

# **Assessment of the Member States measures aimed at fulfilling certain general interest objectives linked to broadcasting, imposed on providers of electronic communications networks and services in the context of the new regulatory framework**

## **Final Report - Part 1**

by Eurostrategies

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## Executive Summary

The Lisbon European Council in March 2000 set the objective of transforming the EU into a competitive and dynamic knowledge-based economy. Meeting this target requires ongoing efforts to improve the environment in which firms conduct business along with the development of a regulatory climate that is conducive to investment, innovation and entrepreneurship. This means, *inter alia*, creating a level-playing field for companies in all sectors, and especially those operating electronic communications networks and services, as well as fostering healthy competition amongst market operators, irrespective of technology or platform.

The new regulatory framework (NRF) for electronic communications networks and services is a key tool to meet the EU's objective. The objective of the NRF is to define a coherent framework applicable to all transmission infrastructures, irrespective of the types of services they carry (horizontal approach).

At the same time, Member States pursue general interest objectives related to broadcasting, such as universal access for certain programmes, plurality of the media, cultural diversity, freedom of opinion, freedom to receive and disseminate information and ideas, and others. With a view to achieving these objectives, Member States impose certain measures and conditions on market players, including providers of electronic communications networks, services and associated facilities. The present study focuses on the measures imposed on the latter. These are:

- Conditions attached to a general authorisation and to rights of use for radio frequencies,
- Must-carry obligations,
- Obligations requiring access to conditional access services and to associated facilities.

The obligations imposed on providers of electronic communications networks and services and the conditions attached to these obligations may, however, entail costs which vary by operator and by platform. The question which arises therefore is that of the economic impact, in particular the cost, entailed by the conditions attached to the three types of measures under consideration (must-carry, rights of use of radio frequencies and access to CAS). A related question is how one can assess whether the measures implemented by the Member States meet the requirements of the NRF, by being objectively justified, proportionate, transparent and non-discriminatory and, in the case of access to CAS, fair, reasonable and non-discriminatory.

The objectives of this study were, in relation to the NRF, to:

- analyse the implementation of national measures established to fulfil certain general interest objectives linked to broadcasting, concerning conditions attached to a general authorisation and to rights of use for radio frequencies, must-carry obligations and obligations requiring access to conditional access services and to associated facilities;
- describe and assess the economic impact, in particular the cost, of these measures on network operators and related service providers; and,
- recommend a methodology or process that can be used by the European Commission and the Member States to ensure that the measures imposed on electronic communications network and service providers are implemented in a way that is proportionate, transparent and non-discriminatory with respect to the NRF objectives, and in the case of access to CAS, fair, reasonable and non-discriminatory.

## **Implementation of national measures established to fulfil certain general objectives linked to broadcasting**

### ***Authorisations and rights of use of radio frequencies***

At present, authorisation procedures vary across Member States. Depending on the Member State, the authorisation requirements are more or less formalised, and sometimes rely on competitive procedures. Conditions are generally attached to the authorisations for broadcasters and/or networks operators. These conditions relate to the provision of certain content, and to population or territorial coverage.

Member States also typically attach conditions to the rights of use of radio frequencies, possibly in the same authorisation. These conditions refer, inter alia, to coverage and positive programming, or to the exclusive use of the right for a given channel or service. Although other types of conditions are sometimes also imposed, the above two are the most frequent and are the focus of this study.

Today, in most Member States the rights of use of radio frequencies for broadcasting purposes are provided directly to the broadcasters. Fees are set to recover the cost of administrating the licence-issuing organisation, but the spectrum itself is – with a few exceptions - not paid for. Other players, in particular in the telecoms' sector, have however had to pay for this resource. With the convergence of networks and the fact that an increasing number of data services are being delivered across broadcast platforms, there have been claims from within the telecommunications sector that broadcasting should no longer have a special status, and that the spectrum it uses should be treated and licensed on the same terms as telecommunications spectrum.

Whereas some claim that free spectrum usage is justified because broadcasters are subject to an obligation – in particular a positive programming obligation – that telecoms operators do not need to meet, the fact is that these content obligations are not homogeneous across users. In fact, some broadcasters use the radio spectrum without being subject to content or coverage obligations other than content obligation universally applicable, e.g in the framework of the Television without frontier Directive.

Another point is that cable operators, who do not use spectrum, have to had to undertake infrastructure and network investments in order to transport the signals. They therefore argue that award of spectrum without remuneration is a form of discrimination, as cable operators have to pay for the development of the infrastructure to carry the signal whereas terrestrial operators obtain the underlying resource at no cost while making a (lower) investment in coverage infrastructure.



### ***Must-carry***

At present, must-carry rules seek to ensure that certain radio and television broadcast channels and services are made available to users. Currently, with the exception of Italy, Luxembourg and Greece, all Member States impose « must-carry » obligations for the distribution of radio or television broadcasts to the public. Only must-carry obligations which bear on the network operator, in its capacity of network operator, are analysed in the study.

