic) assumption that consumers do not benefit from entry. Even in this case, however, it is not clear that total welfare will decrease with entry, the total welfare being the sum of consumer surplus and the profit of the entrant. (The monopolist's profit is zero no matter what regulated price is set.)

In a more realistic model it might also happen that multiple prices are consistent with rate of return regulation. Assume for simplicity, there are two such prices: a low one  $p_l$  and a high one  $p_h$ . Assume for simplicity that  $\pi(p_l) = 0$  and  $\pi(p_h) = 1$  and that the entrant has to set a relatively low price,  $p_e$ , in order to attract a sufficient number of costumers (i.e. there is a lot of consumers inertia). The trade-off that the regulator now faces, assuming that he is still only interested in the consumer surplus, is more difficult. With strict regulation, all consumers are buying at price  $p_l$  from the monopolist. With lax regulation, some consumers buy at the higher price  $p_h$  from the monopolist, while others buy at the lower price  $p_e$  from the entrant. Consumer surplus might very well be higher in this second case.

Up to now, we kept  $\pi(p)$  as a parameter which could be manipulated at will. In full equilibrium, however,  $\pi(\cdot)$  has to be consistent with the entrant's incentives, after all the entrant will enter only if it is profitable to do so. It is reasonable to assume that the regulator will not be fully informed about the entrant's cost structure, but that the entrant knows the parameters  $D$  and  $s$ . Given  $p$ , the entrant will enter if  $D + s < p$ , hence, we should have

$$\pi(p) = \text{Prob}(D+s < p) \quad (4.3.3)$$

Such considerations, however, do not change the arguments given above. What is important is that  $\pi$  is increasing in  $p$  and that by manipulating the distribution functions of  $D$  and  $s$  one can manipulate the function  $\pi$ . Hence, we did not spend to much time on this aspect.

However, it may be worthwhile to relate this aspect to the maintained assumption thus far of a one-period model. Consider the case of really dynamic competition. As we argued above, with consumer inertia the entrant will enter only if the monopolist prices at a high price, furthermore, the entrant himself will be forced to price at a low price. Initially the market share of the entrant may be small, with profits being small as well, but both may grow over time. Now the fixed cost  $D$ , however, has to be incurred at the start. Clearly, the entrant will enter only if the discounted expected profits exceed the cost and this may be the case only if the regulated price remains at a high level for a sufficiently long period of time. Assume, in contrast, that the regulator uses a long run cost model to determine the regulated price, hence, the regulator assesses what the long term competitive price will be and imposes this already in the short run. In this case, it is less likely that the entrant will be able to recover the investment cost  $D$  and entry may very well be blocked. Just as in the simple example, this policy could hurt consumers.

We summarize the discussion from this subsection in the following proposition.

**Proposition:**

1. *Setting the regulated price at a welfare maximizing level (or at a level that maximizes consumer surplus) involves complex trade-offs, which can only be resolved by detailed market analysis.*
2. *There may be multiple prices that are consistent with rate of return regulation. In such*

*cases, a lower price makes entry less likely and this may (or may not) hurt consumers' interest, in particular when the entrant would allow the consumers to buy at a lower price, or to buy a different variety.*

3. *Strict regulation may be a barrier to entry and, hence, may hurt consumers' interests.*
4. *Cost based prices may be too low to allow competition to develop, in particular if these costs are "long run costs".*
5. *Different beliefs of the regulator may be self confirming. If she believes entry to be unlikely, then she will set a low price and entry will be unlikely; if she believes entry will be more likely, she will set a higher price and, indeed, entry will be more likely.*

## 5. MARKET DEVELOPMENTS IN THE NETHERLANDS

With this section, we start our overview of developments in various countries, describing how the different regulatory agencies have tried to cope with the challenges put to them. We start with the Netherlands, of which our description is most extensive, this because of the fact that, within the English language literature, one does not find too much information.<sup>17</sup> One of our aims is to fill this gap. We first discuss the wholesale market and start with interconnection in section 5.1. Next, we describe the evolution in the thinking about whether the local loop is an essential facility (section 5.2). Special access, and in particular MDF-access is then discussed in section 5.3. The final subsection deals with the retail market.

### 5.1 INTERCONNECTION

We provide a historical overview showing that the initial policy proposals were favorable for alternative infrastructure providers, but that, over time, the advantage that such providers had over pure service providers was gradually eliminated. The policy changes were induced by ONP-regulations. Within that framework, they seem to be based on sound economic reasoning.

On March 20, 1997, ministerial guidelines on interconnection are published. These distinguish

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<sup>17</sup> The OPTA site (<http://www.opta.nl>) has some pages in English, but the documentation is not extensive; the progress paper is information.

between originating and terminating access. It is proposed that in the latter case the interconnecting party does not have to pay for the use of the local loop, but that the interconnecting party has to pay in case of originating access. The immediate consequence, of course, is that the price for originating access is much higher, hence, that parties are given incentives to invest in alternative infrastructure. Indeed, Dutch policy at the time aimed to stimulate such infrastructure competition and, given the high penetration rate of cable TV in the Netherlands, such a policy could make sense. The concrete proposal involves sharing the cost of the local loop by all users in proportion to the use they make (in minutes) of the local loop. The Guidelines are published in the Staatscourant on June 5, 1997 and become effective at that time.

In the meantime, there is an interconnection conflict between Telfort and KPN. The conflict (which originates in February 1997, but eventually is decided upon only in June 1998) concerns both originating and terminating access. The parties dispute whether the minister has authority to resolve the conflict, as this is special access. On the basis of ONP directive 95/62/EC, KPN has to offer special access, but this directive is not yet incorporated into national law. Since it will be before long, the minister decides to handle the case and she makes a ruling on June, 26, 1997. She maintains the difference between originating and terminating access and wants to allocate the costs of the local loop exclusively to originating access, the principle being that “het aansluitnet volledig moet worden gefinancierd uit opbrengsten van uitgaand verkeer”<sup>18</sup>. The minister argues that this principle is also desirable for a policy perspective because this stimulates the construction of alternative networks. She accepts the consequence of delaying competition at the service level. Indeed Telfort claims that the resulting tariffs are such that it can offer local calls only with a negative margin. The minister fixes interconnection tariffs on the basis of the principles outlined, but these are preliminary as KPN does not yet have an approved upon accounting method. To comply with ONP-directives, the minister orders that an accounting model be developed for the purpose.

When the Dutch telecoms regulator OPTA starts its activities on August 1, 1997, it is immediately confronted with appeals by both KPN and Telfort to the ministerial decision on interconnection. Furthermore, it is charged with the task to develop an appropriate accounting method to

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18 Cost of local loop have to be recovered from originating traffic.

determine interconnection prices. OPTA starts immediately by issuing a consultation document on cost allocation for interconnection and special access (22/8/97). In this document, OPTA announces that the local loop deserves special attention and that about this latter topic there will be a separate consultation process.

The consultation document on how to incorporate the cost of the local loop appears on February 4, 1998 and in it OPTA proposes to revert the former ministerial decision on interconnection pricing and the decision in the Telfort conflict. Recall that these decisions were based on two principles:

- i) The cost of the local loop are incorporated in tariffs for originating access, not in those for terminating access,
- ii) These cost are per minute, the cost unit is the total cost of the local loop divided by the number of minutes of outgoing traffic from the local loop.

OPTA makes clear that, for at least 4 reasons, this is an undesirable system:

- a) It does not take into account the subscription fees, that KPN gets,
- b) It puts competitors at a disadvantage,
- c) It induces arbitrage,
- d) It is inconsistent with the fact that the cost of the local loop is fixed and sunk, i.e. not traffic related.

The document thus basically argues that the earlier Ministerial Guidelines and decision were based on flawed economic reasoning. Furthermore, the system is particularly undesirable as it also works out to hinder competition. An example makes this clear.

Suppose the local loop has 8 mln connections, that cost 4 bln/year and suppose there are 40 bln minutes use of the local loop per year of which the incumbent carries 90%. The charge for network use now is 10 cts/minute. The incumbent covers part of the cost through fixed charges, say f 27.50 per month for a total of 8 mln connections, yielding 2.64 bln on a yearly basis. The access deficit is  $4 - 2.64 - 0.1 \times 40 \times 0.1 = 0.96$  (cost-monthly fees-contribution from competitors) resulting in 2.64 cts per minute (divide through by the 36 bln minutes that KPN carries). One sees that whereas competitors face a per minute costs of 10 cts, KPN only has a per minute cost of 2.64 cts, the situation is anti-competitive. Note that keeping the system, but allowing KPN to rebalance its tariffs, would lead to a further improvement of KPN's position.

To remedy the situation, OPTA proposes to separate access to a network from use of that network and to price the two separately. A consumer can then have an access contract with KPN and a traffic contract with a competitor, perhaps the competitor could also take over the access contract, so that the consumer would deal only with one party. Such a situation would give further arguments for tariff rebalancing, i.e. have both access and traffic tariffs in relation to costs. Of course, such a policy is completely in line with the EU document on Interconnection Pricing, see p. 18 of that document in particular. As rebalancing would imply higher tariffs for access, it would also improve the competitive strength of those who offer competing access services. Obviously, the lower interconnection tariffs also improve the situation for competing service providers as they increase the margin on which they can compete. Overall, the market would thus be more competitive.

When making this proposal, OPTA rejects any other method by which the cost of the local loop would be covered by traffic related tariffs, hence, also the proportional method that was proposed by KPN. In this method, one looks at the access deficit and divides this in proportion to the outgoing traffic. One argument given for this rejection is that this system would lead to asymmetric treatment between carrier pre-selection and carrier selection. Furthermore, the EU has explicitly rejected the idea of including an access deficit contribution in the traffic for terminating access. The EU position w.r.t. originating access, however, is not completely clear yet.

At about the same time, there is a second interconnection conflict, this time between Enertel and KPN. Enertel demands access and interconnection at the lower level of the local switch, i.e. the “nummercentrale”. Concerning such access, OPTA reasons (in its decision dated 17/12/97) that KPN should have foreseen demand for interconnection at this level, especially since it is common in various other countries (also in the UK) and since this is mentioned by the European Commission as one of the three levels where interconnection is possible (recommendation on pricing 3/11/97). Note that such access is especially attractive at places where there is a lot of traffic, such as the Amsterdam business district. Although KPN argues that it is difficult to provide such access at the level of the “nummercentrale”, also because of the fact that it has different types of local switches, OPTA orders KPN to offer it and it sets (preliminary) tariffs for both interconnection at the level of the “verkeerscentrale” and at the level of the

“nummercentrale” on December 17, 1997. The prices that are relevant at that time are given in the following table:

	terminating access
local	2.1
regional	2.8
national	3.6

The consultation on interconnection and the cost of the local loop, results in OPTA publishing new Guidelines on 27/3/98. Next, on April 3, 1998 OPTA decides in the Telfort/KPN conflict: the cost of the local loop cannot be incorporated in originating access tariffs. As argued before, the market thus becomes more competitive, KPN's position is challenged and it desires to rebalance its tariffs. OPTA does not oppose such rebalancing: as of July 1998, KPN's subscription charges increase by some 25% and there is a corresponding lowering of tariffs for traffic.

