



# The New Regulatory Framework and the Cable Industry

A report to the European Cable Communications Association

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# Executive Summary

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The European Cable Communications Association (ECCA) has commissioned Charles River Associates to provide an independent report examining key economic issues arising from the implementation of the European Commission's New Regulatory Framework (NRF)<sup>1</sup> in relation to the services provided by cable operators. Following are our main findings.

## **Infrastructure competition will be key to improving consumer outcomes**

- Liberalisation to date has had limited success. The incumbent telecom operators (TOs) still supply the vast majority of local loops and, as such, critically retain control over access. While regulation has led to some cost falls being passed through into lower call prices, even this impact has been diminished by higher monthly rental charges. The incumbent TOs have also proved adept at circumventing regulation designed to speed the introduction of new services. This has delayed the realisation of the consumer benefits of the new services and enabled the incumbents to carry forward their dominance into new markets.
- The harmful effects of the continuing dominance of the incumbent TOs underscore the importance of the development of alternative infrastructures. Competition provides the major impetus for operators to find new low cost ways of providing services, to improve quality and to develop and deploy new services. Access regulation cannot match competition in delivering these dynamic benefits.
- Cable networks can play a key role in achieving effective infrastructure competition through their potential to offer telephony, broadband and TV services to a substantial share of the population. The benefit of the competitive impact of cable is already evident in the take-up of broadband services with broadband penetration being higher in markets in which DSL providers are in competition with cable operators.

## **Achieving infrastructure competition will depend on the decisions of national regulators**

- The realisation of a competitive, vibrant communications services market place is dependent on the implementation of the NRF at national level and the type of remedies imposed on operators under the Access Directive.
- If cable is to sustain infrastructure-based competition to the incumbent TOs, the remedies imposed under the NRF should be assessed on a case-by-case basis taking into

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<sup>1</sup> The new regulatory framework for electronic communications infrastructure and associated services.

account the particular market position of the operator. Blanket regulation that does not take into account key differences between operators is unlikely to be appropriate. Further, given that individual networks can supply a range of services, there is a need to examine the potential for regulation of one service to affect the development of competition in the provision of other services. Ultimately, all regulation should be assessed in terms of its overall impact on welfare having regard to all the likely effects of the regulation.

- Access based remedies carry significant risks, including limiting the ability of operators to efficiently coordinate the services they carry over their networks and the potential to deter further investment by the operator subject to access and by entrants who might otherwise develop new infrastructures. Regulated access is likely to only be desirable subject to all three of the following criteria being passed:
  - (i) Does the operator have SMP (if not, then there is no basis for mandating access); and
  - (ii) Even if the operator has SMP, would denial of access harm competition in a related market; and
  - (iii) Even if denial of access would harm competition, would mandating access generate sufficient benefits to outweigh any loss in efficiency.
- The adoption of such a three-stage test can help ensure that regulated access is applied under the NRF only in circumstances in which it will serve to promote overall consumer benefits.
- Where access obligations are imposed, the access price should be set so as to enable the operator to cover its costs and receive a return commensurate with the risks, including the ex ante risk incurred at the time the investments were made. Further, cable networks have significant fixed and common costs and access prices should be based on an allocation of these costs that is aimed, as far as is practical, at maximising efficiency. In addition, regulators need to take account of the efficiency benefits that can be generated by the joint offering of services and avoid regulation that unnecessarily limits operators' flexibility in this regard.

### **Existing regulation of telephony services harms cable's potential**

- One of the main findings from this report is that many existing regulations significantly impair the ability of cable operators to compete with the incumbent TOs, that is, the decisions of regulators are themselves prolonging the dominance of the incumbents.



- In relation to telephony, cable operators in a number of Member States have had their charges for terminating calls regulated. In some cases, the termination charges have been set on a reciprocal basis to those of the incumbent TOs.
- Reciprocity has meant that the cable operators affected have only been able to recover an amount for terminating calls based on the regulator's estimate of the incumbents' costs. Given that cable operators have extensive networks in relatively high cost residential areas and do not have the scale in telephony of the incumbents, reciprocal pricing can leave them unable to fully recover their costs. This is particularly so, given the significant costs associated with providing cable telephony, including the cost of upgrading networks to support bi-directional services and the provision of cable modems.
- Reciprocity has been put forward on the basis that it is competitively neutral. However, termination regulation does not affect competition in relation to termination (which, regulators argue, is comprised of separate monopolies) so much as competition between operators in supplying services to subscribers, such as outgoing calls. To the extent that termination regulation limits cost recovery from termination services, operators will either:
  - need to meet the 'termination shortfall' through higher charges for services to subscribers and thus they will be competitive disadvantaged in competing for subscribers; or
  - be left unable to cover their costs overall with the consequence that further investment in developing their networks will be deterred.
- Reciprocity is therefore likely to reinforce the dominance of the incumbent TOs. This is concerning as the incumbent TOs have not achieved their position through superior efficiency but rather through advantages generated by their previous statutory monopoly positions. Key advantages enjoyed by the incumbent TOs relative to cable operators are outlined in Table 1. While features of the market have enabled incumbency advantages to endure, reciprocal pricing is likely to also be holding back the realisation of competitive market outcomes. The consequence for consumers is that while there may be short-term gains in terms of cheaper calls to cable networks, there is likely to be longer-term costs from a less dynamic, innovative telecoms market.
- An alternative approach to pricing termination, which recognises differences in costs between networks, would better facilitate the development of competing network infrastructures. By enabling all operators to recover the cost of terminating calls from termination charges, operators would be free to compete in the provision of services to subscribers based on their relative merits in supplying those services (i.e. without some operators needing to fund a 'termination shortfall' from those services). The elimination of the 'termination shortfall' would also improve the financial viability of

cable networks and increase the incentive to further develop those networks in competition to the incumbents.

**Table 1 Incumbent TOs' advantages from previous statutory monopoly**

	<b>Incumbent TO</b>	<b>Cable Operators</b>
Customer base	Historically close to 100% of addressable population giving rise to significant network effects.	Currently no cable operator has more than 10% of any national telephony market (and rarely a share more than 30% in cabled areas). Cable TV penetration varies - from close to zero (Italy) to close to 100% (Netherlands). However, there is little evidence of cable operators having the ability to leverage off their TV position (e.g. telephony has driven cable TV not vice versa in the UK).
Network costs	Telephony network using proven technology and with large sunk costs (creating risk to entrants of post entry price war). Incremental investment required to support DSL services.	Significant investment required to support cable telephony. Ongoing investment to maintain service quality as usage increases on particular neighbourhood nodes. In many Member States, limited cable rollout to date and high costs of further rollout including from tighter local planning restrictions.
Scale and scope economies	Fixed networks exhibit strong economies of scale and density. Market share of incumbent greatly in excess of nearest competitor. Vertically integrated with presence in number of markets and potential to leverage market power into related markets.	Increases in use require additional investment. Further, even in cabled areas, cable operators have only a relatively small share of telephony customers. Telephony and broadband services require significant network upgrades.
Brand, customer inertia and switching costs and customer inertia	Well established telephony brand. Many customers stay with incumbent provided they receive a reliable service, with little regard to value for money.	Customers deterred from switching to other operators because of effort, cost of switching and risk of poor service.
Access to capital	Good - incumbents are large, well-established companies and with large ongoing revenue streams including from highly price inelastic fixed line rental charges. Public subsidies may persist.	Poor - cable operators have incurred substantial debt in the consolidation of fragmented national markets and in network upgrades. Limited ability for further network investment.

## Broadband services

- The provision of broadband services via cable modems has been a key force driving the uptake of broadband services across the Community. Markets in which cable modem services are in competition with DSL services provided by rival operators have significantly higher broadband penetration than other markets.
- Increasingly, cable modems and DSL will also be in competition with a range of other technologies, such as optic fibre Ethernet LAN connections (already well-established in Sweden), fixed wireless, satellite and potentially 3G mobile.
- Regulators need to ensure that the regulatory environment supports the ongoing development of competition in the supply of broadband services. Generally, ex ante regulation of new services should be avoided as it can significantly harm investment incentives.
- The upgrading of cable networks to supply broadband services involves significant technological and commercial risks and ongoing investment as usage increases. Capping the returns to this investment, say, through regulated access can lead to further investment in the networks being deterred.

**Table 2 Cable's declining share of broadband -markets in which cable initially led<sup>1</sup>**

	2000 <sup>2</sup>			June 2003 <sup>3</sup>			Change in Cable Market Share (2000-2003)
	DSL	Cable	Other	DSL	Cable	Other	
Austria	28%	72%	0%	39%	61%	0%	-11%
Belgium	30%	70%	0%	61%	39%	0%	-32%
Denmark	39%	61%	0%	70%	28%	2%	-33%
Finland	50%	50%	0%	81%	18%	0%	-32%
France	34%	66%	0%	87%	13%	0%	-53%
Netherlands	3%	97%	0%	46%	54%	0%	-43%
Portugal	0%	100%	0%	29%	71%	0%	-29%
Switzerland	2%	98%	0%	53% <sup>4</sup>	47% <sup>4</sup>	0% <sup>4</sup>	-51%
EU	43%	57%	0%	74%	24%	2%	-33%

Sources: <sup>1</sup> Markets are shown where cable initially had a share of more than 50%. <sup>2</sup> OECD *Broadband access for business* (2002). <sup>3</sup> ECTA, *DSL Scorecard Q2, 2003*. <sup>4</sup> Point-topic.com, *Operator Profiles*.

- Regulation is likely to be warranted only where there is a significant risk of an operator foreclosing the market. The evidence is that cable operators do not have the ability to foreclose the supply of broadband services. As Table 2 shows, in the markets in which cable operators initially led, they have since substantially lost market share to DSL as the incumbents have been spurred to deploy their own broadband offerings. Thus cable operators' initial market shares were simply the product of the early stage of the market's development, rather than an indication of any durable market power.
- The position of the incumbent TOs in many European markets suggests that regulated access to their networks will be needed for the foreseeable future, particularly as DSL now accounts for around three quarters of all broadband connections in the EU.<sup>2</sup> The removal of the existing access regulation at this stage would carry a significant risk of the incumbent TOs establishing an entrenched position in broadband similar to their position in telephony. Regulators need to guard against operators that are dominant in one market being able to leverage that dominance to foreclose a new market. That said, the regulation should take into account the particular risks incurred in the deployment of new access technologies – cost-based price regulation is likely to be undesirable in such cases as it carries a high probability, in practice, that operators will not be fully compensated for ex ante risks incurred.
- Even for mature access services, as the prospects for greater competition improves in the longer term, a move towards lighter regulatory approaches can aid the development of competition at the level of networks and platforms. A report by Cave et. al. outlined the case for access prices to rise over time relative to incremental costs.<sup>3</sup> Initial cost-based access prices can facilitate entry and then, higher access prices over time, would provide the incentive for the entrants to extend their own infrastructure. Alternatively, regulators could commit to remove the relevant access regulation at a particular date in the future that is judged to provide a reasonable period for the development of alternative infrastructure.

### **Broadcasting services**

- Broadcasting services continue to be a core revenue stream for cable operators and regulation in relation to these services will affect cable operators' overall competitiveness and viability. As with telephony and broadband services, the ultimate objective should be the creation of a competitive broadcasting market in which services are carried over competing transmission networks. In relation to broadcasting

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<sup>2</sup> Figure for June 2003 from ECTA DSL Scorecard 3Q 2003. The Commission's *Ninth Implementation Report* states a slightly lower figure of 71.7% for July 2003.

<sup>3</sup> Cave, M., S. Majumdar, H. Rood, T. Valletti and I. Vogelsang, *The Relationship between Access Pricing Regulation and Infrastructure Competition - Report to OPTA and DG Telecommunications and Post*, March 2001

transmission, there is already significant competition in many Member States between cable, satellite and digital terrestrial TV as well as the introduction of new technologies such as TV over DSL.

- Cable broadcasting is currently subject to extensive regulation in many Member States, including regulation of retail prices, ‘must carry’ obligations which can require specified channels to be carried free of charge and regulation of ancillary services, such as access to set-top boxes. These regulations can impose significant financial constraints on cable operators and limit their ability to invest in the development of their networks and services. Moreover, in the face of increasing competition from other platforms, cable-specific regulation risks distorting the nature of the developing competition in broadcasting as well as other services at a loss to overall economic efficiency.
- Where regulators wish to pursue goals of promoting competition and diversity in content, they should do so in a way that does not leave the cable operator worse off or require cross-subsidies between services. At a minimum, this requires that the cable operator receive a level of remuneration that covers the opportunity cost of carrying a particular channel (whether under ‘must carry’ rules or other regulated access) rather than the alternative commercial use of the capacity. Opportunity cost is the loss in net revenue that would result from regulated access. For instance, this would include the loss in net revenue if more attractive programming cannot be carried.
- In certain cases, an opportunity cost approach may also include the lost in revenue associated with revenue-sharing arrangements that might otherwise occur in the absence of regulated access. Such arrangements would take into account the revenue earned by the content provider as a result of the carriage of its content.
- In competitive markets, revenue-sharing arrangements can efficiently align incentives between two firms where both firms must make risky investments to supply a particular service. The potential gains from the supply of valuable content and new services may be a factor driving recent investment in upgrading and rolling out cable networks. To ensure that investors receive returns commensurate with the ex ante risks that they have incurred, pricing of the carriage of content may need to take into account the revenue of both the cable operator and the content provider, particularly for new or recently upgraded networks.

## Overview of study

This report is organised as follows. Chapter 2 considers the principles underlying the NRF and the implications that flow from the economics of the cable industry for the imposition of particular regulatory obligations. Chapter 3 examines the common practice of cable operators to jointly offer services and whether that should be a concern for regulators. The



report then considers regulatory issues arising under the NRF in relation to telephony (Chapter 4), broadband (Chapter 5) and broadcasting (Chapter 6) services respectively.

# Contents

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<b>1</b>	<b>Ex-ante regulation under the NRF .....</b>	<b>10</b>
1.1	The state of competition.....	10
1.2	Key principles of the NRF.....	12
1.3	Imposing regulatory obligations under the NRF .....	13
1.3.1	Regulated access.....	14
1.3.2	Price control and cost accounting.....	19
1.3.3	Transparency.....	25
1.3.4	Non-discrimination.....	26
1.3.5	Accounting separation.....	26
<b>2</b>	<b>Cable’s Triple Play .....</b>	<b>27</b>
<b>3</b>	<b>Cable Telephony Services.....</b>	<b>33</b>
3.1	Call termination services – Assessing SMP .....	34
3.2	Termination – Assessing regulatory obligations .....	35
<b>4</b>	<b>Broadband Access Services.....</b>	<b>43</b>
4.1	Broadband Access - Assessing SMP.....	46
4.2	Cable Broadband Access - Assessing Regulatory Options .....	48
<b>5</b>	<b>Cable Broadcast Services .....</b>	<b>51</b>
5.1	Regulation of broadcasting transmission services.....	51
5.2	Broadcast transmission services - Assessing SMP.....	52
5.3	Cable Broadcast Services - Assessing regulatory obligations .....	53
5.3.1	Revenue sources .....	54
5.3.2	Who should pay? .....	57
5.3.3	Should payments be equal across channels? .....	57
5.4	‘Must carry’ obligations .....	58
5.4.1	Appropriate remuneration.....	61
5.5	Ancillary broadcasting services.....	62
5.5.1	Pricing access to set top units .....	63

# 1 Ex-ante regulation under the NRF

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This Chapter outlines the structure governing the imposition of regulatory obligations under the NRF. The Chapter begins by providing an overview of the current state of competition in communications services in the Community which provides the context in which to consider regulation under the NRF. Following this, the chapter considers the principles underpinning the NRF and identifies key issues in relation to the particular types of remedies that can be imposed. All of the remedies discussed potentially have significant costs and thus should only be imposed on an operator where they are justified by the absence of effective competitive constraints and where the benefits of the regulation are expected to outweigh the costs.