Must offer obligations refer to the obligation on broadcasters to make their programmes available for distribution on all platforms. To this extent, must-offer obligations relate to

content and therefore falls outside the scope of this study. Such obligations are, in fact, not explicitly referenced in the NRF.

The channels which benefit from must-carry obligation are often, but not exclusively, (national or regional) public service channels. Different situations arise:

- In some countries and/or regions, the channels that benefit from must-carry status are explicitly nominated in the must-carry regime;
- In other countries and/or regions, *the types of channels* qualifying for must-carry are defined in the legislation;
- In still other countries and/or regions, media agencies or local programme councils draw up lists of criteria on the basis of which they define which channels ought to be selected and carried in the local area where they exercise their jurisdiction.

The review of Member States' situations shows that the share of total cable capacity used up by must-carry channels varies widely across Member States. It is generally below 50 percent of capacities, although in some countries it can be much higher.

In several countries, cable operators complain that they have little, if any, free choice in deciding on the programmes they wish to offer to subscribers. This may have an impact on their revenue potential. The designation of must-carry for a particular broadcaster indeed reduces the cable operator's scope to negotiate straight commercial deals with that broadcaster. Also, the capacity reserved for must-carry channels cannot be used for other channels or services.

In practice, cable operators receive revenue from various sources. Depending on the country and the operator concerned, payments between the cable operator and the broadcaster flow in one direction or the other. Several situations arise:

1. The cable operator receives payment from the broadcasters to carry the programmes;
2. The cable operator pays the broadcasters for the right to carry their programmes;
3. The cable operator carries some broadcasters' programmes free of charge;
4. Depending on the market power of the different players and the national regulatory provisions, there may be combinations of the above.

The observed payment flow between cable operators and broadcasters is, in fact, a net flow which takes into account the above plus other elements such as copyright and performers rights. An additional complication arises from the eventual separation that needs to be made between the remuneration for the network operation per se provided by the network operator (the "carriage" service) and other services, such as the packaging of TV services, the collection and distribution of subscription revenue and the provision of conditional access services, offered by the cable operators to the broadcasters, which can also be part of the negotiation.

In summary, there is at present no clear-cut situation or general principle in the EU whereby cable operators are remunerated by the broadcasters for the service of carrying their signals. Whereas the principle is accepted that prices between cable operators and broadcasters ought to be negotiated on commercial basis, the existence of must-carry regulations distorts the negotiations with those broadcasters benefiting from an effective or virtual must-carry status.

### **Conditional Access**

Conditional Access Systems (CAS) allow broadcasters to supply services to those viewers who are entitled/authorised to receive these television services. Conditional access services include encryption services, authorisation services, subscriber management services and certain other technical services.

The Access Directive lays down special provisions applicable to the providers of Conditional Access Systems. In this respect, the Directive takes over the specific regime for access to conditional access systems in Directive 95/47/EC<sup>1</sup> on the use of standards for the transmission of television signals. The main provisions of this specific regime are that:

- CAS operators are required to provide services to other broadcasters on “fair, reasonable and non-discriminatory” terms, and to license their intellectual property rights to manufacturers on the same basis.
- Cost-effective transcontrol between CAS providers and other local network operators has to be possible, so that for example cable operators can directly manage CAS services offered to their own customers.

With respect to CAS, the regulatory frameworks in the Member States are also based on the principle that negotiations on access between market players should be undertaken on a commercial basis. The national regulatory frameworks define how access-related disputes between network operators and broadcasting service providers have to be dealt with.

Access to conditional access systems on fair, reasonable and non discriminatory terms, and the interoperability of systems are both important to ensure competition in the broadcasting market.

Because the provisions applicable to the providers of conditional access systems were defined in an earlier Commission Directive (Directive 95/47/EC) and have mainly been folded back into the NRF<sup>2</sup>, the related provisions and obligations have been in force for some time in the EU. To a greater or a lesser extent, the national regulatory frameworks in the Member States thus already take account of the obligations and conditions specified in the NRF, in particular with respect to the interoperability of systems and the granting of access to CAS on fair, reasonable and non-discriminatory (FRND) terms. At present, many EU countries require cost-effective trans-control and separation of accounts for conditional access services. But the definition of conditions of access (and of the price paid for access) to CAS is left to commercial negotiations between the different players involved.

## **Economic impact assessment**



### **Authorisations and rights of use of radio frequencies**

Having described the implementation by the Member States of measures established to fulfil the general interest objectives linked to broadcasting that are imposed on providers of electronic communications networks and services, the next step is to describe *how* the economic impact, in particular the cost, of these measures on network operators and related service providers ought to be assessed.

<sup>1</sup> Directive 95/47/EC of the European Parliament and of the Council of 24 October 1995 on the use of standards for the transmission of television signals (OJ L 281, 23/11/1995, p. 51).

<sup>2</sup> Directive 98/84/EC of 20 November 1998 covers the authorisation of conditional access systems and specifies the provisions regarding the free movement of CAS and the free provision of protected services based on such systems.