With the publication of its decision on cost based interconnection tariffs from July 1, 1998, OPTA terminates (for the moment) the entire process concerning interconnection costs and prices. The interconnection tariffs are now cost oriented (EDC) as the ONP interconnection directive demands. The proposed system is as follows. Each year on May 1, KPN will propose preliminary tariffs for the next year (from July 1<sup>st</sup>) and final tariffs for the previous year. OPTA will judge these tariffs on the basis of both a bottom-up and a top-down cost allocation model. Starting point is the existing cost allocation model of KPN, to which forward looking elements are added, thus moving towards current cost accounting. It is found that KPN's network is not fully efficient and there is thus an efficiency reduction, however, costs are not based on the full efficient network as KPN is not the only one to blame for the inefficiency (it is partly government induced). The local loop is valued at historic cost, but traffic independent cost cannot be incorporated in interconnection tariffs. Tariffs are based on cost thus calculated, allowing for a return on assets (based on the WACC-method) of 12.2%. Tariffs will be adjusted yearly and it is considered desirable to limit fluctuations from year to year. A system to limit fluctuations still has to be developed, however. A distinction between peak and off-peak rates is allowed, the time

periods being the same as for retail tariffs.

The following table gives the interconnection prices as they hold between July 1, 1998 and July 1, 1999. We note that, in European perspective, the Dutch interconnection tariffs are on the low end.

Period	1 July 1998 - 1 July 1999				
		Set-up		Conveyance	
	Average	Peak	Off-peak	Peak	Off-peak
local terminating	1.7	1.5	1.0	1.7	0.9
regional terminating	2.4	2.1	1.5	2.4	1.3
national terminating	2.9	2.5	1.8	2.9	1.5
local originating	2.0	1.7	1.2	2.0	1.1
regional originating	2.7	2.3	1.7	2.7	1.4
national originating	3.2	2.8	2.0	3.2	1.7

## 5.2 THE LOCAL LOOP: AN ESSENTIAL FACILITY?

In a sense the answer to the question posed in the title is easy: since there is investment in alternative infrastructure, the local loop does not satisfy the usual conditions for an essential facility; apparently it is economical to make the investment. In this subsection we quote extensively from OPTA documents to show that the Dutch telecoms regulator argues differently. The quotes nevertheless show the evolution in OPTA's thinking, while in the earlier consultation documents we find clear statements that the local loop is essential, OPTA carefully avoids the use of the word "essential facility", in the most recent guidelines on MDF-access (See Sect. 5.3).

In its document on how to incorporate the cost of the local loop in interconnection and access tariffs, OPTA is quite outspoken about whether the local loop should be considered an essential facility or not. We list the relevant sections from that document. The first that we quote (31) states that access to the local loop is essential for entrants to compete as the costs to duplicate it are prohibitive. The second paragraph (32) states that mobile is no comparable alternative, while according to (33) the same holds for the cable network, especially since the cable sector is not very concentrated (34), the conclusion (in 35) thus being that, for the moment, the local loop is an essential facility .

31. Het college is deze opvatting ( dat vergoeding van de kosten van het aansluitnet moet zijn vanuit concurrentie oogpunt, EVD) toegedaan omdat in deze fase van de liberalisering het aansluitnet van PTT Telecom voor veel nieuwe aanbieders onmisbaar is. Dit fijnmazige aansluitnet is immers (o.a. door de hoge graafkosten) alleen tegen hoge kosten te dupliceren. Het zelf aanleggen van een geheel nieuwe vaste infrastructuur is bovendien tijdrovend, zowel door de omvang van een dergelijk project, als door de intensieve afstemming die het vergt met grondeigenaren.

32. Een draadloze infrastructuur als volwaardig alternatief voor het vaste aansluitnet komt voorlopig niet beschikbaar. In een recente studie van Andersen Management International in opdracht van OPTA wordt zelfs betwijfeld of dat op langere termijn het geval zal zijn.<sup>19</sup>

33. Nieuwe toetreders zijn dan ook in eerste instantie aangewezen op de bestaande fijnmazige infrastructures: die van PTT Telecom en de kabeltelevisie-netten (KTV-netten). De KTV-netten bieden echter op korte en middellange termijn evenmin een alternatief dat op grote schaal kan worden gebruikt. Deze netten moeten namelijk voor het overgrote deel nog geschikt gemaakt worden voor de afwikkeling van telefonie en andere tweewegdiensten.<sup>20</sup>

34. Bovendien zal een dienstaanbieder die zijn diensten in heel Nederland wil aanbieden, vanwege het grote aantal verschillende KTV-aanbieders met veel verschillende regionale of lokale exploitanten over de toegang tot hun netten moeten onderhandelen. Of die toegang dan ook daadwerkelijk en tegen redelijke tarieven wordt geboden blijft een onzekere zaak. Een nieuwe aanbieder zal vaak concurreren met de plaatselijke kabelexploitant zelf, waarbij kan worden aangetekend dat er noch in de huidige, noch in de voorziene Nederlandse

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19 Andersen Management International, An outline of access models in order to stimulate competition at access network level (nog te publiceren).

17 Zie ook: Verdonck, Klooster & Associates, De kabel: werk aan de elektronische snelweg, onderzoek in opdracht van het Ministerie van economische Zaken, 12 november 1997.

telecommunicatieregelgeving, een algemeen recht bestaat voor derden om van deze lokale infrastructuren gebruik te maken. Dat recht komt er pas als de KTV-exploitant een partij met aanmerkelijke macht op de telefoniemarkt is geworden.

35. In de praktijk zullen (potentiële) aanbieders van telefoniediensten daardoor voorlopig overwegend aangewezen zijn op het aansluitnet van PTT Telecom. Dit net kan dan ook worden beschouwd als een 'essentiële faciliteit' zoals bedoeld door de Europese Commissie.<sup>21</sup>

Let us now turn to the consultation document on special access from June 4, 1998. Some of the above arguments are repeated in slightly different terms. The first paragraph (55) argues, that residential costumers and small businesses will frequently not have a choice of infrastructure provider, among others because of the fact that there is little upgrading of cable networks. The second argues that indirect access cannot be relied upon to provide all services for which there is effective demand. The third (57) questions whether carrier select services will be offered for local services and argues that these are particularly important because of internet access.

55. Kleinzakelijke (en particuliere) eindgebruikers zouden in beginsel tussen aanbieders kunnen kiezen als zij een kabelaansluiting hebben en als, naast de traditionele dienstverlening door de concessiehouder KPN Telecom, de kabelexploitanten hun net geschikt zouden maken voor telefonie en andere tweewegdiensten. De aansluiting is immers al aanwezig. In de praktijk komen tweewegaansluitingen op kabel-tv-netten echter minder snel beschikbaar dan verwacht. Daar komt nog bij dat lang niet alle kabelexploitanten hebben besloten om telefonie of andere tweewegdiensten<sup>22</sup> aan te bieden. De verwachte penetratie voor telefonie en snelle internet-access op kabelnetten is in 2000 ongeveer 10%

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18 Zie § 59 van de Mededeling van de Commissie over een ontwerp-bekendmaking betreffende de toepassing van de mededingingsregels op overeenkomsten inzake toegang tot de telecommunicatiesector, 97/C 76/06 van 11 maart 1997. Zie in het bijzonder voetnoot 50.

22 Bij andere tweewegdiensten kan men denken aan internet access (inclusief e-mail), video on demand etc.

van het aantal aansluitingen.<sup>23</sup>

56. Kleinzakelijke gebruikers en particulieren zijn daarom vooral aangewezen op de aansluiting van KPN Telecom, waarover ze via de dienst “carrier selectie” desgewenst een andere aanbieder kunnen kiezen. Het gebruik van de aansluiting van KPN Telecom om diensten van een andere aanbieder te bereiken beperkt de keuzevrijheid van die eindgebruiker tot die diensten, die door het net van KPN Telecom worden ondersteund. De dienst “carrier select” van KPN Telecom beperkt zich tot telefonie en ISDN. Dat betekent dus ook dat een dienstaanbieder alleen die diensten kan aanbieden die door het net van KPN Telecom worden ondersteund. Hierdoor bestaat het risico, dat een aantal diensten om die reden niet tot ontwikkeling kan komen. Voorbeelden zijn de dienst “Completion of calls to busy subscribers” (automatisch opnieuw oproepen als een bezette lijn weer vrij komt) of “Call deflection” (de gebruiker beslist op het moment van binnenkomen van een gesprek om het te accepteren of door te sturen naar een ander nummer).

57. Daarnaast is het de vraag of carrier select diensten voor lokaal verkeer wel tot ontwikkeling zullen komen. Lokaal verkeer is met name van belang in verband met de toegang tot aanbieders van internetdiensten (ofwel Internet Service Providers of ISP’s). Het internetverkeer ontwikkelt zich stormachtig, zowel in toename van het aantal abonnees als in het aantal toepassingen. Het resultaat is een grote toename van het lokale verkeer. Ook maken eindgebruikers meer en meer gebruik van ISDN-2 abonnementen bij KPN Telecom om een snelle toegang tot het internet te verkrijgen en daarnaast de mogelijkheid te hebben van simultaan telefoneren en “internetten” binnen een bedrijf of huishouden. De groei van ISDN aansluitingen in grafiek 1 illustreert de grote vraag naar snelle toegang tot het Internet.

In point 88 of the consultation document we find a reference that, at the moment, service providers are completely dependent on KPN’s network. While in the future there may be

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23 Rapport Verdonck, Klooster & Associaties, November 1997

competition and regulation can be relaxed, this is not true at present. Hence, this can again be interpreted as the local loop being an essential facility.