## 1.1 The state of competition

In assessing what regulation should be applied under the NRF, it is useful to commence by reviewing the outcomes of regulation of electronic communications in the Community to date. This provides the wider context in which to consider the regulation of cable services going forward. Despite more than a decade passing since the commencement of telecommunications liberalisation in many Member States, the incumbent telecom operators (TOs) still supply the vast majority of local loops and, as such, critically retain control over access.<sup>4</sup> This control enables them to continue their dominance in the supply of traditional services.<sup>5</sup> While regulation has led to some cost falls being passed through into lower call prices, even this impact has been diminished by higher monthly rental charges.<sup>6</sup> Further, by shifting margins from call services to monthly charges, the incumbent TOs have been able to limit the effect of access regulation and the consequent entry of fixed operators that compete only in supplying call services (particularly long distance calls).

The incumbent TOs have also proved adept at circumventing regulation designed to speed the introduction of new services, until when they have judged that it is in their commercial interests to deploy the services (such as where cable modem services were becoming established). This has delayed the realisation of the consumer benefits of the new services

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<sup>4</sup> For instance, liberalisation in the UK was commenced with the licensing of Mercury to compete with BT as early as 1982 and yet BT still supplies 81% of residential analogue lines.

<sup>5</sup> For example, the incumbent TOs' average share of local call markets across the Community was 81% in December 2002 (Source: Commission, *Ninth Implementation Report*, November 2003, p.15).

<sup>6</sup> Between December 2001 and December 2002, monthly rental charges have generally increased across the Community, while local, national and international call prices have remained largely unchanged (Source: Teligen, *Report on Telecoms Tariff Data as of December 2002*, April 2003, p.9).

and enabled the incumbents to carry forward their dominance into new markets. For instance, the incumbent TOs supplied over three quarters of DSL services in July 2003.<sup>7</sup>

### **The importance of infrastructure competition**

The continuing dominance of the incumbent TOs and the limited effectiveness of regulation in addressing the impact of this dominance underscore the importance of the development of alternative infrastructures. This has been recognised by the Commission which has stated that “the aim of the new regulatory framework is ultimately to achieve a situation where there is full infrastructure competition between a number of different infrastructures.”<sup>8</sup> Competition is a key force in driving firms to constantly innovate so that they can best meet the needs of consumers and to find lower cost ways of supplying products so that they remain competitive or even undercut the other firms in the market. In contrast, regulation operates poorly at delivering efficient prices because regulators have limited information on which to base their decisions. Further, regulation cannot seek to deliver the dynamic efficiency benefits of competition, such as innovative new products or new methods of production. Indeed, the confiscation of past efficiency improvements and uncertainty over future regulatory decisions can be a major deterrent to improving performance. The history of cost-based regulation applied to utilities is one of low levels of efficiency and poor investment practices.

Cable networks can play a key role in achieving effective infrastructure competition through their potential to offer telephony, broadband and TV services to a substantial share of the population. The benefit of the competitive impact of cable is already evident in the take-up of broadband services. The OECD notes that “infrastructure competition has been the main driver of overall broadband penetration particularly in the residential market due to competition between DSL and cable modem services.”<sup>9</sup>

Realising the benefits of infrastructure competition will require regulators to establish an environment that facilitates investment in the development of alternative infrastructures, including the further rollout and upgrading of existing cable networks to support telephony and broadband services. Regulators also need to ensure that regulation does not hinder the ability of alternative infrastructures to compete. Given that individual networks can be used to provide a range of services, there is a particular risk that regulation of one service can affect the development of competition in the provision of other services. Ultimately, all regulation should be assessed in terms of its impact on overall social welfare and this will require the identification and evaluation of all the likely effects of the regulation, rather than a narrow focus on individual services or markets.

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<sup>7</sup> *Ninth Implementation Report*, p.11

<sup>8</sup> The Commission, *Recommendation on relevant product and service markets- Explanatory Memorandum*, 11 February 2003, p.25.

<sup>9</sup> OECD, *Broadband access for business*, 4 December 2002, p.17.



National regulators must now review their existing regulations to ensure that they meet the objectives and requirements of the NRF. In relation to cable services, regulators will need to review the regulation of telephony, broadband and broadcasting transmission services as well as other broadcasting related regulation such as 'must carry' rules which have in the past often required cable operators to carry particular content free of charge. The decisions taken by national regulators in these areas will help determine how fast, and how far, the vision of a competitive European market for communications services is realised.

## 1.2 Key principles of the NRF

The package of measures forming the NRF came into force on 25 July 2003. The package essentially consists of five key directives: the Framework Directive, the Access Directive, the Authorisation Directive, the Universal Service Directive and the Privacy Directive.

The NRF establishes a set of rules at the Community level with primary responsibility for its implementation resting with national regulators. In particular, under the Framework Directive, national regulators will need to:

- Identify communications markets susceptible to ex ante regulation taking the utmost account of the Commission's Markets Recommendation<sup>10</sup> and Significant Market Power (SMP) Guidelines<sup>11</sup>;
- Assess the relevant markets to determine whether any players within those markets have SMP or whether the market is effectively competitive; and
- Impose appropriate regulatory obligations on operators assessed as having SMP.

The NRF seeks to reinforce the development of competition in EU communication markets and provides for the withdrawal of regulation as markets become more competitive. A key principle of the NRF is that ex ante regulation should be limited to markets in which competition is not expected to be effective and where competition law will not be sufficient to deal with the market power present.<sup>12</sup>

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<sup>10</sup> *Recommendation on relevant product and service markets* (the Markets Recommendation), C(2003,497), 11 February 2003.

<sup>11</sup> *Commission's guidelines on market analysis and the assessment of significant market power* (the SMP Guidelines), (2002/C 165/03), 11 July 2002.

<sup>12</sup> See paragraph 27 of the Framework Directive. Non-SMP operators are, however, subject to certain regulations such as the requirement to provide interconnection and, at least initially, in relation to conditional access systems (Articles 3 and 6 of the Access Directive respectively).

The desire for technological neutrality was another factor underlying the development of the NRF.<sup>13</sup> Technological neutrality implies that regulation should be based on the nature of the services supplied rather than on the particular technology used to delivery the service. It should be noted that technological neutrality does not imply that all operators supplying similar services should be subject to the same regulations. In particular, ex ante regulation under the NRF is generally limited to only those operators assessed by national regulators as having SMP.<sup>14</sup> This recognises that where an operator does not have SMP, regulation is both unnecessary (such operators, by definition, do not power to distort consumer outcomes to any material extent) and potentially harmful. Further, regulation of new technologies is generally undesirable as it can deter further investment and innovation to the long-term detriment of consumers.

In facilitating competition between networks, the NRF offers the prospect of finally ending the dominance of the incumbent TOs with its damaging implications including the ability to delay the introduction of new services and gain a lasting strategic advantage over competitors. However, whether the objective of a competitive European market for communications services is realised will depend on the implementation of the NRF at the national level, particularly in regard to the imposition of ex ante obligations.

### 1.3 Imposing regulatory obligations under the NRF

Where an operator is expected to have SMP in the period ahead, then the national regulator must determine the regulatory obligation or obligations to impose. These obligations are required to be:

“based on the nature of the problem identified, proportionate and justified in the light of the objectives laid down in the Framework Directive, in particular maximising benefits for users, ensuring no distortion or restriction of competition, encouraging efficient investment in infrastructure and promoting innovation and encouraging efficient use and management of radio frequencies and numbering resources.”<sup>15</sup>

These criteria are soundly based. The existence of a problem should not simply be inferred from evidence of market power. As we discuss in this Chapter, there may be efficiency reasons underlying an operator’s decisions in relation to matters such as whether to provide access and the pricing of that access. The imposition of a regulatory obligation that is not based on a specific identified problem may be unnecessary or, worse, harmful to consumers if it prevents the realisation of efficiency benefits. Further, even where a specific problem

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<sup>13</sup> The Commission, COM(2000)239, 26 April 2000.

<sup>14</sup> See footnote 12.

<sup>15</sup> The Markets Recommendation, paragraph 20, based on Article 8 of the Access Directive.

is identified, imposing a specific regulatory obligation will only be desirable to the extent that it leads to better outcomes compared with alternative options, including the option of doing nothing. In this regard, it is important to recognise that regulation suffers from imperfections and carries a significant risk of error as a result of the limited information on which it must be based, particularly in an industry with rapidly changing technology and demand.

The Access Directive specifies the obligations that may be imposed on SMP operators (other obligations may only be imposed under exceptional circumstances). The obligations from which the national regulators must choose are:

1. Regulated access;
2. Price control and cost accounting;
3. Transparency;
4. Non-discrimination; and
5. Accounting separation.

Ultimately these remedies are designed to either create or protect competition, or, if competition is not possible, to protect consumers directly. In the remainder of this section, we consider general issues of relevance to the implementation of these obligations on cable operators.

### **1.3.1 REGULATED ACCESS**

The Access Directive provides for regulators to:

“impose obligations on operators to meet reasonable requests for access to, and use of, specific network elements and associated facilities, inter alia in situations where the national regulatory authority considers that denial of access or unreasonable terms and conditions having similar effect would hinder the emergence of a sustainable competitive market at the retail level, or would not be in the end-user’s interest.”<sup>16</sup>

In this section we consider general issues in relation to imposition of access obligations. In Chapter 5, we examine issues in relation to regulated access for the delivery of broadband services and in Chapter 6 we consider issues in relation to regulated access for the delivery of TV services, including issues relating to digital services such as conditional access systems.

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<sup>16</sup> Article 12(1).



In competitive markets, a wide variety of vertical arrangements are possible from complete vertical integration of upstream and downstream operations within a single firm to arrangements in which upstream and downstream activities are undertaken by entirely separate firms. And there are arrangements in between these extremes, such as where a cable operator develops some of its own content and buys in additional content. Provided that no firm has SMP, the market itself can be expected to lead to vertical arrangements that best meet the demands of consumers. This can involve multiple models being used within the same market with integrated players competing against vertically separated players, particularly where the final services are differentiated as is commonly the case for the services provided by cable operators. As we will discuss, even where an operator have SMP, there may be strong efficiency reasons underlying the existing vertical arrangements. Accordingly, it does not follow that changing that operator's vertical arrangements through regulated access will be desirable.

A useful starting point in considering the desirability of regulated access to a cable operator's services is to consider how firms decide what economic activities to perform in-house and what activities to leave to other firms to undertake. The Nobel Prize winning economist, Ronald Coase, emphasized that transactions costs associated with problems of contracting and coordination will impact the 'make or buy' decision.<sup>17</sup> The firm will weigh the costs, risks, and efficiencies associated with performing functions via market-based transactions against those associated with performing the functions in-house, and it will choose the alternative that is expected to maximise net revenues.

Imposing an access obligation shifts the 'make or buy' decision from the operator to the access seeker, e.g. if a content provider wishes its content to be carried by a cable operator it could use the access obligation to ensure its content is carried. As such, regulated access can impact operators by:

- reducing the ability of an operator to coordinate what service it carries over its network; and
- potentially limiting the returns to the operator (if the operator could earn greater returns from carrying the content in question it would be expected to do so and hence there would be no need for regulated access).

Reducing the ability of an operator to coordinate the services it carries over its network can impose significant overall costs on consumers. In particular, operators themselves would generally be expected to choose to carry the services that are most valued by consumers. For cable operators, this involves both decisions as to the allocation of cable capacity between types of services (e.g. telephony, broadband, TV, etc) and decisions relating to particular services to carry, such as particular channels. In making these decisions,

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<sup>17</sup> Coase, R., "The nature of the firm", *Economica* 4, 1937, p.386-405.



operators will take into account differences between services in terms of factors such as consumer demand, costs and quality as well as complementarities between the different services. Whether an upstream input is provided in-house or externally will not generally distort the operator's decision, even where the operators has SMP:

“The incentive to impede competition cannot be inferred from the ability to impede competition ... monopolists will not try to limit competition in markets for complementary goods and services, for to do so would simply diminish demand for and reduce the profit from the monopoly good.”<sup>18</sup>

Regulated access can also act to constrain the return to cable investors. In particular, to be effective, regulated access needs to be accompanied by, at least, the potential for a regulator to determine prices and other terms and conditions if commercial negotiations fail. If the regulator sets the price too low then the profitability of the network will fall directly. There may also be indirect effects. For instance, if an operator is forced to carry less attractive content at the expense of more attractive content, it may lose subscribers. In addition, regulated access can prevent (efficient) retail price discrimination by the network if, say, a flat wholesale charge is established.<sup>19</sup> These risks can be mitigated through the use of opportunity cost approaches in access pricing. However, there is still a risk that competition in the downstream market facilitated by compulsory access will reduce the overall returns to constructing the network by removing or reducing returns to particular downstream service innovations.

Regulated access can also harm the incentives to invest in rival networks. Why would an entrant wish to undertake such investment with significant technological and commercial risks (including the behaviour of existing and future competitors) when it could simply receive regulated access on cost-based terms? Such regulated access might not generate any visible short-term harm, but consumers would lose out on the longer term dynamic benefits of infrastructure competition, including the spur to develop new services.

Against these risks, compulsory access can potentially increase the current level of competition in markets downstream from the network. As well as the theoretical potential for increased downstream efficiency there is also the possibility that the growth of downstream competitors with established brands, customer bases and experience could also facilitate significant innovations. On this point it should be noted that network operators will have strong incentives to negotiate commercial access agreements with downstream firms if the networks believe this will deliver significant benefits in terms of downstream productive efficiency or improved service offerings and innovation. This is particularly the

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<sup>18</sup> *The Vertical Dimension of Cable Open Access*, James B. Speta, Northwestern University School of Law, available at: <http://www.law.nwu.edu/faculty/fulltime/speta/papers/colorado.pdf>.

<sup>19</sup> Price discrimination can improve both welfare and revenue by enabling customers to be served who would not otherwise be able to afford a higher uniform price.



case when network competition itself is strong, as developing services consumers value will be key to acquiring and maintaining customers. Regulators should therefore be sceptical of access seekers claiming large public benefits from compulsory access, as unsuccessful commercial negotiations are likely to be either the result of an inability of the access seeker to demonstrate incremental value creation to the network, or simply an attempt by the access seeker to get better prices by way of regulatory intervention.

In general then, the key issue facing a regulator deciding on whether to mandate access to a network is to balance the potential for short-run (or ‘static’) gains in efficiency at the downstream (retail) level against the potential (negative) impact on long-run incentives to invest and compete dynamically. The potential impact on long-run incentives will inevitably be difficult to judge because the benefits of innovation generated by infrastructure competition cannot be known in advance. For instance, they could include the development of entirely new services or new low cost ways of delivering existing services. Given this, regulated access should only be seriously contemplated if the potential downstream benefits are large and/or the potential for competition at the network level is limited.

#### *Tests for imposing regulated access*

Essentially, regulated access is aimed at promoting competition in the markets that use the services that are subject to access, without compromising the incentives to maintain the network providing the service or the development of alternative networks that can provide similar services. A number of criteria can be identified to determine whether regulated access would achieve this objective.

Reflecting the presumption that regulated access may risk significant harm to investment incentives (including by encouraging entrants to free-ride off existing infrastructure rather than invest in their own facilities) and represents a violation of property rights, the Article 82 case law indicates that a refusal of access will only be considered to constitute an abuse in “exceptional circumstances” and in particular where:

- (i) the service is indispensable to carrying on of the business of the person who is refused access, i.e. that there is “no real or potential substitute”;
- (ii) the refusal of access to the facility is likely to eliminate all competition in the related market; and
- (iii) such refusal is not capable of being objectively justified.<sup>20</sup>

It is clear that the criteria set out in *Oscar Bronner*, drawing on earlier case law, would provide for mandatory access under general competition law in only a narrow range of circumstances. In relation to the application of competition law to the telecommunications

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<sup>20</sup> See Case-7/97 *Oscar Bronner*, [1998] (paragraphs 38-47).



sector in particular, the European Commission has noted that a refusal to provide access will only be abusive where “it has exploitative or anti-competitive effects” and where there is no objective justification for the refusal.<sup>21</sup> The requirement for there to be no objective justifications reflects cases across a number of industries.<sup>22</sup>

The economics underlying the case law suggests that similar criteria will be relevant to determine whether regulated access is desirable under the NRF. In particular, where there exists substitutes to the service or the potential to develop substitutes, such as where it is economic for another network to be built, then there is no basis for regulated access. Indeed, to provide regulated access in such circumstances would deter the development of alternative infrastructures and result in the loss of the dynamic benefits that such infrastructure competition can bring. The assessment of substitutes requires the identification of the market in which the network services are provided. Where there are close substitutes, or the potential for such substitutes, so that an operator does not have SMP on a forward-looking basis then regulated access cannot be imposed under the NRF. To achieve the harmonisation objective of the NRF (and thus promote the development of trans-European operators and the internal market), it will be important for regulators to be consistent in the identification of markets across the Community. In particular, discrepancies in market definition could result in operators in similar positions being found to have SMP in one market and not in another and hence a lack of uniformity across the Community in terms of the regulations being imposed.