A single model or framework to assess all three types of measures is not appropriate since each obligation entails different types of costs and has a different economic impact. For each measure, it is important to describe its economic impact on those operators directly affected by it, taking also into account the indirect impact on other players.

Authorisation procedures per se are not very costly; it is the conditions attached to authorisations which entail costs. Coverage is an obligation to provide broadcast services to some predetermined threshold of population. The threshold is typically measured in terms of the percentage of the population to be covered (99.8 percent), but can also be set as an obligation for coverage to extend to communities with a minimum size of, say, 200 people, with smaller communities being responsible for self-provision or being left without a service.

It is clear that, without a coverage obligation, a broadcaster can limit its coverage to that proportion of the population that can be served on a commercially viable basis. The cost of the obligation can be assessed based on the net avoidable costs' approach, similarly to what has been done to assess the cost of universal service in telecoms. Based on this approach, the cost of the obligation is defined as the difference between the additional cost of providing the total coverage required beyond the commercial threshold, and the advertising revenue that could be generated from the additional population covered. Anecdotal evidence from the UK and Sweden indicates that the cost of meeting the coverage obligation in the EU Member States is around a factor of 3 to 4 times higher than that associated with the provision of a commercially viable coverage only (where commercially viable is defined as the level of coverage at which the advertising revenue achievable from additional customers does not cover the marginal cost of coverage).

Another type of condition typically attached to the authorisations and rights of use of radio frequencies is a positive programming obligation for broadcasters. However, broadcasters mostly receive radio frequencies without payment. Assessing whether the cost supported by the broadcaster is "fair" in comparison to the right to use the frequency is outside the scope of this study. One issue of concern, however, is whether the granting without remuneration of the right to use the frequency to a terrestrial broadcaster is not a form of discrimination against operators on other platforms or in other sectors, such as telecoms.

A debate is currently under way as to whether spectrum used for broadcasting purposes should be paid for, or at least whether the actual value of spectrum used for broadcasting purposes should be revealed in order to provide incentives for market operators to use the resource more effectively.

There is, in fact, a difference between valuation of spectrum, and the pricing of it. Valuation entails determining a notional financial value for a given portion of spectrum. There are many means of achieving this, as indicated below. However, valuation alone is only the first stage in the process and purely acts to clarify what might or could be charged for the use of certain spectrum. Whilst providing transparency, valuation does nothing to encourage action amongst spectrum users. Pricing is the translation of valuation into practicality. The price applied to a piece of spectrum may, however, not be directly equivalent to its value. Spectrum pricing per se therefore does not prejudice different means of paying for spectrum for different market operations, for instance through obligations to provide coverage, services, content, as a means of paying for the licence.

It is generally recognised that spectrum pricing is unlikely to be of benefit (i.e. to lead to improvements in spectrum efficiency) in the following circumstances:

1. There is not, and/or is unlikely to be in the foreseeable future, an excess demand for spectrum;
2. It is not feasible to collect licence fees (for example, because the application is not subject to a license or there are a large number of currently unlicensed users);
3. There is no opportunity for users to change their behaviour except by abandoning their service;
4. There are political or policy factors which get in the way of the application of spectrum pricing.

On the face of it, the application of the above criteria to broadcasting indicates that there does **not** seem to be obvious obstacles to the implementation of spectrum pricing for broadcast spectrum. In fact, the main obstacle lies in the difficulty in assessing the “right price”, i.e. the price at which there will be no competitive distortion.

Given the large amount of spectrum occupied by broadcasting, however, there are fears that the cost to broadcasters of a move towards more market-based pricing for spectrum could lead to a position whereby services become commercially unviable, as they were built on the premise that spectrum was cheap, or indeed free. The debate is ongoing, however.

Different methods have been proposed to value spectrum used in broadcasting. Among these are administrative pricing, auctions, secondary trading and valuation based on the revenue generated by the users from using the resource.

Administrative pricing appears to be an appropriate way of sending the right signals to the market, provided that the “right” price can be revealed. In effect, administrative pricing requires that administrations set prices for spectrum that encourage people to hand back unused, hoarded licences and to make use of more spectrally efficient equipment.

Administrative pricing is undertaken in several ways. The usual method to set prices relies on an assessment of the value of the spectrum to the user, where this value is measured as the maximum cost that the user would be willing to pay before switching onto another platform. One has to keep in mind, however, that there is no economic reason why the price of a public good should be defined in such way as to equalise production costs across different technologies. Using administrative prices calculated in this way, i.e. as the level at which costs are equalised across platforms, may therefore send appropriate signals to markets, but is also a form of “discrimination” against other platforms: indeed, if the price of spectrum is set such that the cost of distributing broadcast programmes through the terrestrial mode remains below or equal to the cost of distributing programmes via, say, cable, this eliminates incentives for terrestrial operators to keep costs down to remain competitive versus cable. Another method as proposed by BIPE in a study for the EU is that of valuation based on **spectrum users’ revenues**<sup>3</sup>... Although the method creates strong incentives for commercial organisations to use spectrum efficiently, (it is indeed, the way in which the Irish regulatory authorities are planning to charge for the use of spectrum for DTT), **it should, however, probably be combined with administrative pricing for public service broadcasters.** Public broadcasters indeed currently use significant swathes of valuable spectrum for a revenue per bandwidth which has no comparison with that of private operators. Hence, spectrum valuation based on spectrum users’ revenues would not provide the right incentives for these users.