88. Het aansluitnet van KPN is op dit moment zonder twijfel de belangrijkste vaste telecommunicatie-infrastructuur. Dienstaanbieders zijn voor de afzet van hun diensten geheel afhankelijk van dit net. In de toekomst verwacht het college wel dat andere vaste telecommunicatienetten tot ontwikkeling zullen komen. Ook zullen de mobiele en vaste telecommunicatienetten gaan convergeren. Op termijn kan dit betekenen dat er meer ruimte wordt gelaten voor bepaalde elementen, waaruit de tarieven voor diensten die zijn gebaseerd op originating access zijn opgebouwd. Indien er voldoende concurrentie op de markt voor infrastructuur zou komen, zou de markt in beginsel haar werk doen. Op dit moment doet, zoals gezegd, die situatie zich echter niet voor. Het college verneemt graag de visie van marktpartijen op deze gedachtengang.

OPTA concludes on the basis of these arguments that it is important to insist on local loop unbundling. It is remarkable that it takes 9 months for OPTA to make up its mind, a decision on MDF-access only appears on March 12, 1999. It is equally remarkable that the words “essential facility” are carefully avoided in the guidelines on MDF-access. In the next subsection, we provide more details on the consultation document on special access and on the guidelines for MDF-access.

### 5.3 SPECIAL ACCESS

Special access is defined as access to a telephony network at another place than is available to the majority of users. The ONP-directives state that SMP-operators have to honor reasonable requests for special access, but the decision what requests are reasonable, is for NRA's to take. Several types of special access can be distinguished. For our purposes, the distinction between direct access and indirect access is important. We speak of indirect access when an operator needs to make use of facilities of another operator to connect to a consumer. Direct access means that a consumer is directly connected to the network of the operator with whom he contracts. We now briefly discuss indirect access, which is also called originating access, and which is relatively

unproblematic. Thereafter, we move on to discuss direct access, which is also called MDF-access. In the latter case, the competitor connects directly to the consumer's local loop via the main distribution frame; on the other side of the MDF, the line of the consumer is connected to the facilities of the competitor (co-location). The competing operator also takes over the subscription and the consumer only deals with competing company, not with the incumbent monopolist.

Originating access is also sometimes called Carrier Selection. It is the form of special access where end users route their calls through another operator than the one to which they are directly connected. The user keeps his subscription with the existing operator, but is billed for his calls by another operator. Two forms of carrier selection can be distinguished: call by call select (for each separate call, the user selects an operator) and carrier pre-selection. In the latter case, the user pre-selects an operator. The first form can be implemented with a default operator in case of no pre-selection, the second form could allow call by call override. EU-countries have committed themselves to implement the first form by 1/1/98 and the second form by 1/1/2000. A question is whether carrier select should also be possible for local calls. Apparently, the EU insists on this.

An important question being presently discussed European wide, is whether it is sufficient to rely on indirect access for competition, or whether it is essential for new service providers to have direct access to the consumers. The question is especially important in the context of fixed-mobile convergence. In this context also the concept of ADSL-access is relevant. ADSL is a technique to increase capacity of lines. The existing copper wires do not have enough capacity to enable new broadband services, such as video on demand and quick internet access. However, by putting ADSL-modems on both sides of the access line (one in the consumer's home, the other in between the MDF and the first switch), the capacity can be increased so as to enable data transport with a downward speed of 2-6 Mbit/s and this makes the new services possible in addition to the existing telephony service. We can now speak of the ADSL-connection, consisting of the existing connection line, together with the two modems. The relevant regulatory question now is: is a demand for access to the ADSL-connection reasonable?

Let us return to direct access in the case of the Netherlands. In the case of the Netherlands, MDF-access ( a form of direct access) played first a role in the Enertel conflict as Enertel had asked KPN to provide unbundled access to the local loop. Policy with respect to direct access differs

in different countries. In Germany, Canada and the US, MDF-access is compulsory. In the UK, OFTEL wants to promote investment in infrastructure and, therefore, prohibits access at this low level. OPTA rules ( in its decision from 17 December 1997) that it would be unreasonable of KPN not to make an offer for MDF-access, but it considers it premature to discuss the tariffs for such special access, especially in light of the fact that Enertel's demand is rather unspecified. It however does order KPN to make a reference offer. Concerning the appropriate tariff, OPTA notes that MDF-access involves the line excluding the "lijnkaart". Since the subscription includes line plus linecard, it stands to reason that the tariff for MDF-access lies below the monthly subscription fee.

OPTA announces that the issues will be taken up further in a consultation round. Consultation is considered necessary as this is an important issue and since the ONP-directives concerning interconnection (30/6/97) instruct regulators to encourage operators to offer special access. Furthermore, operators with significant market power have to honor any reasonable request for access. They should offer access in a non-discriminating, transparent way, according to cost-based-tariffs. In particular, no discrimination is allowed between competitors and own daughters, hence, unbundled access has to be offered and the user should pay only for that part of the network that he actually uses.

In the consultation document on special access (June 4, 1998), OPTA states that it considers MDF-access to be necessary to make possible, resp. enable competition on the market. This is because there are few alternatives (no pre-selection yet, alternative infrastructure only in a few places). See the quotations in the previous subsection. Hence, OPTA proposes to impose MDF-access on operators with SMP. The argument is given in point 72 of the document.

72. Het college acht deze vorm van bijzondere toegang tot de aansluitlijn van de dominante aanbieder, zoals eerder vermeld, noodzakelijk voor het tot stand komen, c.q. bevorderen van daadwerkelijke concurrentie.(....)

However, OPTA also indicates that it is willing to limit this obligation to a temporary period, of say 5 years, just as is the case in Canada, as it is possible that the market will develop in such a way that the obligation will no longer be necessary then.

73. Het college is vooralsnog van mening dat de huidige Nederlandse marktsituatie (geen preselectie; beperkt reëel aanbod van alternatieve lokale netten) bijzondere toegang tot ontbundelde netelementen noodzakelijk maakt. Dit neemt niet weg dat er ontwikkelingen in de markt kunnen ontstaan, waardoor deze asymmetrische plicht niet langer het doel dient waarvoor hij in het leven wordt geroepen, namelijk: de totstandkoming van daadwerkelijke concurrentie. Van marktpartijen met (deels) een eigen net mag worden verwacht dat zij meer en meer, ten behoeve van hun klanten, eigen aansluitingen zullen creëren. Daarom is het college in beginsel van mening dat de bedoelde verplichting voor dominante aanbieders om te voldoen aan redelijke verzoeken om bijzondere toegang tot de aansluitlijn in de tijd beperkt zou kunnen worden. In Canada is de asymmetrische plicht om toegang te bieden tot de ontbundelde aansluitlijn aan een beperking (van vijf jaar) gebonden. Het college denkt vooralsnog dat het goed zou zijn om na een periode van vijf jaar de ontwikkeling van concurrentie op aansluitingen te evalueren en alsdan te besluiten of de plicht om bijzondere toegang tot de aansluitlijn nog beantwoord aan het doel van die plicht. De invoering van carrier preselectie uiterlijk per 1 januari 2000 (zie ook hoofdstuk 2, onderdeel 2.3) kan wellicht een impuls geven aan de daadwerkelijke mededinging op dit gebied. Ook de evaluatie van de ONP-richtlijnen in Europees verband eind 1999 kan een rol spelen voor de uiteindelijke periode waarin de plicht om bijzondere toegang tot de aansluitlijn te bieden gehandhaafd blijft.

OPTA also discusses the possible negative consequences of opening up KPN's network for alternative investment in the local loop, but argues that these arguments cannot be decisive since access to the incumbent's infrastructure for service competition to develop (paragraph 59). In addition, OPTA argues that it has helped providers of alternative infrastructure by insisting on cost oriented subscription fees for KPN and number portability (60). Finally, (61) argues that there is other markets than plain telephony that are relevant for cable networks.

59. Het verlagen van drempels bij het gebruik van de infrastructuur van KPN Telecom roept de vraag op wat het effect zou zijn op de concurrentiepositie van aanbieders van alternatieve infrastructuur, zoals bijvoorbeeld kabelexploitanten.

De vraag naar gebruik van hun infrastructuur zou kunnen verminderen. Het college heeft bij de consultatie over de kosten van het aansluitnet<sup>24</sup> aangegeven dat dit aspect echter niet doorslaggevend kan zijn om van drempelverlagende maatregelen af te zien. Daarvoor is laagdrempelige en vooral snelle toegang tot de infrastructuur van de dominante aanbieder te belangrijk voor de totstandkoming van concurrerende dienstverlening.

60. Naar aanleiding van bovengenoemde consultatie heeft het college besloten<sup>25</sup> dat het abonnementstarief dat KPN Telecom in rekening brengt aan haar eindgebruikers kostengeoriënteerd dient te zijn. Dit is in het voordeel voor aanbieders van alternatieve infrastructuur. Het betekent dat zij een betere uitgangspositie krijgen om met dit abonnementstarief te concurreren. Dit tarief komt immers hoger te liggen als er geen subsidie plaatsvindt vanuit de verkeersopbrengsten. Overigens wordt de concurrentiepositie van aanbieders van alternatieve infrastructuur in belangrijke mate door andere aspecten beïnvloed, zoals een snelle (en voor de eindgebruiker laagdrempelige) invoering van nummerportabiliteit.

61. Tenslotte kan worden opgemerkt dat er diverse redenen zijn om in alternatieve infrastructuur te investeren. Daarbij speelt zeker niet alleen een rol of een met KPN Telecom concurrerende telefoondienst kan worden aangeboden. De mogelijkheid om ook andere diensten - in het bijzonder breedbanddiensten - te kunnen aanbieden is van groot belang evenals de mogelijkheden voor aanbieders om bijvoorbeeld one-stop-shopping<sup>26</sup> aan te bieden en/of technologie-onafhankelijke en gedifferentieerde vormen van diensten aan te kunnen bieden<sup>27</sup>.

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24 Consultatiedocument kostenvergoeding aansluitnet, 4 februari 1998

25 Richtsnoeren kostenvergoeding aansluitnet, Staatscourant 1998, nr. 62, 27 maart 1998

26 One-stop shopping: alle diensten afnemen van dezelfde leverancier (1 rekening ontvangen, 1 aanspreekpunt hebben)

27 Rapport Eutelis Consult, december 1997

The conclusion here can be that OPTA does not appear to be very concerned about the negative consequences of its decision on alternative infrastructure investment. In addition it can be remarked that OPTA expresses scepticism about the possibility for infrastructure competition, especially in point 88. It has done so in various other documents as well. However, also see the speech of OPTA-chairman Arnbak at the cable congress where there seems a slight change in thinking. (Also see the section on retail regulation).