A second test relates to the impact on competition of regulating access. While a particular competitor may seek regulated access, the objectives set out in the NRF are focussed on the promotion of competition and the interests of consumers, not on protecting the position of particular competitors. Where regulated access would not promote competition, it should not be imposed. For instance, it may be that there is already sufficient competition in the downstream market based on alternative technologies so that there would be no impact on competition from whether the access seeker receives access to a particular network’s services. Regulated access may even harm competition, particularly if it damages incentives to invest in alternative infrastructures.

Even if the denial of access would harm competition, there may be efficiency reasons against the provision of access. Access would be undesirable if it comes at an overall loss in efficiency. As discussed above, access can give rise to costs in terms of constraints on the ability of operators to price and deliver their services efficiently and harm to investment

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<sup>21</sup> European Commission, *Notice on the application of the Competition Rules to Access Agreements in the Telecommunications Sector*, 1998, paragraph 83.

<sup>22</sup> For instance, see Case 311/84, *Centre Belge d’Etude de Marche-Télémarketing* [1985] (paragraphs 25-27); Case IV/34.174, *Sealink/B&I – Holyhead* [1992] 5 CLMR 255 (paragraph 41); and Case 241 *Magill-Radio Telefio Eirann* [1995] (paragraphs 49-56).

incentives. In addition, there can be significant administrative and compliance costs of the regulation itself.

This economic analysis can be summarised by the following three stage test:

- (i) does the operator have SMP;
- (ii) even if the operator has SMP, would denial of access harm competition;
- (iii) even if denial of access would harm competition, would mandating access generate sufficient benefits to outweigh any loss in efficiency.

Only if all three criteria are met, would regulated access be likely to be appropriate. Even then, intervention should be structured to minimize the potential for harm to investment incentives. A key consideration in this regard is determining the price at which access should be provided. Issues associated with price regulation are considered next.

### **1.3.2 PRICE CONTROL AND COST ACCOUNTING**

The Access Directive provides for regulators to impose price controls and associated cost accounting systems. Any price control imposed must serve to “promote efficiency and sustainable competition and maximise consumer benefits.”<sup>23</sup> In addition, national regulators must “take into account the investment made by the operator and allow him a reasonable rate of return on adequate capital employed, taking into account the risks involved.”<sup>24</sup>

While there is an extensive economic literature on the potential effects of price controls of telecommunications services, the aim of this section is to focus on a number of issues of particular relevance to cable operators. The imposition of price controls raises two key issues: assessing the overall return on an investment; and determining how much revenue should be recovered from each service.

#### *Assessing overall returns*

Dynamic efficiency refers to firms having the right incentives to invest, innovate and improve the range and quality of services and lower costs through time. Competition is generally recognised as a key stimulus to dynamic efficiency through creating the incentives for firms to constantly focus on improving the way they meet the needs of their customers and finds ways of bringing down their costs and prices over time. Dynamic

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<sup>23</sup> Article 13(2) of the Access Directive.

<sup>24</sup> Article 13(1) of the Access Directive.



efficiency should be a paramount concern, as the benefits of innovation, investment and competition tend to compound over time. In particular, less competition and less investment can put the economy on a lower growth path with the result that both current and future living standards are lower. The need to consider the impact on investment is particularly critical in relation to the regulation of cable operators, given the poor financial state of many of them.

For firms to have the incentive to invest and innovate, they need to receive sufficient overall revenue to cover their total costs, including a return commensurate with the risks that they have incurred. If access prices are set too low, investment and innovation will be deterred and there may also be more immediate effects, such as a reduction in the quality of the regulated services. There is evidence of falls in quality occurring in response to the regulation of retail cable TV rates in the US.<sup>25</sup> On the other hand, prices should not be so far above costs (including a reasonable return) as to detract from the efficient use of services and investment in related markets.

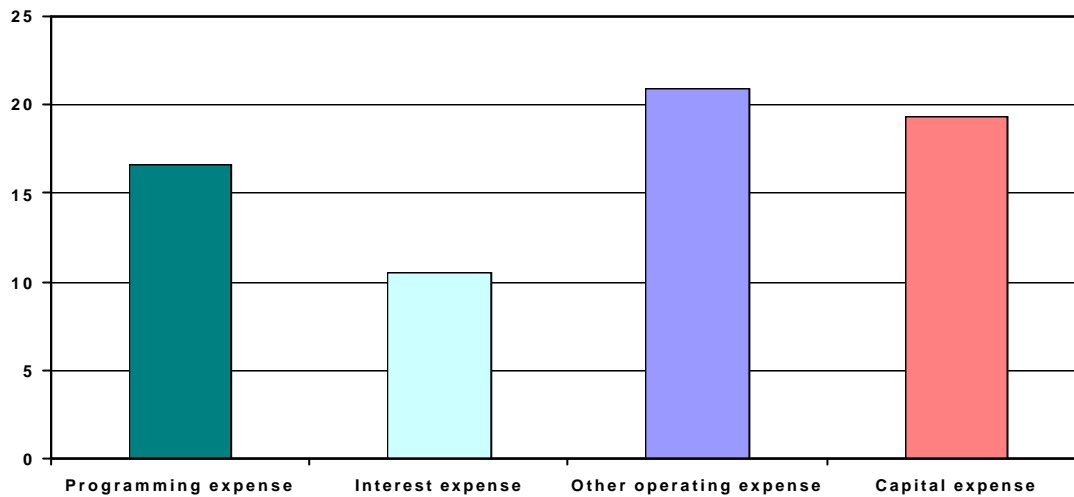
The costs of cable operators include the cost of the network itself which carries content from 'headends' to customers' homes. During recent years, cable operators have undertaken a substantial investment to upgrade and digitalize their networks to increase channel capacity and enable bi-directional services to be offered, including telephony and broadband services. The coverage of cable networks in a number of Member States has also been increased. These investments have led to a substantial increase in capital expense and interest costs. Cable operators also incur substantial operating costs in running and maintaining the networks and in relation to customer acquisition and customer service. In addition, cable operators have substantial expenditures on programming. Figure 1 provides a breakdown of the costs of cable operators (based on data from US cable operators). While the level and breakdown of costs will vary between operators, each of the four components shown are likely to be significant.

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<sup>25</sup> See Viscusi, W.K., J.M Vernon and J.E. Harrington, Jr., *Economics of regulation and antitrust* (2<sup>nd</sup> ed.), the MIT Press, 1995, p.446.



Figure 1: Breakdown of monthly expenditures (in euros) per subscriber 2002<sup>26</sup>



In addition to actual expenditure and the cost of capital, operators also need to receive returns commensurate with the risk incurred at the time the investments were made (i.e. the ex ante risk). If ex ante risks are neglected in the setting of rates, investment which carry significant commercial and technological risks can be deterred even where it is socially desirable for such investments to take place. The significance of ex ante risk can be seen with reference to a simple example. Consider an investment of €100m which has a 50 per cent chance of either succeeding or failing and in which the investor receives nothing back if the investment fails. Assume that the investor has a cost of capital of 10 per cent. The cost of capital represents the minimum *expected* return the investor will require to undertake the investment. For the investment to give an expected return of 10 per cent, the investor would need to receive at least €220m if the investment is successful (i.e. a return of €120m after having funded the investment). In other words, the investment will be made if there is a 50 per cent chance of receiving €220m because this compensates the investor for the 50 per cent chance of losing his investment entirely. In the event that the investment is successful, revenue of €220m on an investment of €100m may appear excessive if the ex ante risk that the investor incurred is not taken into account.

Where regulators only allow a return equal to the cost of capital, risky investments will not be undertaken even where it is socially desirable for that investment to occur. For instance, if the investor expected the regulator to cap the returns ex post at €10m then the expected return on the investment would fall to €5m, i.e. a loss of €45m on the initial outlay.

<sup>26</sup> Data presented in Cap Analysis, *Rising cable TV rates: are programming costs the villain?*, 23 October 2003, based on information from FCC, Kagan World Media and Morgan Stanley and converted to euros at the Bank of England 2002 \$US/euro exchange rate.

Cable operators have incurred significant commercial and technological risks in upgrading their networks to support bi-directional services, such as telephony and broadband, as well as in extending the coverage of their networks in markets in which coverage was initially limited. Key risks relate to:

- uncertain technology for the delivery of non-TV services over cable at the time at which networks were initially upgraded;
- limited existing customer base in many markets (even in markets in which high cable TV penetration, cable operators have had to build their customer base for telephony and other services from zero);
- uncertain behaviour of the incumbent TOs with largely sunk network, high scale economies and that were able to build up their networks under Government ownership (the France Telecom state aid case indicates that Government funding may still be continuing in some cases);
- uncertain development of alternative technology platforms, including satellite, digital terrestrial televisions and others; and
- poor access to financial markets as a result of high level of existing debt following consolidation of initial fragmented national markets.

The difficulty of estimating technological and commercial risk implies that ‘cost-based’ price regulation should not be applied to services where such risks are likely to be significant. In such cases, there is a significant risk that price regulation would prevent operators receiving a return commensurate with the risks they incurred. This can have damaging longer-term consequences for consumers through further investment and innovation being deterred. To deal with the risk of truncating returns, it may be appropriate to allow a period in which no access obligation would apply from the time of the investment (for instance, a 10-20 year ‘access holiday’) or to provide a ‘premium’ to be added to the allowed returns.<sup>27</sup>

A further issue is the need to provide regulated operators with the incentive to make productivity improvements over time. If regulators require that prices be always aligned with costs then there would be no incentive for the operator to lower the cost of producing the service. Some harm to incentives is unavoidable with cost-based pricing, although it can be moderated by, for instance, setting prices for a period of specific number of years under a RPI-X price cap and allowing the operator to retain any cost savings greater than incorporated in the price cap reductions.

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<sup>27</sup> Various options for dealing with the risk of truncated returns are discussed in the Australian Productivity Commission, *Review of the national access regime*, 17 September 2002.

### *Cost allocation*

Allocative efficiency is achieved where the mix of goods and services that is produced in the economy provides maximum benefit to society. Generally, this is achieved by cost-based pricing so that a product will only be produced where consumers are prepared to pay a price that covers the cost of the resources used in its production.<sup>28</sup> However, where there are significant fixed and common costs, a regulator will need to determine how best to allocate these costs to particular services. Fixed costs are costs that do not vary with the level of output. Common costs are costs that are incurred to produce a number of services and that would not be avoided if any one service were no longer supplied. The cost of a cable network is common to the production of the different services that can be supplied over it, i.e. telephony, broadband and broadcasting services. Many non-network costs, such as customer acquisition, will also be common to the different services that are supplied to the customers.

The presence of significant fixed and common costs implies that prices need to be set well above marginal costs in order to cover the total costs of the network. This immediately raises the issue of how to set margins over the different product offerings to recover the fixed and common costs. At the highest level, this is equivalent to asking how much contribution should be earned from each of the three main business areas - TV, telephony and broadband. Further, within each of these areas the same question can be asked with regard to specific products. For example, how much should be recovered from different types of programming within the TV area? Should contributions be the same across all channels? Should more be recovered from premium channels? And so on.

It is normally efficient to recover the incremental or variable costs associated with a particular service from that service<sup>29</sup> and recover fixed and common costs by mark-ups on the various services that vary with each service's elasticity of demand. In particular, for consumer welfare to be maximised, economic theory suggests that a greater proportion of fixed and common costs should be recovered from the services for which consumers are relatively price insensitive (so called 'Ramsey-Boiteux' pricing).<sup>30</sup> The implication of 'Ramsey-Boiteux' pricing is that it will be more efficient for mark-ups to vary in line with sensitivity of demand to price, than if mark-ups are constant across, for example, all services in a triple play offering or all TV channels offered. Two-part tariffs may also be optimal under which a proportion of the fixed cost is recovered by a fixed subscription

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<sup>28</sup> This cost is an opportunity cost and reflects the value of the resources in the next highest use. A product should only be produced if consumers are prepared to pay a higher price for it than they would pay for any alternative use of the resources.

<sup>29</sup> This is not always the case however. For example, where network externalities are present, it may be efficient to subsidize services.

<sup>30</sup> Ramsey, F. "A contribution to the theory of taxation", *Economic Journal*, 47, 1927; and Boiteux, M. "Sur la gestion des monopoles publics astreints à l'équilibre budgétaire", *Econometrica* 24:22-40, 1956.

charge. Again in deciding the two-part tariff structure there is the need to consider the different elasticities involved, particularly the price elasticity of subscription versus the price elasticities of the services supplied.

Regulators should be particularly cautious in attempting to regulate parts of a business that operate from a shared platform, as efficient pricing requires good information on both the costs of the business, and the nature of demand elasticities.<sup>31</sup> Differences in demand elasticities between retail services (including between different channels) can imply the need for differences in wholesale prices. As Laffont and Tirole argue: “Because wholesale prices (access charges) guide retail prices, it is not surprising that the desirability of price discrimination at the retail level translates into a need for price discrimination for wholesale prices...we show that undifferentiated access prices may substantially distort competition and reduce welfare”.<sup>32</sup> Where regulators wish to set access prices they should do so in a way that enables prices to vary in accordance with demand as well as cost factors.

An additional consideration is where a service gives rise to externalities. For instance, subscribing to a telephone network can generate benefits to not only the subscriber but also to the people who are able to make and receive calls from the subscriber. Where an economic decision affects people in addition to the person making the decision, it is said to create an externality (which may be either positive or negative). As the person making the decision of whether to subscribe may not consider the benefits to others, it may be necessary for that decision to be subsidised so as to achieve the socially optimal number of subscribers. This subsidy could be funded through termination charges that are paid by the people who benefit from being able to contact the subscriber. Externalities may also arise in relation to the consumption of other services, such as broadband services which Governments often see as creating social benefits through improving access to information. In this case, it may also be socially desirable for the cost of supplying broadband services (including the cost of upgrading cable networks) to be funded partly by revenues from other services.

A regulator will rarely be in a good position to balance and judge all these issues, particularly given the uncertainty as to how the markets are likely to develop over the next few years. Thus there is significant risk that regulation will make consumers (in aggregate) worse off. The significant risk of regulatory error suggests that the best solution to

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<sup>31</sup> Indeed, even in conventional regulation of monopoly utilities (such as electricity or gas distribution) these issues are such that it is normal to regulate the return to the platform (the asset base) while, to the extent possible, leaving the setting of particular service prices to the regulated firm. Yet these are essentially single product operations. Against this, cable networks are either currently, or will be moving to, shared platforms that support three significant differentiated business lines.

<sup>32</sup> Laffont, J.J. and J. Tirole, *Competition in Telecommunications*, MIT Press, 2000, p.xv.

concerns regarding excessive pricing is to promote competition which enables the information carried in market transactions to drive prices towards efficient costs.

### 1.3.3 TRANSPARENCY

Transparency obligations are designed to support the effectiveness of interconnection and regulated access. In particular, the Access Directive notes that operators may be required to make public “specified information, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use, and prices.”<sup>33</sup> Transparency obligations can be useful in certain situations, including preventing undue discrimination against third parties receiving access compared with an undertaking’s own operations. The need for a transparency obligation and the extent of any such obligation will depend on the particular case.

Regulators should, however, also be aware that transparency can involve costs and these should be weighed against the expected benefits to determine whether an obligation is proportional. Commercial confidentiality is a vital part of the competitive process as each firm seeks to steal a march on its competitors.<sup>34</sup> In contrast, transparency of costs and prices can facilitate coordination between firms and weaken competitive pressures. In addition, it can have a number of negative effects on the behaviour of the firm subject to the transparency requirement. For instance, publishing reference offers can inhibit the ability of an operator to offer different prices, say, to different third party content providers even where such pricing would be efficient and lead to a higher level of consumer benefits. In general, transparency results in a single price. Further, transparency may deter companies from developing innovative methods of production if they believe that information on their business operations will be immediately made available to competitors. Finally, access seekers may also wish to strike innovative deals with the access provider and these may be discouraged if individual agreements must be publicised. This is a particular concern with broadband and broadcast services in which a wide variety of business models are possible and content and application providers may seek innovative ways of sharing revenue with cable operators to gain an advantage over competitors. These considerations suggest that, even for SMP operators, transparency obligations should be carefully limited.