<sup>3</sup> Digital Switchover in Broadcasting – A Report by BIPE to the European Commission, Directorate-General Information Society, April 2002.

Auctions are another alternative, but they make it difficult for operators to correctly assess the value of the resource to them. This assessment is indeed particularly difficult in a market that is rapidly changing, both on the demand and on the supply side. In fact, with spectrum demand expected to fall at the end of the simulcast period, spectrum prices need to be evaluated in a long term perspective – which introduces an element of uncertainty. The experience of telecoms, where operators clearly had difficulties in correctly assessing the true underlying value of spectrum to them (in the context of UMTS licenses), sends a clear warning.

To be complete, one should also mention **secondary trading**, whereby licences may be traded between users without the need for further regulatory or administrative intervention. Little use of secondary trading is yet made in Europe but, an increasing number of administrations are investigating the possibility of its introduction.

Additional research is therefore required to first define an appropriate way (in terms of economic efficiency) to value spectrum used for broadcasting purposes, taking into account data availability and objective measures of willingness to pay or revealed preferences, and in a second stage to define how to go from spectrum valuation to spectrum pricing, i.e. what criteria should be taken into consideration to justify the difference between the actual value of spectrum to users, and the price that users would effectively be required to pay for it. Part of the difference would be the cost of general interest obligations imposed on the users, such as content obligations, the measurement of which was outside the scope of this study, and possibly other considerations such as the need to create appropriate conditions to encourage the shift to digital television, without premature switch-off of analogue services.

### **Must-carry**

Must-carry entails an obligation to:

- Reserve a certain bandwidth
- Free of charge, or against a certain remuneration,
- To certain broadcaster(s) (channels).

Article 31 of the Universal Service Directive allows Member States to impose must-carry obligations subject to certain conditions. Member States have also the ability to determine appropriate remuneration provided there is no discrimination and subject to proportionality and transparency.

The study looks at the economic implications of must-carry obligations and proposes some guidelines that could be adopted where a remuneration of the transport service is provided for, to ensure that the level of the remuneration is set in ways that meet the conditions in the NRF (non-discrimination, proportionality and transparency).

Within the EU, the current must-carry obligations mainly bear on cable network operators. Hence, the analysis of must-carry presented below focuses on operators on this platform.

Cable network operators provide a service (remunerated or not) to broadcasters by carrying their programmes through to end-users. The cable operators' revenue potentially comes from two sources: the sale of subscription packages to end users (households) and a payment by the broadcasters for the transport of their programmes. The fee paid by customers covers authors and performers' rights and may also cover at least a part of the cable operator's costs for transporting channels.

Complication arises from the separation that needs to be made between the remuneration for the network operation per se provided by the network operator (carriage service), and other services offered to the broadcasters by the cable-operator which can also be part of the negotiation.

Competition between platforms at end-user (household) level is strong in most EU countries, so that the price that customers are willing to pay for a given service before switching to another platform is limited. In low-cabled countries, cable operators' business plans are predicated on a need to grow their customer base and market share, which supposes setting competitive prices as compared with other delivery platforms. In highly cabled countries, where the operators' market share is already high, the diversity of programmes on offer is already large, so that the advantages of shifting to digital are not seen by consumers to be worth paying a lot more for additional services – at least in the present situation where the offer of value-added interactive services is still only emerging. Cable operators, who have had to undertake important investments to build their networks, upgrade them to permit two-way communications and diversify the range of services offered, can therefore not price their (traditional broadcasting) services to customers on a strict 'cost plus' basis, independently of other market forces. At the same time, in all EU countries, the migration to digital which would have been for cable operators a step in the direction of their becoming full service providers, and which would have made it possible for them to recoup some of the investment by increasing revenue from the sale of high-value services, has been slow. In addition, in some Member States the price for access to the cable network is fixed by public authorities at a (generally quite low) level for general interest purposes.

The fact is, however, that there is a value to broadcasters in being able to access a large client basis by using the services of the network operator. Hence, it appears "logical" that broadcasters would pay at least part of the cable operators' costs in that case, as they benefit from the carriage service.

At present, the fee (if any) paid by a broadcaster to the cable operator for the transport of its programmes is determined through bilateral negotiations between players, except in a few countries where some channels can be carried free of charge. Depending on market forces, and irrespective of the price charged to consumers, the cable operator may choose to negotiate different terms with different broadcasters based on the pricing efficiency principle, i.e. by setting prices based upon users' willingness to pay. The question when it comes to must-carry, however, is that the commercial negotiation between the cable operator and the broadcaster benefiting from must-carry status is biased. The regulator may then have to intervene in order to define the price to be paid, or to set a "reasonable" or "guideline" fee for the transport of the channel(s) considered. The question is, how should the fee be set in the case of the must-carry channels, when the commercial negotiation is distorted?