88. Het aansluitnet van KPN is op dit moment zonder twijfel de belangrijkste vaste telecommunicatie-infrastructuur. Dienstaanbieders zijn voor de afzet van hun diensten geheel afhankelijk van dit net. In de toekomst verwacht het college wel dat andere vaste telecommunicatienetten tot ontwikkeling zullen komen. Ook zullen de mobiele en vaste telecommunicatienetten gaan convergeren. Op termijn kan dit betekenen dat er meer ruimte wordt gelaten voor bepaalde elementen, waaruit de tarieven voor diensten die zijn gebaseerd op originating access zijn opgebouwd. Indien er voldoende concurrentie op de markt voor infrastructuur zou komen, zou de markt in beginsel haar werk doen. Op dit moment doet, zoals gezegd, die situatie zich echter niet voor. Het college verneemt graag de visie van marktpartijen op deze gedachtengang.

OPTA took very long to make up its mind on MDF-access, only on March 12, 1999 did it publish guidelines with respect to MDF-access and, hence, did it provide first answers to the following important questions raised above:

- (i) Should the obligation to provide unbundled access be restricted to a certain time period, like in Canada?
- (ii) What will be the tariffs for such unbundled access? How much will it cost to rent the local loop?

OPTA claims to have found an innovative solution to these questions that will indeed ensure that competition can develop quickly, without deterring investments in alternative infrastructure. We discuss these guidelines now.

Repeating the arguments given above for why MDF-access is important, the OPTA guidelines state that a demand for MDF-access is reasonable if two conditions are satisfied:

- (i) such access is necessary for the demanding party to compete on the market, i.e. if the access would be denied then the consumer could not be reached or accessing the consumer would become uneconomical,
- (ii) there is sufficient access capacity available, when it is assumed that this condition will be satisfied for the first party demanding MDF-access.

We note that, while not using the term, the first requirement boils down to the local loop being an essential facility, see also the definition given by the Canadian telecommunications regulator in section 8. We also note that OPTA explicitly states that incumbent can refuse access if it can show that alternatives exist. When the demand for MDF-access is reasonable, KPN has to provide it against a quality that is at least equal to the quality that it provides for itself. The tariff for MDF-access is cost based, where the innovative feature is that there will be a gradual shift from historic cost accounting to current cost accounting, the idea being that this will stimulate service competition in the short run, while maintaining the incentives for investment in alternative infrastructure. Specifically, tariffs are determined according to the following formula

$$p_t = p_t^h + t (p_t^c - p_t^h)/5$$

where

- $p_t$  = price in year t (t = 1 in year 2000)
- $p_t^h$  = price based on historic cost, and
- $p_t^c$  = price based on current cost

These prices are based on the cost accounting models where a return on assets of 12.2% is allowed. Hence, in the year 1999 (t=0), prices are fully based on the historic cost of the local loop, just as in the cost model that is used for retail tariffs, in the year 2005, prices are exclusively based on current cost as in the cost model for interconnection. There is thus a 5-year transition period, after this period the prices will no longer be regulated, as OPTA announced.

The above formula will lead to prices that increases over time, hence, MDF-access will be

available on more attractive conditions now than in the future. Consequently, the idea is that this pricing formula will induce investment in alternative infrastructure. A question, however, is whether OPTA's commitment to the pricing formula is credible. If there happens to be no investment in alternative infrastructure, then 5-years from now we will be in the same situation as we are now, and if low access prices are a good idea now, they will be a good idea then. Hence, if the market doubts OPTA's credibility to stick to the formula, then the investment that OPTA hopes for might not take place.

#### 5.4 RETAIL PRICE REGULATION IN THE NETHERLANDS

Until July 1, 1997, telephony retail prices in the Netherlands are regulated through a price cap regulatory mechanism: there are two baskets of services (of which one is relevant for residential users) of which the prices are not allowed to increase by more than the rate of inflation. Note that possible efficiency improvements are not incorporated, hence, the regulatory restriction is "light" and, consequently, KPN makes a considerable profit on its telephony activities, there is a ROA of about 20 %. With such a profit rate it cannot be argued that prices are cost oriented. On the basis of the WACC-method, it might be argued that an ROA of 12.5% might be more appropriate.

The ONP voice telephony directive 95/62/EG insists on cost oriented retail tariffs. There has to be an approved accounting system for the purpose and the NRA has to judge whether prices are cost oriented. The ONP directive is implemented in Dutch law through a modification of the "Bart" (besluit algemene richtlijnen telecommunicatie) from June 30, 1997. The "Bart" specifies that KPN Telecom has to provide an accounting system for approval before 1 October 1997. As several details about the accounting system and the regulatory system have not been specified, OPTA decides to consult the market. It issues a consultation document on February 4, 1998. In it, OPTA already expresses its preference for a price cap regulatory mechanism. It considers this to be consistent with the ONP guidelines and will propose to the minister to implement it (see pt. 65). This would then be in line in the UK, where retail tariffs are regulated through a price cap mechanism.

The ONP directives have bite in particular for those markets and services for which there is not yet sufficient competition. The idea is that regulation can be a substitute for competition: for those

markets and services for which competition has not developed yet, one insists on cost based tariffs to protect consumers. As soon as there is sufficient competition, one can drop the requirement of cost orientation. In February 1998, that only seems to be the case in market for international calls. Note that cost oriented tariffs may imply both price ceilings (to protect consumers from exploitation of monopoly power) as price floors (to protect entrants from anti competitive behavior, such as predatory pricing, in markets where competition is developing). Hence, also discount schemes and the like have to be judged.

In February 1998, KPN's tariffs are still unbalanced: there is an access deficit which is subsidized by traffic revenues. This situation is untenable when competition develops and EU directive 96/19/EC states that NRA's have to allow incumbents to rebalance. At the time of the consultation document there is still little competition in local and national markets, hence, there is no acute need for KNP to rebalance. However, according to OPTA, the reason for the limited competition is that competitors who want to use KPN's network have to pay an Access Deficit Contribution. OPTA is of the opinion that the ADC's should be eliminated from interconnection tariffs, hence, the cost of the local loop has to be fully covered by subscription fees. OPTA instructs KPN to eliminate ADC's and it allows KPN to rebalance.

In February 1998, KPN offers consumers a choice from a menu of three tariffs schedules (belbasis, belbudget and belplus). In principle there is nothing wrong with a menu of schedules, but they have to be judged according to their cost orientation. One should judge both whether the price is not too high (consumer protection), nor too low (anti competitive behavior against entrants). For the same reason, also discount schemes should be judged.

In the consultation document, OPTA announces that, for access and interconnection, it will allow a lower rate of return than for traffic. The reason is that the risk in relation with "conveyance services" is lower, after all there is less possibilities to substitute for these services. This holds, in particular, for the local loop, which might be viewed as an essential facility. There is hardly any alternatives for the local loop and OPTA does not expect the situation to change much in the near future (see pt 67 of consultation document: OPTA expects service competition on KPN's network, but not infrastructure competition).

A distinction has to be made between regular POTS and ISDN service. The latter may be viewed as a higher quality variant. In February 1998, KPN allows consumers to switch from POTS to ISDN without having to pay moving costs. The monthly subscription charge is higher for ISDN, but also this charge seems to be offered below cost. Two questions are now relevant:

- 1 should KPN be allowed to cross subsidize ISDN by POTS, i.e. should the entire POTS/ISDN package be judged whether it is cost based,
- 2 should KPN be allowed to offer ISDN below cost?

Initially, OPTA argues against 1, but in favor of 2, the argument for the latter being that it is usual business practice to introduce a new service below cost. Later (in its September statement) it revises its opinion and argues that ISDN is not new anymore, it should be self supporting. Consequently, the subscription fee should increase. OPTA considers such an increase also reasonable because of the fact that at the time of rebalancing, the ISDN subscription rate remained unchanged. (Recall that the subscription fee for POTS was increased by 25 %.)

After the consultation period, OPTA issues its statement about the cost orientation of KPN's tariffs on September 2, 1998. In the next paragraphs, we describe the most important aspects of this statement. Let us, however, first summarize the reactions to the consultation. Generally speaking, KPN argues for price flexibility and competitors argue for low wholesale prices and high price floors for KPN's retail price, giving them most room to compete. The consumer organization wants low prices. OPTA sees its role as to balance these various interests. Of course, this all is not very surprising. The most serious complaint issued against OPTA is by providers of alternative infrastructure. They argue that OPTA does not seem to believe in infrastructure competition in the local loop and that, therefore, it intends to regulate prices strictly. Such an attitude may, according to the alternative access providers, indeed imply that competition will never develop. OPTA has little to say against this argument other than that the rebalancing of tariffs helps competitors.

Indeed, in the meantime (as of July 1, 1998) KPN has rebalanced its tariffs, this as a consequence of the fact that KPN was no longer allowed to include the cost of the local loop in its interconnection tariffs (OPTA decision from March 27, 1998).

KPN offers three different POTS schedules: “belbasis” (taken by the majority of costumers), “belbudget” (for light users) and “belplus” (for heavy users). All these retail schedules have a common structure. First, a consumer has to pay to get connected to a network, or to get connected at another place. Secondly, there is a monthly subscription fee. Thirdly, for each successful call the consumer pays 10 cts. Finally, there are (per second) traffic related fees. These differ according to the destination of the call: local, national or international. The latter market is considered competitive and no regulation is considered necessary. For all calls, a distinction between peak and off-peak is made. In addition to POTS, there is the (premium) ISDN service, which involves a higher subscription fee. There is also special discounts for heavy users, but we will not consider these.

On the basis of the approved cost statement for 1997, OPTA has judged the cost orientation of these various individual tariffs. The following table provides a global overview, in which all but the last two rows refer to POTS-belbasis. OPTA asks KPN to make a price proposal that is in agreement with this table within one month.

<b>Service</b>	<b>Price (guilders)</b>	<b>Judgement</b>	<b>Price Indication</b>
Connection	231 (new)	Too high	Lower
	66 (moving)	Too high	Lower
Subscription	34.6	Ok	Ok
Call set up	0.1	Ok	Ok
Local traffic (minute)	0.06 (peak)	Too high	Reduce by 25 %
	0.03 (off-peak)	Too high	Reduce by 25 %
National traffic (minute)	0.145 (peak)	Too high	25 % reduction in 3 years
	0.0725 (off-peak)	Too high	
Fixed to mobile	0.9	Too high	Reduce
	0.53	Too high	Reduce
ISDN connection	0 (migration)	Too low	Increase
ISDN subscription	49.95	Too low	Increase by about 25%

One interesting aspect in the table is the fact that national calls are treated differently from local

calls. The arguments are given on pages 57-59 of the Statement document. A drastic decrease in the national rates could kill emerging competition in this market, as it would reduce the margins between interconnection rates and retail prices. This is an argument in favor of gradual reduction. In contrast, OPTA argues that in the local market there is no emerging competition, hence, interests of consumers should prevail. Therefore, prices can be reduced at once. Hence, the overall picture is clear: no regulation where there is already sufficient competition, light regulation (and a transition path) where competition is developing, and strict regulation where no competition is expected.