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<sup>33</sup> Article 9(1) of the Access Directive.

<sup>34</sup> This applies even to information between access providers and access seekers as a firm seeking access today may be planning to roll-out its own infrastructure in the future.

### 1.3.4 NON-DISCRIMINATION

Non-discrimination, as with transparency, is intended to be used where it is necessary to support the effectiveness of interconnection and access.<sup>35</sup> For instance, a regulator may want to prevent an operator providing more favourable access terms to its own downstream operations than are provided to third parties.

Non-discrimination provisions can, however, impose substantial costs and again should be used in only limited circumstances. All else equal, a firm with market power and multiple products will tend to price in a structure similar to that implied by Ramsey-Boiteux pricing as this is the profit maximising strategy. That is, the firm will tend to increase margins on services where demand elasticity is low and lower margins where elasticity is high. Thus, all else equal, imposing a non-discrimination requirement on a firm with market power may come at an overall loss in consumer welfare.

A non-discrimination obligation should only be imposed where it is necessary to protect competition and where the expected benefits outweigh any loss created from a less efficient recovery of costs. In particular, regulated operators should be able to undertake price discrimination where they can demonstrate a legitimate rationale for the discrimination and where its overall effect is likely to promote efficiency. For instance, in relation to cable TV services, the ability to differentiate carriage charges can enable certain content to be provided that would not otherwise be viable if only a uniform ('average') price had to be charged. The consequence is that price discrimination can support the provision of a more diverse, pluralistic cable TV service.

### 1.3.5 ACCOUNTING SEPARATION

Accounting separation is a third obligation designed to support interconnection and access. The Access Directive notes that it can be used to ensure compliance with a non-discrimination obligation or to prevent cross subsidy.

To the extent that accounting separation requires a different accounting system than that used by the operator, it can involve significant compliance and administration costs. However, the greatest cost of accounting separation is likely to be from the allocation of costs in a manner that does not take into account principles of economic efficiency. This can result in significant harm to overall consumer welfare if carried through into price regulation. Moreover, an accounting separation obligation may restrict pricing flexibility and prevent the realisation of significant benefits from bundling. These benefits are explored in the next chapter.

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<sup>35</sup> Article 10(1) of the Access Directive.

## 2 Cable's Triple Play

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This Chapter considers a key feature of the provision of cable services that is the joint offering of telephony, broadband and broadcasting services and the implications of this for regulation under the NRF.

The joint offering, or bundling, of services is common practice amongst cable operators. Subscribers frequently acquire content in packages that include access to a number of channels. Further, 'triple play' offerings of combined TV, telephony and broadband Internet access are becoming increasingly common. There are a number of remedies that could be imposed under the NRF that could interfere with firms' flexibility in making such offers. Accounting separation with the implied pricing limits and access pricing are examples. Transparency obligations that require specific pricing of particular services could also cause problems. It is therefore useful to consider the benefits and potential problems that might be associated with such bundling within the context of cable network operators' offerings.

### *Benefits of bundling*

Product bundling can result in improved consumer welfare due to a number of effects. The following list outlines some of the key benefits:

- Bundling can be used to price discrimination or more accurately estimate willingness to pay for service, potentially resulting in increased sales to marginal consumers and lower overall prices.
- Tying (bundling where the products must be purchased together) can be used to generate a "virtuous circle" between products by using ongoing revenues from sales of the tied product to lower the price of the tying product, ultimately boosting demand for both (e.g. computer games and games consoles of the Sony Playstation or Microsoft X-Box type).
- Complementary products: where products are complements, prices can be lower, and output higher, if they are owned by the same firm and sold together.<sup>36</sup>
- Cost savings. When there are significant distribution, marketing or installation costs, it may be more efficient to sell a number of products at a lower price as a

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<sup>36</sup> This is the standard 'Cournot complements' result. It means, for example, that a monopolist of a combined TV, telephony and broadband network will offer a lower price for all three services than three individual monopolists of the same service.



bundle rather than to sell as individual products. That is, the reduction in price from offering the bundle is outweighed by cost savings.

- **Quality assurance.** For complex products that need to interact, firms may prefer to sell the bundle in order to ensure the quality of performance of the overall system is maintained in order to protect their reputations (e.g. a firm selling broadband internet access may need to own the network in order to guarantee high service quality).

All of these benefits may be relevant in the context of cable services. However, we discuss two issues in more detail below because they are both likely to be particularly relevant in the context of the delivery of cable services, and result in practices that promote competition even though they may appear to relate to some anticompetitive exercise of market power.

#### *Estimating willingness to pay*

When different consumers have varying willingness to pay for products and the seller cannot directly discriminate between individual consumers, bundling products can be an effective way to reduce the dispersion in the estimate of the total price that consumers are prepared to pay for a group of products. The seller can use this to increase sales, earn more revenue and ultimately lower the average price paid. This effect is perhaps best illustrated with a simplified example. Assume that two consumers valuation of two products offered by a cable network (TV and broadband) is as shown in the table below:

**Table 3: Consumer valuations of pay-TV and broadband offering (€per month)**

	TV	Broadband
Consumer 1	€22	€10
Consumer 2	€10	€22

If the network is only able to offer individual service prices, it will chose to sell each service for €22 and make €44 revenue. However, if the services were bundled and priced at €32, the network would sell two bundles for total revenue of €64. This both increases the firm's revenue and increases the demand for both TV and broadband (more subscribers sign up to each), indicating an improvement in consumer welfare.



Of course, in practice the bundle does not have to be priced exactly at the reservation price as in the example above, but rather must be lower than the combined valuation of most consumers and above the cost of provision. It should also be noted that it would not be difficult to add costs to this simple example to show that bundling may be necessary to make service provision viable. For example, if the basic cost of installing either service is €24 per month, and the second service can be added for €2 per month, neither service will be viable if individual prices must be offered (neither consumer is willing to pay €24 for an individual service), but if a bundle is offered at say €30 per month, both consumers will choose to buy both services and it will be viable to install the service.

Shapiro and Varian (1999)<sup>37</sup> argue that this general type of pricing approach is common in information industries, and is a good model of the pricing of goods such as CDs and magazines. While a magazine may target a particular market segment, most include a variety of articles and content, knowing that each purchaser will only read some of the content, but aiming to provide a wide enough range of content that a significant number of readers buy the magazine. The reason that such a pricing approach is more common in information and software type products is that the marginal costs of adding product (or content) to the bundle is close to zero. In the case of cable networks, the marginal cost of adding services may not be zero, but there are certainly very significant scope economies across the products that make such pricing desirable from a public welfare perspective. Further, from the network's perspective, this type of approach is likely to be necessary in order to drive the level of service take-up needed to make the provision of advanced digital services viable.

#### *Tying to increase network subscription*

There are a number of markets marked by significant network effects and/or scale economies where the network becomes more valuable to consumers as more consumers join and prices fall due to scale economies, but the virtuous circle of subscriber growth and falling prices is difficult to start due to resistance to the initial cost of joining the network.

In markets such as these, a *metering*-type pricing approach, where revenue is earned from ongoing sales of a tied product, may also improve welfare. An example is computer games systems as such as the Sony Playstation and Microsoft X-Box systems that depend on a dedicated gaming console and separately sold games. Katz and Shapiro (1994)<sup>38</sup> describe how efficiency may be enhanced in such a market by cross subsidising from the tied good to the tying good. The tie in this example is technical; games in the format specific to the manufacturer's console must be purchased in order to use the console. There is a link

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<sup>37</sup> Shapiro, Carl and Hal R. Varian, *Information Rules*, Harvard Business School Press, 1999.

<sup>38</sup> Katz, Michael L and Shapiro, C, *Systems Competition and Network Effects*, Journal of Economic Perspectives, Volume 8, Number 2, Spring 1994



between the size of the installed base of consoles in these markets, which then drives demand for games, and the price and variety of games available. Software production is dominated by fixed costs, resulting in products that are not priced at marginal cost and that exhibit significant economies of scale. By using the margin from software sales to reduce the margin on hardware sales (perhaps to negative margins), marginal hardware buyers are attracted, increasing the installed base of hardware. This can lead to greater variety and lower prices in software due to increased demand for games combined with scale economies in software production, increasing the welfare of all consumers on the network.

Businesses such as cable pay-TV, satellite pay-TV and cellular mobile networks suffer similar issues of consumer resistance to significant upfront subscription and installation costs inhibiting joining and causing difficulties in achieving efficient scale with associated lower consumer prices. This can be overcome to some extent by lowering the price of joining the network and funding the cost of initial connection from ongoing service revenues. However, this does require that the network is somehow able to ensure it receives sufficient ongoing business to ensure the initial subsidy is repaid. This may be achieved by signing the purchaser up to a minimum term contract.<sup>39</sup> Another option, which may reduce the contract term required, is to limit the choice of content available over the platform to content provided by the network itself, or by a network partner that shares some of the revenue with the network to compensate it for the cost and risk incurred by the network.

#### *When might bundling of services cause concern?*

In general, the core concern regarding potential anticompetitive effects of product bundling is that a firm with a dominant position in one market (the “tying” market) may be able to leverage that position into another market (the “tied” market). One way this might happen is when the effect of tying is to lower the remaining demand in the tied market to the extent that either a firm producing only that product can no longer continue to operate, or a firm considering entry will not do so as it is unlikely to be profitable. This scenario relies on the tied market exhibiting scale economies, and the tying practice reducing demand to the extent that competitors are no longer viable. Another related potential anticompetitive effect of bundling is that it may increase the costs and risks of entry, and hence deter competition, by making it necessary for potential entrants to attempt to supply all of the products in the bundle.

The key requirements for anticompetitive harm in bundling are therefore a position of market power in one market, that can be leveraged by way of tying into another market in

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<sup>39</sup> Such pricing may raise concerns with regulators regarding whether it may create a barrier to customer switching. We consider whether such pricing is likely to harm consumers later in the Chapter under the heading “Network access and service pricing”.

such a way that competition is significantly reduced. It is difficult to see that these conditions would hold in the case of bundling by cable operators in most European markets.

Cable operators traditional product market is TV broadcast. Cable operators are either currently, or in the process of, expanding into telephony and broadband. It is debateable whether cable operators have a position of market power that they are able to leverage in any market in Europe, particularly given the potential for entry via alternative technologies. However, even if it were assumed that the requisite market power existed in TV, it is difficult to see how cable operators could reduce competition in either telephony or broadband Internet. Telephony competitors are generally dominant incumbent TOs. Given the fixed and sunk nature of telephony networks, there is no realistic possibility of inducing exit or even reducing the ability of the incumbent TOs to compete. This is also the case for broadband access, which is an incremental product, particularly for the fixed networks employing DSL technologies. In contrast, cable operators incur substantial investment costs in upgrading their networks to support bi-directional services and face ongoing costs in increasing capacity on nodes as a result of the shared access nature of the technology. As such, it is highly doubtful that fixed networks would ever become seriously uncompetitive. Finally, even if this were to become a problem at some point, the incumbent TOs' competitive position could be restored by ensuring they were able to deliver pay-TV services over their own broadband network.

#### *Network access and service pricing*

It is often argued that a fixed access fee should be set to cover the cost of network access, on the grounds that this is setting prices to match the underlying cost structure, which is argued to be the way a competitive market would set prices. In fact, this approach is only efficient if demand for access to the service is extremely inelastic, which implies that this structure of charging will not significantly reduce the size of the network as a result of consumers being unwilling to pay the fixed charge. This is probably a reasonable assumption for utility services that are necessities such as electricity or water supply, and traditionally has been a reasonable assumption for fixed telephony access (although this may become less true in the future).<sup>40</sup>

The efficient pricing of network services is more complex than simply setting prices to reflect the cost structure of the service. Consumers often prefer not to pay significant fixed charges that do not also cover the price of some services, and in any case will not pay access charges without the attendant expectation of actually purchasing services. The two cannot be readily separated. In practice, the price that can be charged for 'access' to a

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<sup>40</sup> However, even for these services regulators generally recognise social groups, normally low income, who are unable to pay significant standing charges, and therefore often require some form of low user 'pay as you go' pricing option.

network is directly related to the value of the services that result from this access, and the efficient pricing model is critically dependant upon consumer demand elasticity and preferences, the products concerned, the pricing models of alternative products, and so on. Further, as markets, products and competition develops, these factors will vary, requiring operators to modify their pricing models. In summary, this implies that regulations that require certain costs to be covered in certain forms of charge are likely to risk damaging consumer welfare even in the short term. In the long term historical experience of regulation is that it is generally unable to provide the flexibility needed to deal with changing market conditions. This form of regulation should therefore be avoided if at all possible.

### 3 Cable Telephony Services

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Despite over a decade of liberalisation in EU telecoms markets, the incumbent TOs still critically retain control over access with the consequent ability to leverage this control into the provision of traditional call services and limit the introduction of new services where they pose a risk to existing revenues. In the UK, where liberalisation was commenced with the licensing of Mercury in 1982, BT still supplies over 81% of residential analogue lines with the cable operators, ntl and Telewest, accounting for virtually all of the remainder.<sup>41</sup> For the EU as a whole, an indication of the entrenched dominance of the incumbent TOs is that their average share of the local call market remained above 80 per cent in December 2002.<sup>42</sup> For the business market, the loss in market share by the incumbents has been somewhat more significant as many fixed telecom entrants have focussed on providing services to large business users.

Cable represents an important means by which the incumbents' stranglehold on access may be broken in the longer term, particularly in residential areas. In most Member States, cable operators have only recently begun to supply telephony services following the upgrading of their networks to support telephony. In the UK, the cable operators have been active in telephony for a longer period through their ability to supply telephony services over conventional twisted copper pairs that share the same duct as the hybrid fibre-coax network used to deliver cable television. The UK experience indicates that progress towards a competitive telecom market will be slow.

The continuing dominance of the incumbent TOs suggests that the overall regulatory priority should be on restraining their behaviour, including through access regulation, and facilitating (or, at least not inhibiting) the development of alternative infrastructures. The EC's NRF reflects such a consideration through the targeting of regulation at SMP operators. However, under the NRF there is the potential for the ex ante regulation of one of the key telephony services of the non-incumbent operators, i.e. call termination services. In particular, the EC's *Recommendation on Relevant Product and Service Markets* specifies "call termination on individual public telephone networks provided at a fixed location" as one of the markets susceptible for ex ante regulation.<sup>43</sup> In determining the nature of the

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<sup>41</sup> Oftel, *Fixed Narrowband Retail Services Market - Identification and analysis of markets, Determination of market power and Setting of SMP conditions - Explanatory statement and Notification*, 26 August 2003, Table 3.1. The market share figures are for the UK excluding the Hull area and relate to the third quarter of 2002/03.

<sup>42</sup> The Commission, *Ninth Implementation Report*, p.4.

<sup>43</sup> The Commission, *Recommendation on relevant product and service markets*, C(2003,497), 11 February 2003, p. 8.

regulation to apply to the termination services of the non-incumbent operators, regulators should bear in mind the overall desirability of facilitating greater network competition.

In examining the markets for call termination on individual fixed networks, NRAs will need to deal with two sets of questions:

- Do cable operators have SMP in relation to call termination services on their networks?
- If so, what regulatory obligations should be imposed?

### 3.1 Call termination services – Assessing SMP

Key to answering this question is identifying whether there are sufficient constraints on the termination charges of cable operators to prevent charges being set above efficient levels. In its assessment of markets susceptible to ex ante regulation, the Commission considered that there was the potential for the termination charges to be set at excessive levels arising from the absence of technical alternatives for terminating a call and that, in general, the calling party pays for the call. In particular, it is assumed that when choosing which network to belong to, customers attach relatively little importance to the price that others pay to call them (which includes an amount to cover the termination charge levied at the wholesale level by the customer's network).<sup>44</sup> The validity of this assumption depends on the extent to which customers value receiving calls and the extent to which people are concerned with the welfare of those that call them. The existence of substitutes, such as calls being made to mobile phones, may also act to constrain termination charges. It should be noted that when an operator raises its termination charges then it risks losing not only termination minutes (fewer calls being made) but also all the revenues associated with a subscriber if that subscriber decides to switch to another network in which they can be called for less.