Our approach is articulated in three phases:

- the first stage consists in identifying *the transport cost of a given (or any) channel on the cable; (What is the cost, and how can it be measured ?)*
- the second stage consists in discussing how this total cost is to be allocated across all beneficiaries of the service, i.e. what is the necessary or recommended structure of financing: whether and how much is to be paid by the end-user, and how much by the broadcasters which benefit from the service? *(Who should pay the cost ?)*
- the third issue is to define whether, within the context of the NRF and under the principles of non-discrimination and proportionality in particular, there is any reason why the remuneration paid by two broadcasters benefiting from a similar service would differ. *(What justification for paying different prices for a similar service ?)*



### **On the first issue : What is the cost of transport ?**

The assessment of the cost involves:

- Describing the cost structure of the cable operator
- Describing its service offering
- Delimiting the area of activity really concerned by this cost assessment

The first thing to do to assess the cost of transport of “any” channel on the network is to define precisely the “borders” of the activity of the operator which are to be “costed” for the purpose of this analysis. As indicated earlier, cable operators carry out an increasingly complex business, whereby in addition to broadcasting services they can provide internet services and phone communications. The services provided by the cable operators, however, do not all rely on the same network elements or service components. For example, the distribution of analogue channels, the packaging of television services and the distribution of digital programmes rely on certain common cost elements not required to provide internet services or telephone services. Yet, part of the costs linked to the transport of signals from digital channels are not necessary to the transport of analogue services but are shared with internet transportation. Another complication arises from the fact that the cable operators implement networks formed as the result of substantial investments spread out over time, which both reflect the need to adjust the capacity of the network to broadcasting needs but also to the particular strategy of the cable operator.

Considering that the bulk of the costs of cable operators are costs linked to the backbone network, an appropriate method to define the total costs associated with the transport of television signals is one which takes into account all common and joint costs necessary to the provision of the television services, and then allocates these appropriately based on the part of the network capacity which is taken up by the service.

Given data availability constraints and given the fact that the strategy pursued by the cable operator with respect to the development of other services than the transport of television signals has influenced its past investment stream in ways that ought not to impact the transport cost of television signals per se, a bottom-up approach based on (re-)building a network of equivalent capacity to that used up by the provision of broadcasting services with currently available technologies, is preferable to assessing total costs based on historical costs.

### **On the second issue : Who should pay the cost of transport ?**

The second point consists in allocating these costs appropriately among the beneficiaries of the service.

Different methods of cost allocation have been proposed by economists. These are generally grouped in four categories:

1. The Fully Distributed Costs method
2. The Efficient Component Pricing Rule (ECPR) method
3. The Ramsey-Boiteux and Laffont-Tirole methods
4. The Long-run (average) incremental costs (LRIC) method

To choose between these methods, one can assess them based on a set of economic principles which should be respected to ensure that the allocation of costs across users and services creates the right incentives to operators and maximises welfare. These principles are that:

- the method would lead to a market equilibrium close to the economic optimum (the economic optimum is attained where the welfare of all actors concerned is maximised);
- the costs considered must be pertinent;
- the outcome should be non-discriminatory;
- the financial equilibrium of the players should be respected.

The selected method to assess the costs of transporting a given channel on the cable must also be simple, transparent and rely on technical, economic and accounting information that are both **measurable** and **pertinent**. The requirements of simplicity and transparency are important to ensure that the outcome is unambiguous, clear and not easily contestable.

Applied to a sector characterised by rapid developments in technology, the method must also be **able to adapt to changes in technologies or in the organisation of the market**.

Clearly, some of these objectives are potentially conflicting. Given the requirements of the NRF and present market conditions in broadcasting, a well balanced situation where it is not possible to meet all criteria simultaneously would be one representing a second best solution. This is equivalent to maximising welfare under constraint.

Each of the four methods listed above has different advantages and disadvantages, hence ranks differently based on the above criteria. Given the objective pursued, the method that should be privileged is one which:

- Leads to increased economic efficiency, i.e.:
  - Provides incentives for players to move towards the economic optimum
  - Does not create discrimination between players
  - Does not create incentives for cross-subsidisation
- Is based on reliable, readily accessible cost information
- Potentially applies to very different situations of market players across the EU.

Of the cost-allocation methods that have been proposed by economists, the Ramsey-Boiteux method has very attractive theoretical properties, and defines a path towards which the methods that are used in practice to allocate costs should converge. The method consists in adding direct (or specific) costs associated with the provision of the service with a share of the common costs which is determined based on the elasticity of demand. The approach thus carries the potential to lead to a price more consistent to that which would be the outcome of a strictly commercial negotiation in the absence of any bias, given that it takes into account willingness to pay and the value of the service to the different players. The remuneration paid by must-carry channels to cable operators in exchange for the service would thus be consistent with that which would be observed in a competitive market, hence be non-discriminatory vis à vis non-must-carry channels.