As said, to judge the cost orientation of prices, OPTA has based itself on the cost figures for 1997. The prices, however, will hold in 1999 and the cost in 1999 may very well be different. OPTA had indicated that it was willing to reconsider if there were drastic changes and, indeed, KPN argues that there are such major changes. Concerning the costs, preliminary estimates for 1998 indicate that these are much higher than in 1997 because of network investment and because of reorganization. KPN thus demands a smaller decrease in POTS-prices. Secondly, the number of ISDN subscribers has grown considerably, with the consequence that the ISDN service is now almost breaking even. KPN thus asks for lower ISDN-prices. In sum, KPN asks for a price proposal on the basis of the newly estimated 1998 data and it argues that such a proposal will lead to almost unchanged traffic and ISDN prices. OPTA argues that it is not unreasonable to incorporate changing circumstances and that it would be undesirable if retail prices would fluctuate like a jo-jo. Insisting on the original proposals would indeed have this effect. Hence, OPTA is willing to reconsider its earlier decision and it organizes a hearing to discuss this opinion with market parties.

During the consultation, the asymmetric treatment of national and local rates is discussed. OPTA now seems to provide an opening, as it will investigate investments in alternative local infrastructure. If such investments are taking place and if drastic reduction of local retail prices could kill such investments, OPTA indicates that it is willing to reconsider its decision concerning the local market as well.

Concerning OPTA's demands for lower prices, KPN agrees to reduce the connection fee to *f* 100 (from 231) and the migration fee to *f* 25 (from 66) and it proposes to reduce the national traffic

tariffs by some 10 %. OPTA accepts these proposals, in the latter case since this amounts to a first step in an overall 3 year reduction plan. KPN also proposes to reduce the fixed to mobile tariffs by some 5 %. OPTA agrees but expects KPN to reduce these prices further in the future when competition in the mobile market has developed further and interconnection prices in the mobile market will have come down.

KPN proposes to leave the prices for local calls unchanged, although it is willing to offer a special low Sunday rate of 2 cts/minute. Taking into account the higher cost estimates for 1998, the return on the subscription fee is below the allowed rate, hence, if these costs are accepted, KPN could increase the subscription fee. Rather than doing this, KPN prefers to keep the lower subscription fee and to subsidize the “deficit” by somewhat higher local rates. As alternative providers of local infrastructure have indicated that they would prefer to compete with lower traffic related prices, OPTA decides to agree to KPN’s proposal. Of course, one should not expect KPN to help competitors, the conclusion must be that KPN is not hurt very much by the competition yet.

As far as ISDN prices are concerned, KPN agrees to increase the price of the upgrade (migrating from POTS to ISDN) to f 225, but it proposes to leave the subscription fee unchanged. OPTA agrees with both proposals even if both prices are insufficient to cover the cost. The argument is that, now that the number of ISDN subscribers has increased considerably, these prices will not be loss making in the near future.

The new prices will become effective on January 1, 1999. There will be a possible revision as of July 1, 1999. Also, a price cap system will be developed. It will be interesting to see whether OPTA will choose for regulation of individual prices or for more global regulation of price baskets. According to economic theory, the latter is more desirable.<sup>28</sup>

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28 Very recently, on April 20, OPTA published its consultation document on price caps. OPTA proposes a global price cap, a one time reduction to oriented tariffs at the start and a three year period. An alternative is to choose higher prices at the start and a higher value of X (faster decrease); in that case, however, OPTA would want to impose subcaps on certain services. The final decision will also depend on the investigations of developments in local loop competition which is taking place at present and of which the results are expected in June.

## 6. TELECOMMUNICATIONS POLICY IN THE UK

The UK telephony market has seen competition since the early 1980's. In 1983, the government announced its “duopoly policy” which was that, besides BT, only Mercury would be licensed as fixed network operator until 1990. The idea underlying this policy was that, by being protected from further entry, Mercury was given incentives to develop as a strong competitor to BT. To further help Mercury, regulation was asymmetric in the sense that BT was subject to more specific regulatory constraints. However, the effect was that Mercury competed only in the highly profitable international and business markets and that most residential consumers did not benefit much from the competition. When the “duopoly policy” was ended in 1991, the government fully opened all markets and since then many newcomers have entered, also in the local markets. In particular, cable companies have made significant inroads in the local telephony market as about 25 % of those consumers who could use cable for telephony actually do so.

Since the “duopoly policy” expired, the UK regulatory regime can be characterized by a focus on infrastructure competition and by asymmetry, in the sense that more strict obligations are imposed on BT. The idea is that consumer interests are served best by having competition at all levels of the value chain, and that, to have effective competition on all levels, entrants should be given incentives to invest and the incumbent operator should be prevented from exerting market power. To give entrants incentives to invest, access to be BT's network has not been too easy. In a sense, the policy has had the effect of sacrificing short-term benefits in the hope of realizing higher benefits from vigorous infrastructure competition in the future.

To prevent BT from exerting market power, it has had to comply with strict obligations. In this sense, regulation has been strictly asymmetric. For example, BT faces line of business restrictions: it is not allowed to provide TV-services, although it can offer video on demand. As cable operators do not face a line of business restriction, this asymmetric regulation clearly is in their favour. Secondly, BT (and Mercury) face technology restrictions: it is prohibited from using fixed wireless technology, other than in sparsely populated areas, where competition is not likely to materialize in any case. Thirdly, BT is not permitted to de-average prices; under its license it must have national prices and a published national traffic. As there is no such obligation on competing operators, this policy clearly invites entry in the low cost areas.

In the next subsections, we describe the policy on interconnection, and special access and the regulation of the retail market in some greater detail. Asymmetry and stimulation of infrastructure investments will be recurring elements. Subsection 6.1 describes the regulator's aims and explains why these elements are recurring.

## 6.1 INFRASTRUCTURE COMPETITION OR SERVICE COMPETITION?

Since the ending of the duopoly period, the British telecommunications policy has been based on the idea that competition at all network levels will best serve the consumers' interest. For example, the telecommunications regulator OFTEL has clearly stated that:

“The UK's aim is that all costumers should have the choice of at least three operators. These might comprise BT, a cable operator, a radio access operator and/or an indirect access operator”.<sup>29</sup>

This policy is also based on the idea that pure service competition will not bring enough benefits to most residential consumers. For example, in another of OFTEL's consultation document, we read

“OfTel considers that greater competition in the international and national markets will have little impact for most residential customers, since they generally take all their calls as a combined package of local/national/international calls from their local access provider ..... Residential customers will, therefore, in most cases only be able to take advantage of greater competition in national and international calls when they have effective competition amongst alternative local access providers”.<sup>30</sup>

The document describing OFTEL's policy on access that was referred to above suggests that this

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<sup>29</sup>OFTEL's policy on indirect access, equal access and direct connection to the access network: statement from the director general of telecommunications, 1996, paragraph 46

<sup>30</sup> OFTEL: Pricing of telecommunications services from 1997: a consultative document. Available at [www.oftel.gov.uk](http://www.oftel.gov.uk).

policy has been successful.

“The development of competing telecommunications infrastructure in recent years suggests that by encouraging local competition, the UK is creating one of the most competitive markets for telecom in the world and is spreading competitive benefits to a wider cross-section of the community than has been achieved in other jurisdictions. The policy of encouraging competing infrastructure is now being followed or considered by many other countries.”<sup>31</sup>

Of course, within the UK, it has been realized that it takes time before competition based on infrastructure is sufficiently developed. In the meantime one might rely on service competition over the existing monopolistic network. Clearly, the service providers, need access to that network, hence, an obligation to provide indirect access has been imposed on the dominant operator BT and is included in the condition of its licence. The question now is how easy such access should be in order to reap the benefits of competition. More generally, the OFTEL documents on “Promoting Competition in Services over Telecommunications Networks”<sup>32</sup> deal with the question of how to create the right balance between infrastructure competition and service competition, how to encourage more effective service competition, while at the same time not undermining network competition? These consultation documents generally deal with two issues: (i) concern for BT’s market power and (ii) EU-developments (such as the Interconnection Directive) which might necessitate changes in the UK-policy.

It is useful to distinguish various markets and various players on these markets. There is the (wholesale) market for network services, the market for basic retail services (such as plain telephony) and the market for enhanced services. There are two types of players: network operators (service providers with their own network) and independent service providers (those without a network). BT is a dominant player that is active on all markets. BT is dominant in the market for network services (it has 94 % of all residential lines) and dominant in the retail market (it has a 94 % share in the local market and 70 % share in the international one). It is generally

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31 Paragraph 27 of “OFTEL’s policy on indirect access”

32 See OFTEL’s statement from beginning 1997 with that title that summarizes the situation.

agreed that to prevent BT from abusing its dominant position a clear accounting separation of the various activities is necessary; OFTEL believes that structural separation would, however, be inefficient. There is regulation on the market for network services and the market for basic retail services, while the enhanced service market is unregulated. In this market, there is convergence between various types of services.

In the market for network services, different players are treated differently. The network operators have RCS-status and are eligible for, standard cost, based interconnection terms from BT, which are set by the regulator. The ISP's have to negotiate with BT concerning terms of access and interconnection. The obvious question thus is whether ISP's should be charged the same as network operators. OFTEL argues not since this would undermine the investment incentives for network owners. On the other hand, ISP's should be charged less than retail consumers, since they use fewer network services than final consumers do: they should not pay for elements of service that they do not use. Hence, the Spring 1997 statement concludes with (i) a demand for clearer separation of the various BT-services, (ii) cost oriented interconnection tariffs for network operators and (iii) interconnection charges based on "retail minus cost savings" for ISP-operators.

## 6.2 INTERCONNECTION

The European Interconnection Directive (97/33/EC) forced the UK to change its interconnection policy. In this subsection we briefly describe the UK interconnection policy before the implementation of the ICD and why this had to change because of the ICD.

Before 1998, in the UK rights and obligations to interconnect were granted by way of a license. The regulation was asymmetric in the sense that initially only BT was obliged to provide interconnection, the idea being that other operators, not having market power, would choose to provide interconnection voluntarily. Later on, the obligation to interconnect was extended to other operators, but another important distinction remained, viz. that between operators having so called RCS-status and those without that status. RCS-status entitled the holder to cost based interconnection charges from BT. (As of October 1997, these costs are calculated on the basis of long and incremental cost). In principle, whether or not an operator had this favorable RCS-

status depended on whether or not it intended to invest in infrastructure. Hence, the carrot of being able to obtain favorable interconnection rates from BT served as an incentive to build competing infrastructure. Hence, also here there is an asymmetry as the interconnection terms depend on the identity of the party requesting interconnection and not just on the service provided.