The Commission did note that there might be factors limiting operators' abilities to set excessive termination charges, particularly whether incumbent telecom operators have sufficient countervailing buyer power.<sup>45</sup> The incumbent TOs have tended to claim that any such buyer power is mitigated by regulation of its charges. However, it is possible that the power might be exercised by alternative means given the wide front across which cable operators depend on the services of the incumbent. For instance, in its decision on the proposed merger between Telenor and Telia, the Commission found that:

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<sup>44</sup> The validity of this assumption depends on the extent to which customers value receiving calls and the extent to which people are concerned with the welfare of those who call them.

<sup>45</sup> The Commission's *Recommendation on relevant product and service markets Memorandum – Explanatory memorandum* (p.20).



“Given their relationship of mutual dependency with regard to the termination of their respective traffic (that is to say that Telia had to terminate a substantial portion of Telenor’s outgoing traffic - international calls, mobile calls, and others - and Telenor had also to terminate a significant proportion of Telia’s outgoing traffic), the parties were in a position to exercise an influence over the level of accounting rates/termination charges applied by each other.”<sup>46</sup>

Further, recourse to the regulator may lead to a matter being resolved only after a significant delay. As delay can create a significant cost to a new entrant into telephony, incumbents may be able to use the threat of delay to achieve a lower termination charge. The existence of countervailing buyer power will also be relevant in relation to interconnection between two non-incumbent operators.

An additional consideration is that in a market with multiple operators, there will be the ability for arbitrage, that is, the potential for calls to be routed via a third operator if that operator has negotiated lower rates for terminating calls. The ability for arbitrage will also constrain the rates charged to particular operators.

Ultimately, whether operators have SMP in relation to terminating services is an empirical question. Regulators in each Member State will need to assess the evidence from their individual national markets to judge whether the termination charges of an individual operator (whether that operator is an incumbent TO, a cable operator, a mobile operator or other operator) would be likely to be set at excessive levels absent regulation. It may be that the market characteristics are such that an operator’s termination charges would be effectively constrained or that the threat of regulation being imposed in the future is sufficient to lead to charges being set at efficient levels.

### **3.2 Termination – Assessing regulatory obligations**

The Access Directive lists five potential regulatory obligations: transparency; non-discrimination; accounting separation; access to, and use of specific network facilities; price control and cost accounting. The nature of any price control imposed and the question of whether termination charges should be non-discriminatory raise particularly contentious economic issues and are examined in this section. The need for transparency and accounting separation tend to be related to where a non-discrimination obligation has been imposed while a requirement for access is not relevant to termination as interconnection is required to be provided under Article 4(1) of the Access Directive.

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<sup>46</sup> Case COMP/M.1439– TELIA/TELENOR, 13 October 1999, para.148.

### *Price controls*

In Chapter 1, we outlined general concerns with price controls, including problems of cost allocation. In this Section, we focus on the issue of the extent to which differences in costs between operators should be taken into account in designing price controls, although we note that this is only the first step to determining what share of costs should be recovered from termination.

In some Member States, the termination charges of non-incumbents have been set on a reciprocal basis to the incumbent's termination charges.<sup>47</sup> Reciprocity has sometimes been the result of commercial negotiations and, in other cases, has been imposed by the regulator. In other countries, the non-incumbents have priced termination differently to incumbents. Again, this has sometimes resulted from commercial negotiations (e.g. in Iceland, Ireland and Portugal) and in other countries (e.g. Belgium, France, the Netherlands) reflected a position approved by the regulator.

The Commission has not supported a general principle of reciprocity in the past, although it noted that where operators had similar market power and similar costs then it would expect charges to be similar.<sup>48</sup> The implication being that where factors forced an operator to have higher costs then a higher charge would be appropriate.

While reciprocal pricing approaches sometimes recognise differences in the services provided (e.g. different prices depending on the level in the network hierarchy at which interconnection takes place and hence the extent to which the termination service includes a transmission component<sup>49</sup>), they generally do not recognise differences in the cost of providing the same service whether that be between the incumbent TOs and other fixed telephony entrants or between the incumbent TOs and cable operators. Incumbent TOs are likely to have significantly lower costs than cable operators in particular, as cable networks are often largely in residential areas (rather than business areas) and do not enjoy the same scale and density advantages of the incumbent as a result of having much fewer telephony customers. Differences in scale and density have been found to be highly significant in

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<sup>47</sup> For an overview of international approaches, see OPTA, *The Reasonableness of Fixed Terminating Tariffs*, 13 January 2003, Appendix II. Oftel has published its proposed approach under the NRF, favouring reciprocity in principle, in its *Review of fixed geographic call termination markets - Explanatory Statement and Notification*, 26 August 2003.

<sup>48</sup> The Commission set out its position on reciprocity in a letter to the Belgium regulator, BIPT, of which excerpts were included in its *Decision de l'IBPT concernant les charges MTR de Mobistar*. The Commission expressed concerns about the application of reciprocity to new entrants in its *Eighth report from the Commission on the implementation of the telecommunications regulatory package* (p.22).

<sup>49</sup> For instance, an interconnection point at a local exchange would involve less use of the terminating carrier's network than interconnection at a higher point that would then require the call be carried to the local exchange before it could be terminated.

explaining differences in costs in supplying fixed access in numerous studies.<sup>50</sup> Reciprocity, which does not take account of the impact of these cost drivers, can be expected to have significant implications for competition, efficiency and consumers.

Reciprocity is sometimes justified on the basis of competitive neutrality or mimicking a competitive market in which a view is taken that in a competitive market only the least cost firm will survive. However, in a competitive market that can support multiple firms, the market price can be expected to lead to some firms just covering costs while other firms earn revenues greater than costs. For instance, at the world price for wheat, farmers in some areas will only just be viable while farmers in more fertile areas will enjoy greater returns. The apparently 'excess' accounting profits of some farms, in fact, represent a return to the factor of production giving rise to the difference in efficiency, i.e. the more fertile land. In other cases, high profits might reflect the successful outcome of a risky investment or the incumbency advantages generated by a statutory monopoly position in the past.<sup>51</sup> The advantages enjoyed by the incumbent TOs have been recognised in the case law<sup>52</sup> and were stated in a recent Commission decision:

“New entrants do not have network infrastructures of their own that are as extensive as those of DT, and with traditional technologies they are unable to match the economies of scale and the coverage of the incumbent operator, which rolled out its local network over a long period under the protection of exclusive rights, and funded its investment out of monopoly rents.”<sup>53</sup>

In seeking to mimic a competitive market, a regulator might set the price so that the firm with the minimal scale that is expected to be viable in the long run can just recover its costs. This approach was taken by the UK Competition Commission in relation to mobile termination charges.<sup>54</sup> It is highly questionable whether basing prices on the incumbent's scale, when that scale is the legacy of a statutory monopoly position rather than a result of

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<sup>50</sup> See Guldmann, J.M. 1991, 'Economies of scale and density in local telephone networks', *Regional Science and Urban Economics*, vol. 20, no. 4, pp. 521–35; Gabel, D. and Kennet, M.D. 1994, 'Economies of scope in the local telephone exchange market', *Journal of Regulatory Economics*, vol. 6 no. 4, p. 381; and Laurits R. Christensen, Diane C. Cummings & Philip E. Schoech, *Econometric Estimation of Scale Economies in Telecommunications*, in *Economics Analysis of Telecommunications* (Leon Courville, Alain de Fontenay & Rodney Dobell eds., North Holland 1983).

<sup>51</sup> Similarly, where a firm has higher costs than another firm, it does not necessarily imply inefficiency as that firm may have invested in, say, the development of a technology which did not turn out to be successful or it may face greater costs to encourage customers to switch that are not faced by an incumbent.

<sup>52</sup> For instance, see *Connect Austria Gesellschaft für Telekommunikation GmbH v. Telekom-Control-Kommission*, 22 May 2003.

<sup>53</sup> Case COMP/C-1/37.451, 37.578, 37.579 — Deutsche Telekom AG, 21 May 2003, paragraph 13.

<sup>54</sup> See UK Competition Commission, *Vodafone, O2, Orange and T-Mobile: Reports on references under section 13 of the Telecommunications Act 1984 on the charges made by Vodafone, O2, Orange and T-Mobile for terminating calls from fixed and mobile networks*, December 2002, paragraphs 2.277-2.278.

the incumbent necessarily being better at meeting the needs of consumers than other operators, can be set to mimic the results of a competitive market. Moreover, there is an element of circularity - the regulator's assumption as to the assumed minimal viable scale can determine how many players actually survive in the market. In particular, were a regulator to set a price for all firms corresponding to an assumed market share greater than 50% then this price would tend to drive the market towards a monopoly position as, logically, only one firm can have a share that is more than half the market and thus only one firm would be able to recover its costs. While this might provide lower prices in the short-term, it would prevent the development of dynamic competition and with it the drive to find new lower costs ways of delivering existing services that could deliver greater price falls in the longer term. Particularly where the future characteristics of markets are uncertain, it may be desirable to have multiple firms developing networks based on different technologies. While this may result in duplication in a static sense, it keeps open technological options and the innovations that can flow from the individual technologies.

In the case of termination, there are two additional complications that need to be taken into account in assessing the impact on competition. First, price controls for termination services are likely only to be examined where it is considered that operators have separate monopolies in relation to termination and hence competition between operators for supplying termination services would not be an issue in setting a regulatory price. Second, the level at which a price control is set for termination (such as above or below an operator's cost of supplying termination) can affect competition in other markets. Regulators have expressed a concern that unconstrained termination charges may distort competition for outgoing calls. Conversely, if the termination control is set below the level that corresponds to an operator's costs of termination, the operator will either:

- Need to recover the additional costs of supplying termination from the other services it provides (e.g. outgoing calls) to the extent that this is possible and thus be placed at a competitive disadvantage in relation to those other services; or if it is not possible to raise other prices,
- Not recover its costs overall with the consequence that further investment in the network is deterred with potential harm to the development of infrastructure competition.

The risk is that even if an entrant would be more efficient in the long-run than an incumbent TO, it may be prevented from entering if it could not fund the termination shortfall created by regulation assuming it to have a greater market share than it does. By creating a termination shortfall, reciprocity raises the cost of entry.

These considerations suggest that reciprocal pricing is likely to be inconsistent with the NRF's objective of promoting competition, including infrastructure competition, as well as the NRF's requirement to allow operators a reasonable rate of return.

Reciprocity can also harm dynamic efficiency (through deterring the development of alternative networks) and allocative efficiency (through creating a divergence between prices and costs). Another type of efficiency, which is sometimes called X-inefficiency<sup>55</sup>, relates to where a firm is unnecessarily incurring costs, i.e. where it could produce the same output level as currently but at a lower cost if, say, it was better managed. While the desire to encourage operators to be more efficient (i.e. to eliminate X-inefficiencies) has sometimes been put forward as a justification for reciprocity, it would not appear to be relevant to termination services. In addition to the normal pressure by owners on management to constrain costs and thereby maximize profits, costs of the operators are constrained through competition. In particular, the network that is used to supply termination services is the same network that is used to supply outgoing voice calls. Non-incumbent operators need to compete against the established position of the incumbents in supplying outgoing calls and this is likely to involve offering sufficiently lower prices (or better services) to encourage customers to switch. Accordingly, to remain financially viable, the operators will be under substantial commercial pressure to minimize costs, including through efficient network investment and operation. This suggests that the actual costs of the non-incumbent operators are likely to represent the reasonably efficient costs of supplying termination services, given their smaller scale.

In comparison with reciprocity, regulating termination charges on a basis that reflects the operator's own costs has a number of advantages. It is likely to facilitate competition in relation to outgoing calls and other services by removing the need for operators to recover an additional amount from these services, to the extent possible, to help cover their termination costs. Operators would instead compete only on their abilities (and costs) in supplying those other services in a way that best meets the needs of consumers. It would also facilitate investment by better enabling operators to earn revenue sufficient to cover their costs overall. In addition to these impacts on dynamic efficiency, prices based on actual costs would also promote allocative efficiency.

Some consumers may be made worse off where termination charges are estimated in reference to each operator's costs as they may have to pay higher prices to call a customer on the operator's network than under a reciprocal pricing approach. However, consistent with the Access Directive, it is necessary to look at whether overall consumer benefits are being maximized. To the extent that the non-incumbent operators face effective competition in the supply of the other services, higher prices for termination will be offset by lower prices elsewhere, such as lower broadband prices.<sup>56</sup> Moreover, to the extent that

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<sup>55</sup> This was named by Leibenstein in his article "Allocative efficiency vs. X-inefficiency", *American Economic Review*, June 1966.

<sup>56</sup> Changes in the structure of prices can raise or lower overall benefits to consumers because consumers will be more or less sensitive price sensitive in deciding how much of a particular product to consume. Thus assessing the overall impact on consumer benefits would require considering the relative elasticities for the different services.

competition between networks is promoted by this approach, then there may be substantial long-term gains from innovation and the competitive pressure to find new low cost ways of providing services that exceed any short-term losses.

In practice, setting termination charges to reflect an operator's own costs could be based on accounting information (a 'top-down' approach).<sup>57</sup> Given that most non-incumbent networks are relatively new, this is likely to provide a reasonable estimate of overall efficient network costs of supplying termination and superior to a hypothetical model built on a large number of assumptions. Nonetheless, for practical reasons, regulators might alternatively choose to use their existing LRIC cost models adjusted for the particular circumstances of the non-incumbent operators. This would involve inputting different volumes and different numbers of subscribers per area into the LRIC models. Rather than developing a large number of estimates, one or two generic estimates for particular types of entrant might be considered reasonable to capture the main differences between incumbents and non-incumbents.

There are other approaches that seek to recognise the difference between incumbents and non-incumbents, although these do not appear to be superior to an approach designed to reflect an operator's actual costs. In France and the Netherlands, a 'delayed reciprocity' approach has been put forward by the respective regulators, ART and OPTA.<sup>58</sup> This mitigates the impact of 'reciprocity' to an extent by allowing non-incumbents to charge a higher price than the incumbent with the price being based on the incumbent's termination charge at a particular time in the past. For instance, ART has capped the termination charges of Completel, Estel and UPC France so that they do not exceed the level at which the termination charges levied by France Telecom were set five years earlier.

While delayed reciprocity is a simple approach to implement, basing non-incumbent operator's current prices on the incumbent's past charges seems arbitrary in that it may under or over-compensate the non-incumbent operators. The risk of under-compensation would be greatest for operators with relatively low penetration compared with the incumbent operator and with networks in relatively high cost (residential) areas. Indeed, OPTA has recognised the need for an additional safety net clause: "if a provider could show that the maximum reasonable tariff set by the Commission would make it impossible for it to recover its costs despite the fact that the provider has been operating in an economically justifiable way, the Commission would take these costs into account."<sup>59</sup> Given the need for such a clause, a better approach would have been to develop practical estimates of the actual costs of operators in the first place.

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<sup>57</sup> As discussed in the previous chapter, cost allocations should be designed to maximise efficiency and therefore overall consumer benefits.

<sup>58</sup> See ART decisions 03-701, 03-702 and 03-703 and OPTA, *The reasonableness of fixed terminating tariffs*, 13 January 2003.

<sup>59</sup> OPTA, *The reasonableness of fixed terminating tariffs*, 13 January 2003, p.36.

On the whole, an approach that seeks to base prices on operators' own costs can be expected to best meet the requirements of the NFR and, in particular, promote efficiency, sustainable competition and maximise consumer benefits over time.

### *Non-discrimination obligations*

Article 10 of the Access Directive provides for national regulators to impose a non-discrimination obligation on an operator found to have SMP. A key issue relating to termination is whether operators should be required to provide termination services to other operators on the same terms as they effectively provide the services to themselves, i.e. in the provision of calls made between subscribers on their own network (so called 'on-net calls' as opposed to 'off-net calls' that are made between subscribers on different networks).

Differences between on-net and off-net call prices may raise concerns with regulators as such differences appear to go beyond differences in the 'costs' of supplying the services. However, given the significance of fixed and common costs in the supply of cable services, efficiency is likely to require that different proportions of these costs be recovered from the different services (so called 'Ramsey-Boiteux' pricing). Thus, if people who call each other regularly tend to congregate on the same network then callers may be more sensitive to the price of on-net calls than to the price of calling another network and hence a smaller share of costs should be recovered from on-net calls.