There are, however, two main reasons why this method should not be recommended in practice. A first major drawback from a technical point of view is that the costs and elasticities that the model relies upon are difficult to measure (hence contestable) due to data availability problems, and vary significantly across operators. Applied to broadcasting, which takes place in a multi-platform environment where technologies and services are rapidly evolving, the elasticities also potentially vary over time, based on technology and market developments (for example, market entry of a new platform operator reducing the “value” or need for a must-carry channel to be transported by cable).

Another major argument against using this method comes directly from the NRF, in that the channels benefiting from must-carry status have been granted this status precisely because the content that they offer is deemed to be in the general interest. Estimating the demand elasticity of must-carry channels would imply getting into content considerations which are outside the scope of this study and of the NRF, and inconsistent with the very principle of must-carry.

Given the above, the Long Run Incremental Costs (LRIC) methods is therefore considered to be the most appropriate, as it does not entail any valuation of content, can take into account technological progress (in the world of cable) and provides incentives for players to move towards the economic optimum by becoming more efficient.

More specifically, the modelling approach that we recommend is the **bottom up** LRIC approach, which involves calculating the costs of “rebuilding” the network based on the latest available technologies, and deducting the LRICs of this virtual network from the economic data input into this model. Taken in a long term perspective, the incremental cost includes all the operating and fixed costs linked to the provision of the service which are calculated as if one was rebuilding the system, hence also includes the fixed costs that do not vary with production. Introducing the time dimension also allows account to be taken of all the equipment and investment which will be implemented over time to satisfy a supplement in demand without degrading the quality of service.

Contrary to a top-down LRIC method, which requires detailed accounting information and the result of which is likely to be very dependent on the particular history and structure of each cable operator, the use of the bottom-up LRIC method is both less operator-specific or history-specific, and less open to criticism. The guideline price that would result from applying this method also creates incentives for the cable operator to upgrade its network and increase its efficiency to meet the most recent efficiency standards.

### **On the third issue : What justification for a different treatment ?**

Having defined how one can assess the cost of transporting a given channel on the cable and how to allocate this cost across channels, given the capacity used up by the transport of this channel, the next questions are:

- Whether one should impose cost-orientation of prices for all must-carry channels, or whether there are objective reasons why the level of remuneration to be paid by the broadcasters to the cable operators could vary based on certain characteristics or features of the broadcaster? And, if the answer to the second question is yes, how should the price to be paid by must-carry channels (if any) be defined?
- Whether regulators ought to set any guidelines for non must-carry channels, given the absence of a unique “business model” for payment flows between broadcasters and cable operators within the EU?

In other words, the third issue is to define whether there is any justification why different broadcasters would pay different prices for similar services. Indeed, does the granting of a must-carry status justify in any way a change in the allocation of costs across users of the services provided by the cable operator? Are there sound economic reasons why the transport of must-carry programmes should not be remunerated similarly to other programmes? What regulatory tools are necessary, if any?

As indicated above, cable operators provide a service to broadcasters by carrying their programmes over their networks through to end-users. To deliver these services, they incur costs (investment and maintenance costs) which can be, at least in theory, offset from two



sources: subscriptions from end-users and a transport fee from broadcasters. Competition between platforms at end-user (household) level is, however, a reality, so that the fee that customers are willing to pay for a given service before switching on to another platform is limited and may not cover all the cable operators' costs, plus a normal profit margin. Furthermore, within the framework of a national policy to protect or promote culture, the national or local language or pluralism, it is justifiable to keep costs low for those to whom this policy is aimed (the end-users). At the same time, there is a value to broadcasters in being able to access a large client basis by using the services of the network operator (in particular, the cable operator), as this has direct implications on broadcasters' revenues, notably through increased advertising income. It is, therefore, economically justified that (all) broadcasters benefiting from the service provided by the cable operator would pay at least part of the cable operators' costs.

Our recommendation for the pricing of transport services by network operators to broadcasters is **to let market forces play**, but to establish the principle that **all channels** ought to pay a fee to the cable-operators for the transport of the programmes. This does not preclude other factors' having a role in the determination of net revenue flows between network operators, possibly even outweighing the payment flow associated with carrying the signal itself. Among these other factors are authors' and performers' rights and the payment of other services provided by one of the players to the other. The level of the transport fee to be paid by broadcasters should thus be determined in the first instance through commercial negotiation.

With respect to the first question above, we explained above why the Ramsey-Boiteux method was not appropriate for must-carry channels, given its complexity, data availability problems and reference to demand elasticities that imply a valuation of content, among other. However, taking into consideration the fact that must-carry channels are a very heterogeneous ensemble of operators who get their revenue from different sources and who draw very different benefits from their status of must-carry, the pricing efficiency principle would call for a pricing system that would take into account in some way the differential benefits posted by the different players from the provision of the service.