The basic principle underlying the ICD is that all operators who have bottleneck control of access to costumers should interconnect with one another to ensure universality of services and interoperability of networks. The ICD framework is reciprocal: those who have obligations also have rights. In addition, there are operators with SMP (significant market power) who are forced to interconnect at cost oriented tariffs. The interconnection rates of these operators have to be non-discriminatory, objective and transparent.

The ICD directive forces the UK to change its policy. The UK policy was based on the idea of stimulating competition between infrastructures. Those operators taking on the obligation to build infrastructure received RCS status, which granted the right to obtain interconnection from BT at cost oriented tariffs. However, as the formal requirement of “making a significant contribution to infrastructure” is difficult to make objective, this requirement is incompatible with the ICD.

The consequence of the EU-induced change is that more operators will get the right to interconnect with BT at favorable terms. A question is whether the new policy will remove the incentive to build alternative infrastructure? OFTEL<sup>33</sup> argues no, but the argument is not worked out in detail.<sup>34</sup> What is clear is the “policy competition” argument that is given. If the UK would maintain its policy (assuming it could) and would insist on building requirements, then operators could register in a different EU country and obtain the right to interconnect with BT at cost based terms in that way, hence, the policy would not be effective.

OFTEL has determined that BT is an operator with SMP and that it thus has to offer cost oriented interconnection rates. The methodology for calculating these rates is set out in condition 13 of

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<sup>33</sup> See OFTEL consultation document “Rights and Obligations to interconnect under EU interconnection directive”, 198, paragraph 18

<sup>34</sup> See also the most recent statement of the DGT “Rights and obligations to interconnect under the EC interconnection directive”, April 1999, in particular 2.3, 2.16 and 2.17.

BT's license. We refer to the OFTEL documents "network charges from 1997" for further details, but provide a very brief summary here. The current contract period runs from 1 October 1997 to 30 September 2001. At the start, the rates were determined by means of long run incremental costs, allowing for a ROA of 12.5%. For non-competitive services, the controls evolve according to a price cap mechanism,  $p_{th} = (RPI - X) p_t$  where  $X$  depends on the extent of competition: for prospectively competitive services  $X = 0$ , so that these charges may not rise in real terms; for bottlenecks and non-competitive services, there are three baskets of interconnection services (one for general network elements, another for call termination services), a third for connection services), for each of these  $X$  is around 10%.

### 6.3 SPECIAL ACCESS

In this subsection, we summarize the important OFTEL document "OFTEL's policy on indirect access, equal access and direct connection to the access network: statement from the director general of telecommunications" (1996). The document argued that the cost of carrier pre-selection exceed the benefits, hence, that the requirement should not be imposed. Also in this case, the UK was forced to change policy because of EU developments: carrier pre-selection has to be offered by January 1, 2000. At the end of the subsection, we move to the recent (December 1998) consultation document "Access to Bandwidth" in which OFTEL outlines its policy with respect to the EU proposals on local loop unbundling.

Indirect Access refers to the situation where a customer contracts a telecommunications service from an operator to which he is not directly connected. All public fixed network operators<sup>35</sup> in the UK have the obligation to provide indirect access (interconnection) to all operators holding RCS-status. (All main network operators in the UK as well as some service providers have RCS-status). In addition, the Director General of OFTEL can impose on BT to offer equal access, but only after having conducted a cost/benefit analysis. Here, equal access refers to dialing parity, i.e. it should be just as easy to route calls via operator  $X$  than via BT, for example, in both cases

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35 A recent OFTEL consultation document (February 1999) concludes that indirect access should also be obligatory for 2 mobile networks (Vodafone and Cellnet) and that the relevant price is retail price minus savings.

should a 4-digit code be called first. We note that in the UK, about 3.5% of the residential consumers use indirect access and 13% in the business market. One question is whether BT should offer such equal access. Related is the question of whether also other network operators should be forced to offer equal access, i.e. should the requirements be symmetric or asymmetric? Thirdly, there is the question whether competing operators should have the possibility of direct access to the customer, i.e. that they be able to lease the line from BT.

In 1996, the consulting firm NERA performed a cost benefit study on various forms of indirect access. One of the options investigated was carrier pre-selection with an override feature to select a different operator on a call by call basis. According to the computations, this results in direct benefits (more service and easier use) which are estimated at around, £ 20m over a 10 year period. In addition there are indirect benefits, these resulting from stronger competitive pressure on existing operators. These benefits are estimated to be in the order of magnitude of £ 60m over a 10 year period. The latter figure is contested, however. In addition, there are costs of introducing these options, estimated by NERA around £ 160m. The conclusion is that costs exceed benefits, a conclusion that also holds for the other options. (The option “call by call carrier selection” is estimated to have almost zero benefits and to have costs around £ 47m). Besides there is an additional important argument against equal access that has not been taken into account in the cost/benefit analysis: its introduction might discourage operators from developing alternative networks. OFTEL phrases it as follows (in point 23):

The NERA study raised doubts about the overall economic benefit of introducing equal access. In addition, OFTEL is concerned that its introduction could discourage operators from developing alternative access networks if they risked the benefits of their investments to competing operators. OFTEL concluded, on balance, that there is no case for directing BT to provide equal access.

OFTEL thus concluded that forcing BT to offer equal access would be against the public interest. Similarly, OFTEL concludes that it is undesirable to force alternative operators to offer equal access. In fact they should not even be obliged to offer indirect access, for, as long as the indirect access requirement is imposed on BT, customers will have access to any service provider through the BT network. OFTEL's general concern here is that imposing the obligation to offer indirect

access on alternative network operators might expose these operators to cherry picking by indirect access operators, hence, that it might again discourage the development of competing infrastructure, which clearly is undesirable. OFTEL phrases this as follows:

28. A particular concern of OFTEL, therefore, is that companies entering the market, investing substantially in infrastructure and providing alternative direct connections to the trunk networks for customers, should not be exposed to cherry-picking by indirect access operators. Although there are pricing structures that new entrants could adopt to mitigate this problem, these pricing structures may result in reduced potential consumer welfare and slow down the provision of competing infrastructure. In addition, OFTEL's view is that, when applied to new networks, indirect access is likely to exploit the high initial costs experienced by such networks and discourage the development of competing infrastructure. Therefore, when considering the question of whether non-dominant operators should be required to provide indirect access, it remains of the view that this is generally undesirable.

The proposed revision of the Interconnection Directive, however, forces the UK to revise its policy on indirect access now: the revised ICD requires that carrier pre-selection (CPS) be offered by SMP operators as of January 1, 2000. In a consultation document from July 1998, OFTEL has announced that CPS will be available from the SMP-operators (BT and Kingston in the Hull area) as early as possible. However, since completely new software is needed for the purpose, the UK will not be able to make the January 1, 2000 deadline and the UK will seek a deferral. All Annex II operators will be eligible for CPS and the relevant switches will have an initial capacity to host up to 100 operators, the capacity being allocated on a first come first serve basis.

Those UK consumers who wish to make use of CPS, can make a choice from the following menu, where choosing options implies that one cannot choose for any of the other options:

Option 1: CPS for international calls only

Option 2: CPS for national calls only

Option 3: CPS for all calls, i.e. local, national, international, fixed to mobile and specially tariffed.

Hence, a consumer could choose to have CPS for international calls with an operator X and CPS

for national calls with another operator Y, or to have CPS for all calls with an operator Z. In each case, it will be possible to have a call carried by another operator by dialing a short access code.

Clearly, the introduction of CPS may worsen the competitive situation of alternative direct access providers. How much these are harmed will depend on how the CPS costs are recovered, the details of this cost recovery still have to be worked out.

The third issue discussed in the 1996 Statement is direct access to the consumer. OFTEL is pretty clear on its undesirability in paragraph 45 of the statement:

“Although OFTEL recognizes that direct connection to the Access Network is feasible, it would run counter to the UK policy of encouraging alternative infrastructure. It would involve the leasing of part of BT's network at a regulated price to its competitors and hence would discourage rather than encourage operators to build their own Access Networks. It would undermine the value of the investment of other operators, particularly cable companies, have made in building their own infrastructure to gain costumers and hinder the development and upgrading of existing Access Networks.”

Furthermore, paragraph 46 states:

“UK operators are likely to have invested £ 7.5 billion in building alternative Access Networks to BT by the end of 1996 and considerable further investment is planned. Any move to allow operators to take over BT exchange lines would undermine post investments and jeopardize future plans.”

OFTEL concludes, therefore, that direct connection to the BT Access Network would adversely effect the development of competition and would not be in the interests of the UK consumer.

In its 1996 statement, OFTEL remarked that its position concerning the direct access issue could change over time with market developments, for changing circumstances might imply that the balance of economic benefits might change. In relation to the EU discussion on convergence,

OFTEL has recently returned to the question of whether direct access (i.e. local loop unbundling) could be desirable now. A recent consultation document<sup>36</sup> notes that, at present, there is effective demand for higher bandwidth services such as fast Internet access and video on demand and that these services could be delivered to the consumer through various channels (cable-tv or telephony networks), but that the both of these need to be upgraded for the purpose. The document argues that, for the moment, copper loops, enhanced by application of xDSL-technologies appear to be the best means of wide and early access to higher bandwidth. Hence, the growing demand for the higher bandwidth services increases the importance of the local loop and the question thus is whether regulatory action is necessary. The document considers 5 options for such regulatory action:

- i) Unbundled local loop. BT would be required to lease its local loop and to offer collocation for a competitor's broadband equipment.
- ii) Partial baseband leased circuit. For the consumer this is similar to option 1, the difference, however, is that the entrant leases the modems as well.
- iii) Bitstream access. BT operators the modems and a competitor leases the line and the modems.
- iv) Permanent virtual circuit access. For the consumer this is like 3.
- v) Indirect access. The higher bandwidth line is connected to the service provider, this would work very similar to current small band indirect access. Also carrier selection would be possible. The document asks about the effects on competition and on the incentives to invest of each of these options, but it does not provide much details. More will be known later this spring.