Discounted on-net pricing also tends to be part of the dynamic competition between operators. Academic models suggest that on-net/off-net price differentials intensify competition, while having an ambiguous impact on welfare.<sup>60</sup>

One way in which competition is affected is that low on-net call prices provide an incentive for customers to encourage their frequent callers to join the same network as themselves. In effect, this represents a form of marketing. For a new entrant that has a network for telephony services in place and that is seeking to build its market share, discounted on-net pricing can be marketing at a low cost as the resource cost of an on-net call when there is excess network capacity is negligible. In contrast, off-net calls would require the payment of a termination fee to another operator and thus must be priced to cover this cost.

Low on-net pricing would be a concern, however, were an SMP operator to use such pricing to limit competition. For instance, an operator that had a much larger share of a market than other operators might be able to use low on-net prices to lock-in its existing customer base and take customers from competitors. In this case, low on-net prices would

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<sup>60</sup> Laffont, J.J. and J. Tirole, *Competition in Telecommunications*, MIT Press, 2000, p.202.

provide a strong incentive to subscribe to the dominant network by enabling customers to access low prices to call, and to be called by, a large share of the other customers in the market (i.e. the network's existing subscriber base).

In summary, while it is generally desirable to leave operators themselves to determine the structure of their prices including differential on-net/off-net pricing, regulators should guard against SMP operators adopting pricing practices where there is the likelihood of harm to competition and consumers given the particular market circumstances.

## 4 Broadband Access Services

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The potential economic and social benefits from widespread take-up of broadband technologies have led governments to attach importance to boosting broadband penetration. A recent communication from the Commission underlines the importance of broadband to stimulating growth and job creation in the Community.<sup>61</sup> Achieving this potential will require a policy environment which accelerates broadband deployment. As recognised by the Commission, protecting incentives to invest in infrastructure will be critical:

“The new regulatory framework, which will be applied in all Member States from July 2003, takes full account of the convergent nature of broadband. Encouraging efficient investment in infrastructure (by new entrants and incumbent operators) and promoting innovation are explicit objectives for regulators. This means taking account of the need for investors to obtain an adequate return on their investment, in the light of the risks taken. This also means that regulatory uncertainty for investors must be reduced as much as possible.”<sup>62</sup>

The development of competing infrastructures has been a key driver of broadband penetration to date. Figure 2 illustrates that broadband penetration is higher in markets where there is greater competition between cable and DSL operators so that no one technology or operator dominates.<sup>63</sup> The upgrading of the cable networks to support broadband services has spurred the incumbent TOs to push forward DSL technology (a technology developed more than a decade ago). A concern is that in a number of countries the incumbent TOs also owns the largest cable operator and this may prevent the full benefits of rival infrastructures being realised. In this regard, the OECD has noted that:

“Remarkably, in more than one third of OECD countries the incumbent telecommunication carrier continues to own both readily available platforms for providing broadband access. This is extremely frustrating for business users as it limits competitive choice. OECD governments should, as a matter of priority, review the impact that incumbent ownership of cable networks has on the development of broadband access and local competition in general.”<sup>64</sup>

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<sup>61</sup> *Communication from the Commission – A European initiative for growth: Investing in networks and knowledge for growth and employment – Interim Report to the European Council*, COM(2003) 579 Final, 1 October 2003, p.5.

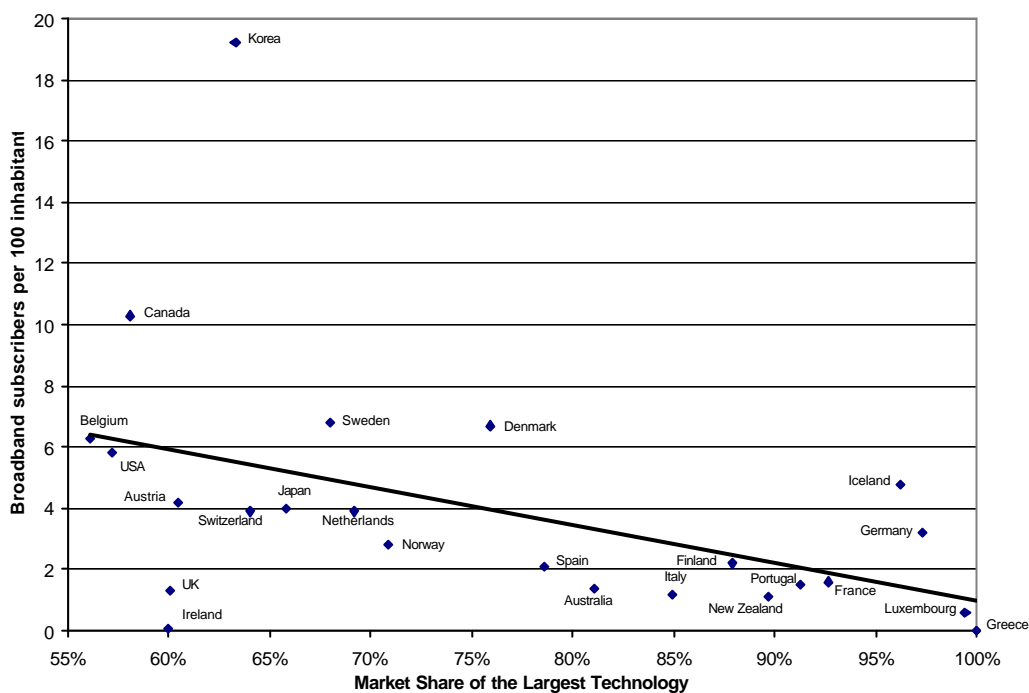
<sup>62</sup> The Commission, *eEurope 2005: An information society for all*, (COM(2002) 263 final), p.17.

<sup>63</sup> The horizontal axis shows the market share of the technology with the largest market share, except where the incumbent telecom operator also owns a cable operator in which case the incumbent’s aggregate market share is shown.

<sup>64</sup> OECD, *Broadband access for business*, 4 December 2002, p.4.

Increasingly, consumers are also accessing broadband services through a variety of other technologies, including optic fibre/Ethernet LANs (a leading broadband access technology in Sweden with comparable penetration to DSL), fixed wireless access, WiFi, direct satellite broadband services and 3G. Competition between the different technologies will be key to stimulating further deployment of networks and innovative service offerings.

**Figure 2: Infrastructure competition and broadband penetration**



Source: June 2002 data from OECD, *Broadband access for business*, 4 December 2002 and individual company reports. In markets in which the incumbent telecom operator owned a cable provider the incumbent's aggregate (DSL and cable) market share has been shown. These markets are: Australia, Denmark, Finland, France, Germany (cable operations since divested), Norway, Portugal, Sweden and Switzerland.

The NRF provides a good basis to support the development of competing infrastructures. In particular, when assessing whether an operator has SMP, national regulators are required to undertake a forward-looking analysis of the relevant markets so as to “determine whether the market is prospectively competitive, and thus whether any lack of effective competition is durable”.<sup>65</sup> The Commission’s SMP Guidelines also note:

“Emerging markets where de facto the market leader is likely to have a substantial market share, should not be subject to inappropriate ex ante regulation. This is because premature imposition of ex-ante regulation may unduly influence the competitive conditions taking shape within a new and emerging market. At the

<sup>65</sup> Framework Directive, Article 27.



same time, foreclosure of such emerging markets by the leading undertaking should be prevented. Without prejudice to the appropriateness of intervention by the competition authorities in individual cases, NRAs should ensure that they can fully justify any form of early, ex-ante intervention in an emerging market, in particular since they retain the ability to intervene at a later stage, in the context of the periodic re-assessment of the relevant markets”.<sup>66</sup>

As with access regulation in general, regulated access to support the development of new services is likely to only be justified in exceptional circumstances. Access regulation may be desirable if there is little prospect of the development of alternatives to the use of the operator’s services and there is significant risk that the operator’s market power may be used to eliminate competition in adjacent markets. On the other hand, regulated access will be likely to be harmful to the long-term interests of consumers if it risks deterring the development of competing infrastructures and thus delaying or preventing the dynamic benefits that such competition can bring.

#### *Implications of the NRF for cable broadband*

The Commission has specified a “wholesale broadband access” service in its Recommendation, noting that “while alternative infrastructures to the PSTN are in principle covered by the definition of wholesale broadband access, the extent to which such alternatives are part of the market that is analysed in detail by the NRA will be limited by, amongst others, supply substitution considerations”.<sup>67</sup> Thus, the Recommendation creates the possibility of cable broadband being considered as part of the wholesale broadband access market if a wholesale service is offered that is comparable with that offered by the incumbent TOs on their local loops (i.e. bitstream services).

A cable operator’s ability to offer a comparable wholesale service to the incumbent TOs will be affected by a number of technical factors. These factors need to be considered to determine whether it would be economically and technically feasible for third party access to be provided to the services of cable operators. A particular feature of cable technology is that cable modem users share the local network and transmission speeds vary depending on the number of simultaneous users. This creates significant network management requirements, including monitoring of customers’ use, to ensure that service quality is maintained. While providing access to third parties is technically possible, it is likely to require significant network modifications to prevent service degradation. As such, many existing cable networks will not represent an effective supply substitute to telecom networks in the supply of wholesale broadband access. The Commission’s SMP

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<sup>66</sup> Commission guidelines on market analysis and the assessment of SMP, 11 July 2002, paragraph 32.

<sup>67</sup> The Commission, *Recommendation on relevant product and service markets – Explanatory Memorandum*, 11 February 2003, p. 25.



Guidelines recognise that one operator's services are not a close substitute for another's if there is the need for significant adaptation: "the fact that a rival firm possesses some of the assets required to provide a given service is immaterial if significant additional investment is needed to market and offer profitably the services in question."<sup>68</sup>

The shared network technology also greatly restricts the ability of third parties to vary the quality and speed of the service. If bitstream services offer access seekers greater potential to differentiate their services then this may result in bitstream services constraining cable access services but cable access services not necessarily constraining bitstream services. In discussing different forms of fixed access, the European Regulators Group has recognised the significance of the potential for service differentiation:

"With bitstream access the new entrant has the possibility to differentiate the xDSL product bought from the incumbent, which means he is legally allowed (by contract) or technically capable of changing the technical parameters (features/profile) in such a way as to create his own end user service which differs from the incumbent's xDSL retail product... In contrast to bitstream access, simple resale occurs where the new entrant receives and sells on to end users - with no possibility of value added features to the DSL part of the service - a product that is commercially similar to the DSL product provided by the incumbent."<sup>69</sup>

The above considerations suggest that cable services are unlikely to represent either close supply or demand side substitutes to DSL services. In the event that a cable operator's service is found to be in the wholesale broadband access market, then the regulator will need to determine whether ex ante regulation is warranted.

## 4.1 Broadband Access - Assessing SMP

While the Commission's Recommendation relates to wholesale access, it is useful to first consider the retail market when assessing whether any operator has SMP. If there is effective competition between the services of the different networks at the retail level then the operators will not have any pricing power at the wholesale level, i.e. all operators would be forced to price the wholesale offerings competitively, including the internal transfer price to their own downstream operations.

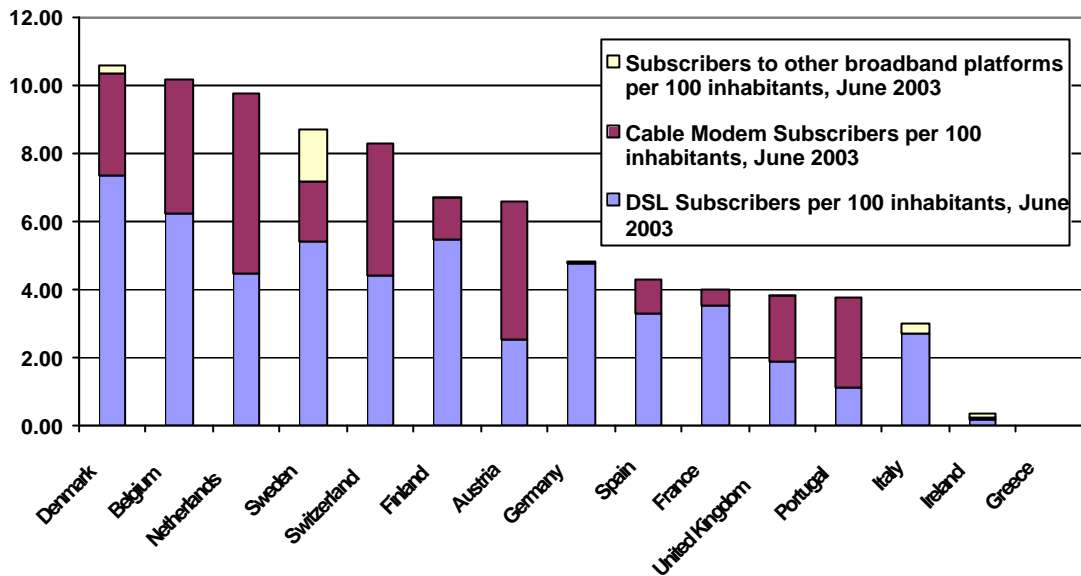
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<sup>68</sup> *Commission guidelines on market analysis and the assessment of significant market power*, 11 July 2002, paragraph 52.

<sup>69</sup> *Bitstream Access - ERG Consultation Document*, 14 July 2003, p.5-6.



Figure 3: Broadband access by technology



Source: CRA (data from ECTA DSL Scorecard Q2 2003; Point-topic.com; OECD).

Figure 3 illustrates that there is significant variation across the EU in relation to markets for broadband access. While cable accounted for 24% of broadband connections on average in the EU in June 2003, in a number of countries it accounted for over 50 per cent of connections.<sup>70</sup> However, in all Member States in which cable operators initially led in broadband (i.e. over 50% of the market in 2000), they have since lost market share significantly to DSL (see Table 2 in Executive Summary). Even in other countries, the incumbent TOs have shown their ability to take market share rapidly when they have chosen to progress deployment of their DSL offerings. For instance, BT significantly cut the price of its retail broadband service in April 2002 and grew its market share at the expense of cable from 44 per cent in April 2002 to 57 per cent in February 2003.<sup>71</sup>

Other evidence also suggests that cable operators can be effectively constrained by DSL operators. For instance, a report to OPTA noted that:

“From the consumer perspective Internet access via cable modems and DSL are equivalent. Providers in that market segment follow each other’s price and quality changes, like the recent upwards expansion of the maximum bandwidth and data limits for existing customers and the launching of cheaper, restricted subscriptions.

<sup>70</sup> June 2003 data from *ECTA DSL Scorecard Q2 2003*.

<sup>71</sup> Oftel, *Review of the Wholesale Broadband Access Market*, 28 April 2003, Table 3.1.

KPN has launched their ADSL Lite service as a response to comparable successful cheap offers by a number of cable modem service providers.”<sup>72</sup>

Econometric evidence from the US has also found that DSL and cable modems are in the same product market<sup>73</sup>. With entry from new technologies, competitive pressures can be expected to intensify as each operator jostles for position in the growing market.

Market shares are only one factor to consider when assessing market power, although the ability for DSL to grow rapidly at the expense of cable is suggestive of significant differences between the underlying economic characteristics of telecom and cable networks in the delivery of broadband services. In particular, when incumbent TOs have chosen to deploy their DSL products, they have been readily able to match prices for cable broadband services and take market share. Further, the ubiquitous networks of the incumbent TOs is likely to provide them with greater scope to offer services on a national basis and enjoy the benefits of such national offerings, such as in relation to marketing<sup>74</sup>. Cable operators can face substantial investment requirements to extend the coverage of their networks and upgrade the networks to supply broadband services. Moreover, as demand increases on particular neighbourhood nodes, ongoing investment by the cable operators may be necessary to maintain service quality. The access of cable operators to additional capital is severely limited, particularly in relation to the position of most incumbent TOs and thus the potential for expansion is restricted. Indeed, analysts have predicted that cable will continue to lose share to DSL across Europe, primarily because of the constrained financial position of many cable companies that will limit their ability to upgrade and expand their networks and invest in switching customers to cable modems.<sup>75</sup> Accordingly, in markets in which cable operators face competition from incumbent TOs, they are highly unlikely to possess SMP going forward.