A pragmatic way of taking into account these very different intrinsic benefits posted by different must-carry channels in order to reduce distortions between must-carry and non-must-carry channels and protect competition in the market without prejudice of general interest considerations would be to adopt the following approach:

- The remuneration to be paid by must-carry channels to the cable operator in exchange for the provision of the transport service (irrespective of the other factors which also come into the final financial flow between the two players) ought to be set through commercial negotiations first.
- To provide factual information in the negotiation, we recommend the estimation of a guideline price, calculated through the bottom-up LRIC approach as discussed above. This guideline price can be used as a reference point or benchmark during the negotiations between the cable-operator and the broadcaster that benefit from Must-Carry status.
- We, however, also recommend that the regulator makes clear the factors that it will consider acceptable to justify a commercially negotiated price that would differ from the guideline price. The guideline price will thus in effect constitute a "reference" from which market players can diverge in one direction or another, based on market forces and objective factors.





Depending on market conditions, on the types of channels benefiting from must-carry and on technical factors reflecting the extent to which the actual network differs from that which is taken into consideration in the bottom-up LRIC allocation model, commercially negotiated prices could differ from each other and from the guideline price. Differences between the effective remuneration to be paid by the channels benefiting from must-carry and the theoretical cost-based price could be explained by, among other factors:

- Revenue from advertising received by the broadcaster
- Number of viewers, as compared with number of passed homes
- Indirect revenue received from that customer base, possibly based on audience rate or frequency of use
- Price sensitivity of the customer base to that platform (not to the individual channel), which can be higher or lower based on market conditions, such as ease of access to or availability of alternative platforms.

Even if it is only used as a reference, the calculation of such a cost-based price will raise the awareness on the part of the users of the service as to the investment costs that they are responsible for. In other words, the total costs that they generate for the operator (or an approximation thereof) will be revealed. This increase in price transparency will create incentives for all players to become more efficient, hence move the system closer to the economic optimum.

### **Conditional access**

As per the NRF, access to CAS services has to be provided on fair, reasonable and non-discriminatory (FRND) terms..

The question then becomes how should CAS operators charge their services to broadcasters, knowing that the bulk of their own production are common costs. In fact, several price mechanisms can be envisaged that meet the FRND criteria:

- One of these is to charge a price to broadcasters which varies with the number of channels carried in the retail package.
- Another possible price mechanism consists in charging a price which varies with the retail price of the package of channels. This links the cost of conditional access more directly to the value of the channel to the consumer, since the retail price paid by consumers in a competitive market reflects his willingness to pay for the channel or the bouquet of services.
- A third possible pricing mechanism would be not to base the price on the number of channels in the package or the cost of the package, but rather make it a fixed charge per package of channels.

The first of the above pricing mechanisms carries a potential to limit consumer choice by creating a disincentive to add a channel to a package. The third tends to encourage the development of bouquets, but creates a disadvantage to individual channels. Both approaches carry a potential to reduce consumer welfare by limiting consumer choice, although the system privileging bouquets is, from the consumer's point of view, preferable.

The second pricing option is attractive from a consumer welfare point of view, as the price charged to the broadcasters would be set based on willingness to pay by consumers. This option, however, has the drawback that for FTA channels – which still dominate the audiovisual panorama – the system implies no payment by consumers for the CAS. This is equivalent to putting the entire burden of CAS financing onto the Pay-TV channels, which would be discriminatory, or spreading costs among broadcasters through administrative pricing, whereby prices would be set based on the number of customers, for example, where all customers would be “valued” identically.

Given that many operator-specific conditions impact on the cost structure of CAS providers, and that objective, verifiable and auditable information is difficult to obtain and/or verify, the operators are probably the best placed to define the pricing mechanism that best meets their specific conditions. In line with the principle of pricing efficiency, fair and reasonable access charges for conditional access negotiated on a commercial basis should, however, take account of the “willingness to pay” of the access seeker. One would therefore expect to see a close link between willingness to pay for conditional access services and expected retail revenues from selling subscription services.

Furthermore, for reasons similar to those given in the case of must-carry, all broadcasters – i.e. including public service and/or FTA digital broadcasters – should pay a commercial rate for conditional access services, even if this does not necessarily imply that all broadcasters – including FTA broadcasters, should pay the same price

## Assessing the measures within the context of the NRF

The last chapter of the report provides recommendations as to how the EC or the Member States’ regulatory authorities could assess whether the measures are implemented in a way that is proportionate, transparent and non-discriminatory (and, for CAS, fair, reasonable and non-discriminatory).

**The coverage obligation** can be assessed by calculating the cost of providing the total coverage required, over and above that which would be commercially viable. The ‘objectivity’ of the condition within the context of the NRF is justified by the direct link between the condition (coverage) and the general interest pursued (ubiquity of coverage). The requirement that coverage conditions as defined by the Member States be transparent means that the measure must be clearly formulated, in such a way that testing implementation is possible. The two other criteria, proportionality and non discrimination, mean that the coverage obligation as specified by the Member States must be appropriate to achieve the specified general interest objective, limited to the minimum of what is necessary to achieve this objective, and strike a balance between the negative effects for the proper functioning of the single market and the benefits of achieving the ubiquity objective. To the extent that operators are free to choose how the obligation is met technically (by choosing whether to expand their own network or supplementing coverage via another network or from another platform) they can minimise the costs of supplying the service, and the proportionality condition can thus be deemed to be fulfilled.