#### 6.4 THE RETAIL MARKET

Retail price control is limited to that market segment, low and medium use residential costumers and low use small businesses, for which there is not yet effective competition. The current control is in place since 1997 and lasts till 2001. A basket has been established on the basis of telephony use of the first 80% (by spend) of residential costumers (rental: 49%; calls: 51%, of which local: 29%, national: 15%, international: 3%, other: 4%) and the price of this basket cannot increase by more than RPI - 4.5%. Besides this overall cap, there are no separate caps on individual prices,

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36 OFTEL consultation document "Access to bandwidth: bringing higher bandwidth services to the consumer", December 1998

with the RPI + 2% on line rental (which prevented BT from rebalancing quickly) having been lifted in 1996.

Interestingly, competitors are allowed to price discriminate in the local market: cable companies offer free local calls to other subscribers on the cable network.

BT has been forced to offer number portability as of July 1996. Other operators are not obliged to do so, but they may voluntarily. Some of them did, for example, IONICA offered a discount to consumers who choose number portability.

## 7. TELECOMMUNICATIONS IN THE US

In this section we focus attention on the US Telecommunications Act of 1996. We limit ourselves to the wholesale market. The discussion that follows is based on

N. Economides "The Telecommunications Act of 1996 and its Impact", forthcoming  
Japan and the world economy

B. Mitchel and I. Vogelsang: "Telecommunications Competition: The last 10 miles", book  
1998

I. Vogelsang and G. Woroch: "Local telephone service: a complex dance of technology,  
regulation and competition" forthcoming in L. Duetsch and M. Sharpe "Industry Studies"

R.G. Harris and C.J. Kraft "Meddling through: regulating local telephone competition in  
the United States", J. Econ. Perspectives 11 4 (1997) 93-113

J.J. Laffont and J. Tirole: "Competition in telecommunications", book manuscript, march  
1998

Economides remarks that "more than two years after the passage of the Act, there is very little entry and competition in the local market". The question to be addressed is how to explain this.

Deregulation of the US telecommunications sector started with the breakup of AT&T in 1984. Seven Regional Bell Operating Companies (RBOC's) were divested from AT&T and were given exclusive regional territories (local access and transport areas, LATA's) in which they were allowed to carry calls. At the same time a line of business restriction was imposed on these RBOC's: they were forbidden to carry Inter-LATA calls. These long-distance calls were handled by long distance companies, such as AT&T, MCI or Spirit. A clause, however, stipulated that the line of business restriction could be lifted if an RBOC could show that "there is no substantial possibility that it could use its monopoly power to impede competition in the market it seeks to enter". The direct effect of the breakup was the development of competition in the long distance

market. This was also stimulated by active pro-competitive policy of the federal telecoms regulator, the FCC (for example, by allowing resellers to exploit arbitrage possibilities). Competition in the local markets developed slower, in part because of regulatory barriers. In order to maintain universal service, policy makers typically insisted on geographically averaged prices and cross subsidies where access charge was below cost. Obviously, such a system can be maintained only if entry is limited. Over the last decade, however, competitive access providers (CAP's) have entered the profitable (business) districts of the local market, thus upsetting the traditional system, hence, the need to revise the law.

The main objectives of the new act are to further open telecommunications markets to competition and to protect competition against the market power of incumbent dominant carriers. The act envisions a network of interconnected networks and uses both structural and behavioral instruments to reach these goals. It outlaws artificial barriers to entry in local markets, and it mandates interconnection and unbundling of network elements so that competitors can enter easily. At the same time, the act aims to preserve universal service, however, the traditional subsidy mechanisms are to be replaced by competitively neutral ones. Harris and Kraft describe the act as a series of grand compromises among the three major classes of telecommunications providers: ILEC's, long distance operators and cable companies. The long distance companies were concerned that the RBOC's could leverage their (local) monopoly power to these other markets, hence, they (successfully) lobbied to prevent entry of RBOC's before the local markets had been opened. The act contains a long list of requirements that have to be met before ILEC's are allowed to enter into long distance markets. (It should be noted that concerns for leverage of market power are indeed justified). A second compromise allows cable companies to be freed from price regulation in their "home" market once they face effective competition in that market, for example from ILEC's.

The act views the local loop as a bottleneck controlled by the local incumbent. Its key focus is to introduce competition in this last bottleneck while preserving the effective competition that has developed in the long distance market. Until competition has developed sufficiently, regulation attempts to simulate competition. Entry in the local market is more difficult than in the long distance market because of high capital requirements, the need to cooperate with the incumbent and the existence of location specific constraints. The act envisions three types of entry in the

local market: facilities based entry, service resale entry and unbundled entry. The first involves constructing competing infrastructure, the second involves buying ILEC services at discounted rates (basically according to prices that are based on the efficient component pricing rule, ie opportunity costs are reimbursed) and the third is a hybrid of the two former two: the entrant leases local network elements from the incumbent (at cost based prices) and combines these with his own network elements. To facilitate entry in the local market, the act imposes mandatory interconnection and unbundling on incumbents and it imposes number portability on all parties. Interconnection has to be offered at any technically feasible point (including the line side of the local switch) on non-discriminatory, reasonable terms. To implement interconnection and unbundling, an incumbent is required to allow for physical collocation of the competitor's equipment.

The level of unbundling is important and has been contested: incumbents have argued that the level required by the act is excessive, while entrants have been concerned that incumbents force them to buy excessively bundled elements. The FCC's "Report and Order" from August 1996 identifies seven network elements that have to be unbundled: local loops, network interface devices, local and tandem switches ( including all software features), interoffice transmission facilities, signaling and call related database facilities, operations support systems and operator and directory assistance facilities services. One notes that not all of these constitute essential facilities! The FCC reasoned that the bottleneck characteristic is unimportant as facilities based entrants would want to lease the other elements as well.

In an evaluation, Harris and Kraft conclude that the act and the FCC's interpretation of it involve too extensive unbundling requirements. As they write:

“The act's requirements that incumbent's networks be unbundled at all technology feasible points is excessive and not economically justifiable. According to established antitrust law and economics, the only valid reason for requiring unbundling is if a good or service is an “essential” facility, that is, it is control and necessary to the production process in a downstream market (meaning that without access to the facility, production is impossible), it is a monopoly or bottleneck, and it is not economically replicable by competitors. ....[The authors

continue that call termination is such an essential facility and that according to some analysts, but not to them, the local loop is as well]...However, the Telecommunications Act of 1996 went much further, requiring incumbents to unbundled assets which are clearly not essential in the sense defined here, such as end office and tandem switching, local transport, operator service and directory assistance”.

The 1996 act requires the prices for interconnection and unbundled elements to be cost based and nondiscriminatory, but they may include a reasonable rate of profit. In its first report and order (August 1996) the FCC has concluded that the relevant cost standard is “total element long run incremental cost” (TELRIC) and that an 11.25 % rate for the cost of capital is appropriate. Note that TELRIC is an economic cost concept, it is the sum of all minimized cost paid for all inputs required to supply the element of the network in question. The concept is forward looking (focus is on technological possibilities available today rather than on embedded costs), it is long run (costs are estimated assuming that all of the firms costs are available) and it is incremental (one looks at the additional cost to provide the elements. Because of this latter aspect, common costs are not included, in TELRIC, however, a reasonable allocation of forward looking common costs may be included in the prices for interconnection and network elements. In the meantime, courts have ruled that the FCC has overstepped its authority by insisting on the TELRIC cost standard. Furthermore, apparently TELRIC did not give unambiguous answers, incumbents’ TELRIC models resulted in high prices while TELRIC models of entrants yield low prices.

Note that, by insisting that prices be cost based, the FCC explicitly rejects opportunity costs concepts such as the “efficient component pricing rule”. According to the latter concept, advocated by Baumol and his colleagues, the price would be equal to the cost of the input plus the profit foregone when the competitor provides the service. The FCC asserts that opportunity cost pricing will discourage competition and will provide no mechanism for forcing retail prices to their competitive level. (See FRAO 709-710). Note, however, that resellers have to pay ECPR-related cost.

The FCC discusses the relations between pricing and investment incentives for entrants in the paragraphs 683-685 of the FRAO. It argues that prices that are based on most efficient network

technology (i.e. prices that would prevail in a highly competitive market place) are lower and could thus discourage competition from facilities based entrants (683). Prices based on existing network design and technology, on the other hand, are higher and could perhaps give facilities based entrants the greatest incentive to invest (684).

In their evaluation of pricing issues, Harris and Kraft conclude that some TELRIC models fail to mimic the actual functioning of competitive markets and produce prices that are too low. They write:

“If state regulators base prices for unbundled network elements on models which estimate uneconomically low costs, new entrants’ “build or buy” decisions will be distorted and the construction of economically efficient competing network facilities will be deterred. Instead, new entrants will rely on reselling the network elements of the incumbents. Thus, to promote efficient, facilities based competition, prices should be based on realistic cost estimates and take account of the costs actually incurred in providing service”.

As they also remark, the problems are exacerbated by the fact that local regulators maintain subsidies to provide universal service, the consequence being that, while wholesale lease prices are below costs, incumbents are forced to sell at the retail level with non cost based markups. The overall conclusion that Harris and Kraft draw is:

“The extreme unbundling requirements in the Telecommunications Act, combined with the FCC’s rules, promote resale of incumbents’ services and network elements at the expense of delaying or deterring facilities-based entry... To the extent that prices for these wholesale services and unbundled network elements are set at uneconomically low rates by state arbitrators and public utility commissions, resale becomes an even more favorable method for entry. In this way, policymakers have biased the “build or buy” decisions of potential entrants, potentially deterring technically efficient construction of facilities and delaying the development of facilities-based competition .... As mentioned earlier, we believe the failure of cable companies to enter the local telephony market on a widespread

basis is due in large part to the FCC's local competition and interconnection rules, the low cost estimates for leasing incumbents' local network being set by state regulators and the uncertainty surrounding the whole regulatory process due to legal challenges".<sup>37</sup>

Despite of all that has been said, there also has been little "leasing based entry", this because of the fact that incumbents have argued that the fixed cost associated with unbundling are high, thus imposing high costs on entrants. If migration of consumers is (expected to be) high, then such on/off costs can create a significant barrier.

The overall conclusion is that up to now there has been minimal entry of new competitors in the local market, either through leasing of unbundled network elements, or through resale, or through building of new facilities. The local market is still far from competitive.

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37 R. Harris and C.J. Kraft: Meddling through: Regulating Local Telephone Competition in the United States". J. Econ. Perspectives 11, 4, (1997) 93-113

## 8. TELECOMMUNICATIONS POLICY IN CANADA

In this section, we briefly contrast the US to Canada. Again, we focus on the wholesale market.