## 4.2 Cable Broadband Access - Assessing Regulatory Options

It is unlikely that cable operators will be found to have SMP in the provision of broadband access services given the position of incumbent TOs, the dynamic nature of most markets and new entry via alternative technologies. However, in the event that a cable operator is found to have SMP in relation to broadband access, national regulators will need to

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<sup>72</sup> Stratix, *Verkenning van deNederlandse ISP markt voor netwerktoegang eninternettoegang*, 17 December 2002, p.2.

<sup>73</sup> See Crandall, R., J.G. Sidak and H.J.Singer, “The Empirical Case Against Asymmetric Regulation of Broadband Internet Access,” *Berkeley Technology Law Journal*, 2002.

<sup>74</sup> Even in relatively high cable density countries, cable networks often do not match the incumbent TO’s coverage (e.g. business parks may not have cable coverage).

<sup>75</sup> For instance, see *Forrester Research Press Release*, “50 Million European Households -- 30 Percent -- Will Have Broadband In 2008, Forrester Forecasts”, 16 July 2003.

determine what regulatory obligations to impose. Essentially, this is about the appropriate nature of any access regulation to support broadband services.

In assessing whether access regulation would be proportionate, Article 12(2) of the Access Directive sets out a number of criteria. The application of access regulation to cable services is unlikely to be proportionate in terms of these criteria, including:

- competing facilities are viable, particularly the incumbent's DSL services although other technologies are likely to become more significant in the future;
- as discussed above, it may not be technically feasible for broadband access to be provided to third parties on a cable network without significant deterioration in the quality of the service<sup>76</sup>;
- many cable operators have undertaken a substantial investment in upgrading their networks and price regulation carries a significant risk that operators will not receive a return commensurate with the ex ante risks they incurred (see Chapter 1); and
- regulated access carries a significant risk of reducing the incentive to expand and roll-out networks. Regulated access can deter investment by cable operators if the regulated price is set too low (including through the potential that sunk costs associated with investing will not be recognised in the future). The risk of such regulation in the future can itself deter investment. Even where cable operators enjoy market power, regulated access can harm consumers of broadband services by leading cable operators to allocate too little bandwidth for Internet access compared with other uses of cable capacity with potential for higher returns.<sup>77</sup> In addition, investment in alternative technologies will be deterred if it is possible for a firm to supply broadband services using the cable network and without incurring any of the risk of investing in infrastructure itself.

While some of these considerations also apply to access regulation of the incumbent TOs' networks, the balance of the different effects in relation to the incumbents' networks is likely to differ. In particular, there can be less concern about harming investment incentives of the incumbent TOs as they already have ubiquitous coverage and only require relatively incremental investment to enable their networks to support broadband services.<sup>78</sup>

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<sup>76</sup> A reduced quality of service could greatly limit the potential for cable broadband services to compete with DSL services as access seekers will wish to be able to provide service guarantees to their customers.

<sup>77</sup> See Hazlett, T.W. and G. Bittlingmayer, "The political economy of cable 'open access'", *AEI-Brookings Joint Center for regulatory studies working paper 01-06*. May 2001.

<sup>78</sup> To the extent that regulated access is imposed on services supported by investments with significant ex ante risks (such as may apply to bitstream and resale) then cost-based pricing is unlikely to be appropriate

On the other hand, removal of the incumbent TOs' existing access regulations would risk the elimination of the competition in broadband generated by the entrants that rely on wholesale access to the incumbents' services, such as unbundled local loops, shared access and bitstream access services. In markets where DSL services account for the bulk of broadband connections, these entrants may be an important source of competition in the supply of retail broadband services. Nevertheless, the greatest benefits to consumers are likely to result where competition takes place over a larger part of the service offering and ultimately between competing infrastructures. Regulators can support the development of this competition by committing to move towards lighter forms of regulation (including increasing access prices) of the incumbent TOs' services as the prospects for competition improve. Such an approach would increase the incentive to develop alternative infrastructures.

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given the risk of not achieving a return commensurate with the ex ante returns. A retail minus approach may better support ongoing incentives to invest and innovate.



## 5 Cable Broadcast Services

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Historically, cable networks were rolled out to deliver broadcast services and these services can be expected to continue to form a core part of cable operators' businesses across the EU, although alongside telephony and broadband services of increasing importance. Given the importance of broadcasting services in overall revenues, regulation of these services can be expected to affect not only outcomes in relation to TV services, but also cable operators' ability to compete in other markets. In particular, to the extent that regulation limits the extent to which costs can be recovered from broadcasting services, operators would need to recover a greater share of costs from broadband, telephony and other services.

The NRF creates a potentially wide scope of regulation of cable operators' broadcasting transmission function with three key areas in which national regulators will need to make decisions in relation to the nature of regulation to be imposed.

- The Commission has specified broadcasting transmission services as one of the markets susceptible for ex ante regulation. Consequently, NRAs will need to determine whether ex ante regulation is appropriate.
- The Universal Service Directive provides for the imposition of 'must carry' obligations in relation to specified channels and services (such as a public service channel) to meet general interest objectives and remuneration in respect of the fulfilment of those obligations.
- The Access Directive provides for the regulation of ancillary broadcasting services (such as access to set-top boxes) on fair, reasonable and non-discriminatory terms.

Given this wide scope, the decisions of individual national regulators will significantly influence the way in which the cable industry is able to meet consumer demand for the delivery of TV in each Member State. This chapter discusses some key economic principles that will help ensure that the regulation that is implemented best promotes the interests of consumers.

### 5.1 Regulation of broadcasting transmission services

The Commission's *Recommendation on Relevant Product and Services Markets* (the Recommendation) specifies as one of the markets susceptible to ex ante regulation under the NRF, a market for "broadcasting transmission services, to deliver broadcast content to

end users”.<sup>79</sup> Broadcasting transmission services are services for the *delivery* of broadcast services as opposed to the actual broadcast (or content) services themselves. As a result of the Commission’s Recommendation, national regulators will need to assess whether cable operators have SMP in relation to the provision of broadcasting transmission services to determine whether ex ante regulation is warranted.

## 5.2 Broadcast transmission services - Assessing SMP

To assist in the assessment of SMP, national regulators will need to define the relevant market or markets “taking the utmost account of the Recommendation and the guidelines [on market analysis and assessment of SMP]”.<sup>80</sup> National regulators may only define a relevant market which differs from those defined in the Commission’s Recommendation, subject to carrying out special procedures set out in Articles 6 and 7 of the Framework Directive. National regulators are required to assess whether cable operators have SMP in relation to the market specified in the Recommendation, unless there are particular national circumstances that justify defining an alternative market and subject to the Commission’s ability to veto the alternative definition.<sup>81</sup>

One factor that the Commission has indicated might justify a narrower definition, based on a particular delivery platform, is where the “feasibility of switching between platforms is limited” so that a hypothetical monopolist on one platform may not be constrained by operators of other platforms.<sup>82</sup> The Commission in the past<sup>83</sup> and some national competition authorities have defined narrower markets in relation to particular cases, although there is considerable variation between national authorities.<sup>84</sup> For instance, some national regulators have treated digital terrestrial TV as being in a separate market to cable and satellite TV, while other national regulators have viewed the platforms as being in the same market. However, more recent Commission decisions have found a single pay-TV market rather than narrower markets for pay TV delivered on particular platforms.<sup>85</sup> The Commission’s reasoning in these decisions was based on evidence of substitutability including that penetration of satellite in the cabled areas being examined was low compared

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<sup>79</sup> The Commission, *Recommendation on relevant product and service markets*, C(2003,497), 11 February 2003, p. 9.

<sup>80</sup> Article 15 (3) of the Framework Directive.

<sup>81</sup> Article 7(4) of the Framework Directive.

<sup>82</sup> The Commission, *Recommendation on relevant product and service markets – Explanatory memorandum*, C(2003,497), 11 February 2003, p. 37.

<sup>83</sup> In particular, see *MSG Media Service, IV/M.469, 9 November 1994*.

<sup>84</sup> For a summary of decisions in this area, see Bird & Bird, *Market Definition in the Media Sector - Comparative Legal Analysis*, December 2002.

<sup>85</sup> See *Universal Studio Networks / De Facto 829 (NTL) / Studio Channel Ltd, COMP/M.2211*, 20 December 2000, *BIB/Open, IV/36.539*, 15 September 1999 and *TPS I, IV/36.237*, 3 March 1999.

with satellite penetration in areas without cable and that there were similarities in the prices and composition of services offered on the different platforms.

While not precluding the possibility that a particular national regulator might define a platform specific market, national regulators can generally be expected to assess whether any operators have SMP in relation to a broadcasting transmission services market. This market would include the services provided by terrestrial, cable and satellite transmission networks as well as alternative transmission channels, such as the use of DSL for the delivery of video, to the extent these new channels are relevant to assessing the level of competition that is likely to exist in the regulatory review period. The potential impact of new services needs to be considered because the regulation will be applied in a future period.<sup>86</sup> The EC's SMP guidelines recognise the need for a forward looking evaluation that takes into account "expected or foreseeable market developments over the course of a reasonable period."<sup>87</sup>

One implication of a forward-looking approach is that even where an operator currently has a high market share, if that position is expected to be transitory as a result of, say, technological change, it may be better to permit an element of excess pricing in the short-term. By increasing the attractiveness of entry, such an approach can speed the achievement of competitive outcomes and prevent the need for regulation into the future. Conversely, regulators should also examine the potential for market foreclosure by operators entering the market if they have the potential to leverage market power from other markets. For instance, the position of the incumbent TOs in the supply of DSL services may raise a concern in relation to broadcasting if there is a significant risk of the incumbents being able to leverage their dominance onto the supply of video over DSL. In such cases, regulated access to DSL for the delivery of broadcasting services may be necessary to protect developing competition in adjacent markets.

### 5.3 Cable Broadcast Services - Assessing regulatory obligations

If a cable operator is found to have SMP by a national regulator, then the regulatory obligation or obligations to be imposed on the operator will need to be determined. Key issues in relation to regulated access to broadcasting transmission are the price that should be charged and whether access should be on a non-discriminatory basis.

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<sup>86</sup> This can be contrasted with, say, the assessment of SMP as part of the investigation of anti-competitive conduct that is alleged to have occurred in the past.

<sup>87</sup> *Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services* (2002/C 165/03), 11 July 2002, paragraph 20.

### 5.3.1 REVENUE SOURCES

There are two sources of revenue for TV and other video services. Ultimately revenue comes either from consumers, advertisers, or a mixture of both. In cases where the service is dependant upon payment from the consumer (for example, premium movie and sport channels), it is clear that the consumer must be billed for the service. As, in general, the billing relationship lies with the cable network, the revenue will flow from the consumer to the content provider by way of the cable operator. In other cases the revenue will come primarily from advertising, or from consumer or government funding provided direct to the content provider. Free-to-air broadcasting is the most obvious example where the business model works in this way with the broadcaster paying the transmission cost. In the context of cable, this can imply that payment flows from the broadcaster to the cable operator, although even with there is advertising revenue a cable operator may still pay the broadcaster if the content is attractive to driving subscription. Although the payment direction might vary between the different cases, the net result is the same. The one significant difference is that where the cable network is required to collect revenues on behalf of the broadcaster or content provider, then the cable operator will also need to charge for the service provider type functions it must provide (e.g. customer service, billing, risk of bad debt, and so on).

The cable operator should be able to take a margin reflecting the value of the transmission service itself, including returns to risk taking where appropriate. In many commercial negotiations, the value of the delivery of content to both the cable operator and the content provider will be taken into account. Such a revenue sharing approach effectively results in the sharing of risk. Allowing sufficient margin to compensate for risk is particularly important where the cable network has invested in technology that facilitates new services that may directly benefit content providers. In competitive markets, revenue-sharing arrangements can arise to efficiently align incentives between two firms where both firms must make risky investments to supply a particular service.<sup>88</sup> The potential gains from the supply of valuable content and new services may be a factor driving recent investment in upgrading and rolling out cable networks. To ensure that investors receive returns commensurate with the ex ante risks that they have incurred, pricing of the carriage of content may need to take into account the value (revenue able to be earned) to both the cable operator and the content provider, particularly for operators with new or recently upgraded networks.

A second benefit of revenue sharing arrangements can arise where the content provider has market power. Where there are few alternative network platforms, the threat of a significant loss in sales for the content provider through content not being carried can act to

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<sup>88</sup> For instance, in damages litigation, a law firm may choose to charge only on a success basis and thereby effectively take risk from the client in return for the potential to receive a share of the damages.

constrain the price it charges to well below the monopoly level.<sup>89</sup> In such cases, commercial negotiations that take into account the revenue of the content provider can lead to lower costs for the cable operator and lower prices to consumers.<sup>90</sup> Regulators should be aware of the potential consumer benefits of revenue sharing arrangements if they become involved in the resolution of disputes between operators and content providers.

Where access is regulated, there are two broad approaches to pricing carriage:

- ‘Cost-based’ pricing; and
- ‘Opportunity cost’ pricing which covers any revenues lost from regulated access, including from potential revenue sharing arrangements.

Cost-based pricing can be implemented in a number of ways, including historical cost, and forward-looking cost based approaches. Forward-looking costing is most likely to be by way of a Long-Run (average) Incremental Cost (LRIC) model. The application of cost-based pricing to broadcasting transmission services carries significant potential for harm to consumers where cost is defined in reference to only the network cost of transmission. In particular, cable networks have limited capacity so that the use of the network to carry one channel can displace other channels being carried. To ensure efficiency, it is important that the capacity is allocated to the use that is most highly valued and this is likely to require pricing capacity. Moreover, operators generally bundle programming into ‘tiers’ and carefully design the bundles to maximise their value to consumers. The inclusion of a different channel in such a programming bundle or ‘tier’ can reduce the overall value of the tier to consumers and lead to less revenue for the cable operator.

It is noteworthy that while the FCC has long been a proponent of the use of LRIC for telecom services, it uses an opportunity cost approach in relation to cable transmission services. Regulated access for cable transmission services in the US (known as ‘commercial leased access’) was established by the Cable Communications Policy Act 1984. While the Commission sought “to promote competition in the delivery of diverse sources of video programming and to assure that the widest possible delivery of information sources are made available to the public from cable systems in a manner consistent with growth and development of cable systems,”<sup>91</sup> it held the belief that

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<sup>89</sup> The impact of buyer power may be sufficient to constrain prices to the competitive level. See J. Engle-Warnick and B.J. Ruffle, “Buyer countervailing power versus monopoly power: evidence from experimental posted-offer markets”, *Economic papers 2002-W14*, Economics Group, Nuffield College, University of Oxford, May 2002.

<sup>90</sup> Even were the cable operator to face no competition in delivering content, a fall in its marginal costs would still lead to lower prices to consumers.

<sup>91</sup> FCC, *Second report and order and second order on reconsideration of the first report and order* (CS Docket No.96-60), 4 February 1999, para. 22.

“Congress did not intend that cable operators subsidize leased access programmers.”<sup>92</sup> The approach taken in the US revolves around calculation of the ‘implicit access fee’ as the method for setting the maximum reasonable rate for carriage (with the potential for lowering rates to be set by negotiation). That is, the incremental amount (or net contribution) that a cable system retains as a result of carrying a particular service. While commercially cable operators often pay content providers for their services, there is an implicit access fee for carriage in that the amount of subscriber revenue that the operator receives for the programme is greater than the fee that the cable operator pays to the content provider. The use of the ‘implicit access fee’ for regulated access is designed to compensate the network for the *opportunity cost*, i.e. the revenue that could otherwise have been generated by carrying alternative content. More generally, the opportunity cost is the negative externality, or harm, that regulated access can impose on the cable operator. The opportunity cost would also include any revenues lost from revenue sharing arrangements that might have otherwise existed.

An opportunity cost approach is appropriate to ensure that cable operators are no worse off than they would have been absent the access requirement. Basing access prices solely on a LRIC type model will not normally meet this objective. Where regulated access is established to promote competition between content providers, then an opportunity cost approach can facilitate competition at the content level without harming investment incentives.