An important difference between local competition in Canada and in the US is that the Canadian approach favors facilities based competition. Below we quote extensively from the CRTC Telecom Decision 97-8 (May 1, 1997) on “Local competition” that makes this clear. For example, the opening paragraph (237) of that part of the decision dealing with resale states:

“The commission is of the view that resale can promote the development of a competitive market while allowing competitors time to construct their own facilities. While resale competition can help the development of a competitive market, it is the commission’s view that the full benefits of competition can only be realized with facilities based competition.”

Sprint Canada, in particular, had advocated resale of unbundled facilities and resale of retail services, the latter on the basis of wholesale tariffs that equal retail tariffs less available cost. Concerning the former, CRTC agrees and it concludes that ILEC’s must allow for the unrestricted resale of unbundled components, other than subscriber listings (240). The demand for local call resale, however, is rejected by the CTRC: “the commission finds that it would not be appropriate to require ILEC’s to file tariff rates as proposed by Sprint” (250). The commission bases this conclusion on two arguments. First it argues that the net cost reductions resulting from the provision of wholesale services would be small (so that there would be little room for resellers to compete) and, secondly, to implement the system, extensive regulatory involvement would be needed.

Before turning to local loop unbundling, let us briefly consider interconnection and retail price regulation. To ensure interoperability of networks, the CTRC orders all LEC’s to provide interconnection with all other LEC’s. The commission is of the view that the interchange of traffic between LEC’s should take place at a single point of interconnection that is distinguished as a gateway. The gateway could be the local switch or the number switch. The interconnection charges are based on cost and include a mark-up for common costs. Interconnection for local

traffic is on a bill-and-keep arrangement where traffic volumes are balanced. New entrants are obliged to offer interconnection and to have to satisfy a certain number of other conditions, however, it is considered that they do not control essential facilities and they do not face restrictions on their retail tariffs.

Let us now return to the issue of local loop unbundling. As stated above, CRTC has mandated unbundling of certain of ILEC's service and facility components that competitors will need in order to compete. The basic idea is that ILEC's are required to unbundle essential facilities but nothing more as this will be the best stimulus for competition. In this respect, the May 1997 decision reverses the earlier decision 94-19 (September 16, 1994) which had concluded that unbundling should extend beyond monopoly controlled bottlenecks to services that are subject to dominant supply by the telephone companies. As the commission states in the crucial paragraphs 73 and 74 of decision 97-8:

73.The Commission considers that either too narrow or too broad a definition of an essential facility may impair the development of competition. If it is too narrow, competitors may not be able to enter the market because of an inability to obtain the necessary network components. If it is too broad, giving overly generous access to ILEC inputs, CLEC's may not have sufficient incentives to invest in their own facilities, and would enter and remain in the market primarily as resellers. The Commission is of the view that efficient and effective competition will be best achieved through facilities-based competitive service providers; otherwise, competition will only develop at the retail level, with the ILECs retaining monopoly control of wholesale level distribution.

74.In light of the above, the Commission concludes that ILEC's should generally not be required to make available facilities for which there are alternative sources of supply or which CLEC's can reasonably supply on their own. Accordingly, the Commission considers it inappropriate to define an essential facility as a facility that is provided by a dominant firm with market power because it would require facilities to be treated as essential even in the face of the demonstrated feasibility of alternative provision, including self-supply. The Commission concludes that to

be essential, a facility, function, or service must meet all three of the following criteria: (1) it is monopoly controlled; (2) a CLEC requires it as an input to provide services; and (3) a CLEC cannot duplicate it economically or technically. Facilities that meet this definition shall be subject to mandatory unbundling and mandated pricing. As well, the tariffed rates for these facilities shall be treated as costs in the imputation test.

In any case, the commission concludes that local switching, transiting of traffic, the CCS7 signaling network, directory assistance and message relay service do not meet the requirements of essential facilities. On the other hand central office codes, subscriber listings and local loops in certain regions (in particular, small urban and rural areas) should be considered as essential facilities. In other regions, there is already some competitive supply of local loops, so that in these cases the above 3 conditions for an essential facility are not satisfied. However, as such competition is still very limited, the commission concludes that, for a period of 5 years, the local loops in these regions should be unbundled according to the principles established for essential facilities, this in order to allow entrants to compete effectively in these regions in the short-run. After this 5 year period, however, these facilities will no be subject to mandatory unbundling or essential facilities rating. As the commission writes:

85. The Commission notes that, in the other bands, there is competitive supply but it is very limited. In the Commission's view, CLEC's would not be able to provide a significant number of loops in these bands in the early stages of competition. The Commission therefore concludes that CLEC's must have access to ILEC loops in these bands if they are to compete effectively in the short term. Accordingly, the Commission considers that, while local loops in these bands do not meet the criteria for essential facilities, they should nevertheless be unbundled and priced based on the rating principles for essential facilities. However, as these loops are not essential in accordance with the Commission's definition, ILEC's will only be required to cost these loops at Phase II levels rather than at tariffed rates in the imputation test. In Part V below, the Commission has directed the ILEC's to file revised demand estimates based on all companies' demand together with cost studies and rates for such local loops.

86. The Commission considers it appropriate to apply this modified treatment to local loops in the lower cost bands for a period of five years from the date of this Decision. After this five-year period, these facilities will not be subject to mandatory unbundling or essential facilities rating. In the Commission's view, this approach will permit entry at a pace that will better serve the public interest and, at the same time, provide incentives to CLECs to undertake construction or acquisition of facilities.

The commission also concludes that the rates for essential facilities should be based on incremental cost plus a 25% mark-up, the latter allowing to compensate for fixed common costs. It is claimed (in 125) that the resulting tariff rate would not be very different from one based on the TELRIC method. In any case, there should be a single tariff rate that applies to both the incumbent operator himself and to its competitors (130).

In comparison with the Dutch case (see section 5), we see that the regulated price includes a relatively higher mark-up, and that, in Canada, there is no gradual transition.

## 9. CONCLUSION

In this paper we have addressed several aspects of the question “is competition between infrastructure providers in the local loop a conditio sine qua non for effective competition in the telecommunications market?” We have seen that the answer is not a straightforward one and that the regulator faces challenging problems. We have argued that the benefits of competition should not be underestimated and that the “dangers” of duplication of network cost should not be overestimated. We have pointed out the risks involved in overregulation, in particular because of the fact that pessimistic beliefs on the part of the regulator may easily spread to potential entrants and may thus become a self-fulfilling prophecy: if the local loop is considered to be a natural monopoly and is regulated accordingly, then the local loop may indeed remain an actual monopoly as investments in alternative infrastructure will not be profitable.

In the foregoing sections we have discussed in detail some of the problems that a telecommunications regulator has to deal with. We have attempted to highlight the trade-offs involved, with emphasis being on the risks involved in the regulator leading the market, rather than the other way around. Rather than repeating these arguments here, we wish to move back to the more general level, to the discussion between the pros and cons of service competition versus infrastructure competition, to a comparison of the UK-model with the US-model.

Observers of the US-telecommunications market generally agree that thus far the 1996 telecommunications act has not yet brought what was expected, i.e. there is almost no competition in local markets yet, and it has become abundantly clear that it will take a long time before these local markets will become competitive. Perhaps, the take-over of cable companies such as Telecommunications Inc. and Media One by AT&T (a process that is taking place at present) will speed up this process. Indeed, according to analysts AT&T has identified cable as having the best broadband access into US-homes, thus enabling AT&T to compete in local telephone service and modern telecommunications.

In contrast, observers are generally more enthusiastic about competition in the UK telephone market. While also in the UK it has taken time for competition to develop (in this respect, the duopoly policy is now seen as a major mistake), competition in the UK is a reality now, also in the local market. Furthermore, competition is developing rapidly. For example, in its most recent (February 1999) market research report<sup>38</sup>, OFTEL states:

“10. By October 1998, cable companies had laid cable in roads passing nearly 12 million households offering direct-to-the-home telecoms connections. This represents a 15% increase in one year in the number of homes with access to cable telephony: around 50% of households in the UK now have the choice of a cable operator to provide telecoms service.”

“11. Take up of cable telephone lines by residential costumers was 3.4 million at October 1998, a 23% increase after October 1997. Cable companies are due to have passed 60% of households by the end of 2001.”

Hence, it follows that approximately 30% of those households who at present could use cable telephony do actually make use of cable telephony, showing that competition can develop and that cable companies can offer an attractive deal to consumers.

The above figures have to be viewed in light of the fact that cable companies in the UK have had to make considerable investments to make this happen, as the cable penetration ratio in the UK was low before. In this respect, the starting situation in the Netherlands for cable based infrastructure competition to develop is more favorable. This is realised by the OECD in its 1998 report on regulatory reform in the Dutch telecommunications industry<sup>39</sup>:

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38 OFTEL market research report “Towards better telecoms for costumers, 1998 progress report” February 1999

39 OECD “Regulatory reform in the telecommunications industry: the Netherlands.” Draft, September, 1998.

“15. The Dutch CATV industry is potentially a strong source of competition for the local loop. Virtually 100 per cent of households are passed by cable networks in the Netherlands and about 94 per cent are connected to cable networks.”

“93. As in all countries, local service competition presents more significant barriers to entry. In the Netherlands, the existence of a virtually ubiquitous CATV network presents an obvious alternative to the bottleneck of the local loop. CATV operators in other countries (most notably the UK) are already successfully offering voice telephony services. Indeed, in the Netherlands, A2000 has been offering voice telephony over its cable network in the Netherlands since 1997. Although at present only 5 cable companies have successfully concluded interconnection agreements, it is expected that this number will significantly increase.”

Given the favorable starting position, the question is how to realize the potential. Certainly, regulatory action should be geared towards this and should not create artificial barriers. In this respect, the warning the OECD issues against excessive unbundling requirements deserves to be repeated:

“48. Forcing a firm to make its facilities available to a competitor at regulated prices is a relatively significant regulatory intervention whose scope should be strictly limited. Such intervention poses serious dangers of distorting incentives on the part of facilities owners for further investment in upgrading or R&D. Special access should only be granted to facilities which are clearly essential facilities. In contrast, it appears that the intention in the Netherlands is to make special access available on a significantly wider basis.”

“53. In addition, the provisions related to special access are currently being interpreted broadly to require more unbundling than is strictly necessary. Facilities should only be unbundled when they are essential facilities as defined in the EU competition law. Consideration should be given, therefore, to scaling back these provisions.”

Taking into account the favorable developments in the UK and the favorable starting position in the Netherlands, the advise that one could give to the Dutch OPTA is to look across the North Sea and to orient itself towards its UK counterpart OFTEL.