Opportunity cost based pricing is a market based approach because, if correctly calculated, a commercial operator in a competitive market will be indifferent as to whether or not they carry a regulated channel if they are fully compensated for any opportunity cost incurred. The opportunity cost depends upon a number of potential revenue and cost streams. An opportunity cost assessment should at a minimum consider the following possible impacts:

- lost fees from any channels ‘bumped’;
- any subscriber revenue impacts (either through resulting changes in package prices or through changing subscription levels);
- any other revenue impacts (e.g. on advertising or commission revenues or revenue sharing arrangements);
- any productive costs (additional network or service costs); and
- option value of keeping spare capacity on tap.

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<sup>92</sup> FCC, *Second report and order and second order on reconsideration of the first report and order* (CS Docket No.96-60), 4 February 1999, para. 23.



It is clear from the above list that estimating the impact of regulated access is a potentially complex issue and will generally require different prices for different types of content. Nonetheless, it is clear that a price based on the LRIC of network costs is unlikely to come close to balancing all these issues. A better approach in our view is either to attempt the above calculation on a case-by-case basis, or alternatively to benchmark the fee against commercial rates paid for similar services. While a benchmarking approach will necessarily be imperfect, it is likely to more accurately reflect the value of channel capacity to the network. This proposed approach is broadly consistent with the approach to calculating leased access prices used by the FCC in the US and that is implemented by way of finding appropriate commercial benchmarks. For example, the FCC states:

“...We now believe, however, that an implicit fee formula may better reflect the value of the channel capacity, since a formula based strictly on quantifiable costs cannot account for lost subscriber revenue and therefore may not adequately compensate the operator.”<sup>93</sup>

### **5.3.2 WHO SHOULD PAY?**

For services that are analogous to premium content services, the model should work in the same way as it does for premium content services. The consumer should pay, and the cable operator be allowed to take an appropriate margin. In cases where the service provided is analogous to a free-to-air broadcast service, then it is less clear which way payment should flow. In general, the conceptual solution revolves around identifying the opportunity cost of carriage, and which party experiences a net cost as a result of access being given.

### **5.3.3 SHOULD PAYMENTS BE EQUAL ACROSS CHANNELS?**

As discussed in Chapter 1, it is economically efficient to recover the incremental costs associated with a particular service from that service and recover fixed and common costs by mark-ups on the various services that vary with each service's elasticity of demand. Further, fixed and common costs should be recovered from the services for which consumers are relatively price insensitive, using so called 'Ramsey-Boiteux' pricing. This cost recovery logic applies to the entire service ultimately consumed by the consumer, that is, it applies to both content production and the cost of its distribution. The implication of 'Ramsey-Boiteux' pricing is that it will be more economically efficient for mark-ups recovering the (fixed and common) costs of distribution to vary in line with the sensitivity of demand to the price of particular channels. In other words, channels with a low elasticity of demand (premium content or 'must have' channels from the consumers perspective)

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<sup>93</sup> FCC, *Second report and order and second order on reconsideration of the first report and order* (CS Docket No.96-60), 4 February 1999, paragraph 45.



should bear a greater share of the cable operators costs.<sup>94</sup> Such demand-based pricing can also efficiently allocate scarce cable capacity to the use that is valued most highly by consumers and avoid the need for arbitrary rules such as ‘first-come, first-served’ which can lead to some content providers maintaining access even if alternative uses would be valued by consumers more highly.

## 5.4 ‘Must carry’ obligations

The Universal Service Directive (Article 31) provides for member states to impose ‘must carry’ obligations in relation to specified television and radio channels and services on networks used for broadcast distribution. The obligations are designed to ensure widespread access to the specified channels and services. Obligations may only be imposed where they are necessary to meet clearly defined general interest objectives and are proportionate to those objectives.<sup>95</sup> The Directive does not specify the arrangements for remuneration for the carriage of content subject to a ‘must carry’ obligation or even whether there should be any such remuneration. The Directive only states that where remuneration is appropriate, the remuneration be applied in a proportionate and transparent manner.

Currently, the imposition of ‘must carry’ obligations varies significantly across the EU. Italy, Luxembourg and Greece do not impose any such obligations while in other countries ‘must carry’ channels account for over 50 per cent of total cable capacity.<sup>96</sup> ‘Must carry’ channels include public service and private channels. ‘Must carry’ obligations are generally imposed only on cable operators and may differ between analogue and digital cable networks. Remuneration arrangements also differ with some governments requiring content subject to ‘must-carry’ rules to be delivered without the cable operator receiving any payment from the content provider or government while in other countries payments

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<sup>94</sup> This does not imply that payment will necessarily flow from the content provider to the cable operator however. Rather, for premium channels it will imply that the cable operators implicit margin (the difference between the price charged to the subscriber and price paid to the content provider) should be larger than on channels less valued by consumers.

<sup>95</sup> This can be compared with the detailed provisions in the Directive relating to the recovery of a telecom operator’s net cost of fulfilling a universal service obligation (USO). The consequence is that, while the incumbent PTOs on which USOs are historically imposed are given a measure of certainty and protection in relation to the recovery of the USO cost, the generally much less financially secure cable operators are given no such protection in relation to recovery of the cost of their obligations.

<sup>96</sup> Eurostrategies, *Assessment of the Member States measures aimed at fulfilling certain general interest obligations linked to broadcasting, imposed on providers of electronic communications networks and services in the context of the new regulatory framework*, March 2003, p.6-7. This document also provides an overview of the existing ‘must-carry’ regulations in a number of Member States. A report by Ovum and Squire Sanders, *An inventory of EU ‘must-carry’ regulations*, February 2001, profiles ‘must carry’ regulations across the EU.

are determined through negotiation. ‘Must offer’ obligations may also be imposed on broadcasters requiring them to make their programmes available for distribution.<sup>97</sup>

Under the NRF, public authorities will be required to determine two key matters in relation to ‘must carry’: (i) what, if any, ‘must carry’ obligations should be imposed; and (ii) if obligations are to be imposed, what remuneration arrangements should apply.

From an economic perspective, ‘must carry’ regulations create a number of serious concerns that suggest that the scope of ‘must carry’ regulation should be minimised in favour of alternative means of meeting cultural objectives through broadcasting. In particular, the existence of a number of distortions associated with the current arrangements can be exposed by comparison with an alternative model in which the specified channels and services negotiate distribution arrangements on commercial terms without any ‘must carry’ or ‘must offer’ regulations and in which government funding is provided to cover the cost of distribution to the extent that it is not covered by other revenue such as advertising income<sup>98</sup>. Under such an alternative model, a number of payment arrangements are possible:

- Carriage of the most popular channels may generate net revenue (excluding any content payment) for the cable operators and may result in cable operators paying the broadcaster for the right to carry the channel. However, even for popular private channels, there can be no presumption of a payment being made from the cable operator to the broadcaster given the ability of cable distribution to boost the broadcaster’s advertising revenue.<sup>99</sup>
- For less popular channels, the cable operator would need to receive a payment from the broadcaster for the delivery of the channel to its subscribers.

In both cases, to commercially agree to deliver the content, the cable operator would need to receive at least as much net margin, taking into account all revenues and costs, as it would otherwise be able to receive from carrying alternative channels.

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<sup>97</sup> Whenever a ‘must carry’ obligation is imposed in relation to a particular channel, a corresponding ‘must offer’ obligation would need to be imposed on the broadcaster providing the channel so that the cable operator could meet its ‘must carry’ obligation.

<sup>98</sup> It is noteworthy that in Italy a large number of public broadcasting channels are made available through cable and satellite distribution despite the absence of ‘must carry’ regulations. For the list of public channels made available, see, the European Audiovisual Observatory’s website, <http://www.obs.coe.int/db/persky/>

<sup>99</sup> For instance, Thomas Hazlett, former chief economist of the FCC, has noted that when broadcasters in the US were given the opportunity to charge cable operators for retransmission of their programmes, “very little cash actually flowed from cable operators to broadcasters.” In “TV Smackdown! (Cable vs. Broadcast)”, *Wall Street Journal*, 5 May 2000.



Compared with the ‘market-based’ outcomes, the imposition of a ‘must carry’ obligation would distort the negotiated prices in relation to content that the cable operator would not otherwise carry.<sup>100</sup> In particular, broadcasters would only offer the minimum price that they were legally required to offer, which may be zero (as occurs in a number of Member States). This can be expected to give rise to a number of distortions and, in particular:

- Limit cable operator’s revenues and thereby discourage further investment in cable networks;
- Distort the development of competition in favour of the less regulated transmission networks - for instance, networks without ‘must carry’ obligations would have greater flexibility to offer content that is most valued by consumers and hence maximise the returns to investment in those networks;
- Create cross-subsidies between channels, effectively requiring subscribers of the other channels to help fund the carriage of public service channels which might be designed to meet general public interest objectives that would be more appropriately funded from general taxation revenues;
- Create the need for cross-subsidies between services, i.e. forcing the cable operator to set its broadband or telephony prices higher to help cover the cost of the ‘must carry’ obligation; and
- Distort the efficient development of policies designed to support cultural and media diversity as the resource cost of ‘must carry’ obligations are less visible to decision-makers compared with the resource cost of alternative ways of meeting the objectives.

These considerations suggest that the scope of any ‘must carry’ obligations should be limited, particularly as the potential for distortion of competition between networks and services will increase with technological convergence.

In minimising the risk of distortion, pricing will be critical and this is discussed next. In the context of ‘must carry’ obligations, the pricing issue covers two key issues. Firstly, what overall margin the cable system should be allowed, and secondly which party should pay, keeping in mind that shared payment is entirely possible in fully competitive markets.

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<sup>100</sup> On the other hand, a ‘must offer’ obligation would distort negotiations in relation to content that a cable operator would commercially want to carry and push down the price offered by the cable operator for that content.

## 5.4.1 APPROPRIATE REMUNERATION

The objective of ‘must carry’ obligations is to ensure certain content is made available to subscribers. It is not intended to establish de facto cost-based regulation of the cable network either fully or partially, and, to the extent that it reduces revenues of cable operators it can be expected to create significant distortions (as discussed above), including potentially harming investment. This has been recognised in Germany by application of a different treatment for digital versus analogue cable networks. In particular, the ‘must carry’ rules for digital networks provide operators with significant extra discretion over the choice of programme carried (effectively two thirds of capacity may be freely allocated) and the ability to adjust services to commercial needs with the intention of encouraging investment in digital networks.<sup>101</sup>

To ensure that a cable operator is made no worse off as a result of a ‘must carry’ obligation, remuneration should be based on the ‘opportunity cost’ of meeting the obligation relative to potentially carrying more commercially attractive content. The basis for the opportunity cost approach has been set out in Section 5.3. It is noteworthy that the opportunity cost approach was developed in the US in relation to regulated access designed to ensure “that the public has access to the widest possibly diversity of information sources carried on cable systems”.<sup>102</sup> The FCC explicitly rejected a LRIC approach (i.e. based only on the network costs) as:

“we believe it may result in an unduly low rate that does not adequately capture the value of a channel. Such a rate would not adequately compensate the cable operator and would force cable operators to subsidize leased access programmers, thereby impermissibly affecting the cable system’s operation, financial condition or market development. Similarly, such a rate could impair a cable operator’s ability to compete in the multichannel video distribution marketplace by requiring the operator to bump existing programming in exchange for less than its actual value, which would be inconsistent with the growth and development of cable systems.”<sup>103</sup>

In some cases, ‘must carry’ channels may not be able to earn sufficient revenue to cover their cost of operation. In these cases, the options that are open to public authorities include funding from government (on the grounds that such content is socially desirable), or attempting to fund the service by pushing at least some of the cost directly onto cable subscribers. If this latter route is chosen, it may increase the subscription price, which will tend to reduce the demand for cable services unless consumers actually value the must

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<sup>101</sup> See Ovum and Squire Sanders, *An inventory of EU ‘must-carry’ regulations*, February 2001, p.25-26.

<sup>102</sup> FCC, *Second report and order and second order on reconsideration of the first report and order* (CS Docket No.96-60), 4 February 1999, paragraph 8.

<sup>103</sup> FCC, *Second report and order and second order on reconsideration of the first report and order* (CS Docket No.96-60), 4 February 1999, paragraph 29.



carry content sufficiently to justify the price increase. However, it is important to note that if consumers do not particularly wish to pay for the additional content, and package prices are constrained by competition from other platforms, then this option will simply represent a transfer of the cost to the cable operators themselves. This will reduce cable operators profits, discourage investment, and disadvantage cable operators relative to platforms that are not subject to 'must carry' rules.

In general, it is likely that the public service broadcaster should pay the cable network for the cost of carrying the channel (as would be the case for any other third party transmission system), however, there may well be exceptions.

Given the unavoidable difficulty of identifying the net opportunity cost, including even the party requiring compensation, it will be good regulatory practice to limit the number of channels defined as 'must carry' to the absolute minimum. Remuneration based on opportunity cost would provide the incentive for cable operators to carry such services without the need for a 'must carry' obligation. This will both limit the number of cases to be argued, and reduce the likelihood and/or number of channels actually displaced.

Given these issues and noting that most cable systems are either currently or soon will be subject to competition from competing content platforms, we believe that cable operators should be compensated for the opportunity cost of meeting 'must carry' rules. This is similar to the development of competition in telephony where regulators have recognised the need to provide for the funding of the incumbent TOs' universal service obligations so that they are not financially and competitively disadvantaged by those obligations.

## **5.5 Ancillary broadcasting services**

The Access Directive provides for regulators to require that access be provided to conditional access systems (CASs) on regulated terms and conditions. CASs are used by broadcasters to restrict the delivery of services to only those end-users that are authorised to receive them (e.g. the customers of a cable operator that have paid for the delivery of a premium channel). The Access Directive requires access to be offered on fair, reasonable and non-discriminatory terms.

Access to other ancillary services, such as application programme interfaces (APIs) and electronic programme guides (EPGs), may also be regulated. APIs allow the software of an application to interact with the system software and hardware in an end-user device, in this case the set-top unit (STU) and ultimately the television set. EPGs provide the end-user with information regarding programming content. In the absence of a single standard for APIs and EPGs, cable operators have deployed television set-top boxes using proprietary access methods and standards. Member States have the right to mandate access to the necessary APIs and EPGs if this proves to be necessary to guarantee accessibility. Any



such measure should be assessed in terms of its impact on consumers. This is likely to involve balancing differing effects. For instance, a single standard of interoperability of set-top units would improve the freedom of choice for users (i.e. preventing customers being locked in), it may reduce the platform providers' incentives to subsidise the cost of boxes so that end-customers face higher prices.

The Access Directive (Article 6.3) also provides for regulators to decide that regulated access to ancillary broadcasting services going forward will be limited to only those operators found to have SMP on the relevant market. The Commission notes that the relevant market for consideration of whether there should be regulated access to ancillary broadcasting services is "the market for wholesale ancillary technical broadcasting services across all relevant delivery platforms, unless specific national situations in respect of switching costs and available delivery platforms justify a narrower market definition."<sup>104</sup> Consistent with the overall framework of the NRF if an operator does not have SMP in relation to the supply of ancillary services in the relevant market then there is no basis for regulation of that operator. In particular, where an operator does not have SMP then whether or not access is provided to that operator's particular services will not impact on competition or consumer outcomes.

### 5.5.1 PRICING ACCESS TO SET TOP UNITS

The pricing of access to the set-top box will normally be undertaken within the context of pricing overall access, including broadcast transmission. However, the cost of the set-top box (and indeed the costs of acquiring the customer) will be common to the overall supply of cable TV channels. As with other common costs, pricing should take into account the different demand elasticities of the services so that the cost is recovered in the way that maximises overall consumer welfare (i.e. 'Ramsey-Boiteux' pricing). We note that the report by Eurostrategies for the Commission also recognises the importance of taking into account demand factors or "willingness to pay".<sup>105</sup> A share of revenue approach might be a reasonable proxy for this. However, we note that revenue for TV services can come from a number of sources, including subscriber payments to networks, advertiser revenues to broadcasters and government transfers. Thus, it is likely that determining efficient pricing will involve a detailed consideration of revenue sources on a case-by-case basis. Commercial benchmarks may be appropriate where the channels are comparable.

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<sup>104</sup> Markets Recommendation – Explanatory Memorandum, p.38.

<sup>105</sup> Eurostrategies, *Assessment of the Member States measures aimed at fulfilling certain general interest obligations linked to broadcasting, imposed on providers of electronic communications networks and services in the context of the new regulatory framework*, March 2003, p.18.