**The other point concerns the granting of spectrum to broadcasting operators without remuneration.** The fact that spectrum is granted free of charge to the broadcasters is not a condition imposed on providers of electronic network communications and services with a view to ensuring that certain general interest obligations are met.

In terms of economic efficiency, administrative pricing would be an appropriate way of sending the right signals to the market provided that prices were set correctly. Setting the right price,



however, supposes: (1) revealing the underlying value of spectrum to users, *and* (2) being able to assess precisely the “costs” - in particular that associated with the coverage and content obligations - that ought to be taken into consideration as these are indirect ways of paying for the resource. Once assessed, the cost linked to the positive programming and coverage obligations would also have to be allocated correctly to the different users in order to set a price for spectrum for these users equal to the value of spectrum minus these costs (which are a shadow price, or an indirect way for these to pay for spectrum). Another difficulty with administrative pricing is to assess the underlying value of spectrum. An objective way of revealing this value would be to assess the maximum cost that each operator would be willing to pay before switching onto another platform. This approach, however, is not appropriate in economic terms. Indeed, there is no economic reason why the price of a public good should be defined in such way as to equalise production costs across different technologies. Using administrative pricing in this way therefore may send appropriate signals to markets, but the level of price chosen is a form of “discrimination” against other platforms: indeed, if the price of spectrum is set such that the cost of distributing broadcast programmes through the terrestrial mode remains lower than, say, via cable, this eliminates incentives for terrestrial operators to keep costs down to remain competitive versus cable.

**The debate on the methodology to be preferred and the effective value of spectrum is ongoing.** There are fears that inappropriate pricing in the present (difficult) market circumstances would have dramatic economic implications for operators whose business model has been constructed on a basis of ‘free’ spectrum. With respect to the criteria against which the conditions attached to the rights of use of radio frequencies are to be assessed as per the NRF, one can say that, as long as frequencies are granted on the basis of clearly defined procedures, with precise selection criteria in the case of beauty contests, and as long as there are no restrictions to the types of operators which can compete for these frequencies, then the conditions of transparency and objectivity with respect to the underlying general interest objective can be deemed to be met. Proportionality vis-à-vis operators of other platforms would, however, not be guaranteed.

**On must-carry,** the NRF states that Member States may impose reasonable must-carry obligation only where this is necessary to meet clearly defined general interest objectives. They have to be proportionate, transparent, and subject to periodical review. Where remuneration is provided for, Member States shall ensure that it is applied in a proportionate and transparent manner.

Letting market prices be set through commercial negotiations between market players meets the criteria set forth in the NRF. Indeed, commercial negotiations are best able to lead to a result which meets the preferences of the two players in the negotiation, and maximises the number of viewers since this is in both players’ interest. Nevertheless, commercial negotiations alone are unlikely to lead to a market efficient price in the case of must-carry channels since the existence of must-carry obligations may distort negotiations between the cable-operator and the broadcaster that benefits from must-carry status. Calculating a reference (or guideline) cost-based price and clearly stating the factors that would be deemed acceptable to the regulator to explain differences between effective market prices and the cost-based price would then allow regulators to verify that the prices that the market arrives at in this latter situation are indeed non-discriminatory, transparent and proportionate.

With respect to the must-carry measures themselves and the way they are specified in the Member States’ legislation, the NRF states that these should be reasonable, clearly defined and in conformity with Community law. Clearly defined means that Member States’ legislation must indicate clearly the criteria used to specify the relevant channels and services which come under the must-carry obligation. Relevant case law of the European Court of Justice has made

clear that economic considerations would not be considered as general interest objectives which could justify exceptions to the freedom to provide services<sup>4</sup>. On the contrary objectives like for instance pluralism, linguistic or cultural diversity have been accepted by the European Court of Justice<sup>5</sup>. The measures must also directly relate to the general interest objectives which it claims to protect and promote and not go beyond what is strictly necessary to achieve those objectives.

Reasonable means that the criteria for defining channels that benefit from must-carry status will be non-discriminatory in terms of nationality or other. In conformity with Community law means that the measure should not provide the channels which are granted must-carry status with an undue level of protection, for example by providing them a greater degree of certainty with respect to revenue flows than is the case for their competitors.

**Finally, concerning CAS**, on the technical aspects of concern to network operators, discussions in the Member States have led to a consensus that operators ought to have the freedom to adopt the technological solution that makes most sense to them in the light of market conditions.

The FRND requirement, however, also implies that the price to be paid by broadcasters for access to CAS, if any, should be fair, reasonable and non-discriminatory. This is deemed to be a price such that following conditions would be met:

- ✓ The overall pricing framework should reflect prices that would prevail in a competitive market;
- ✓ Prices for particular categories of services (or groups of services) should fall between the incremental cost of providing that service (or group of services) and the stand-alone cost of providing the service (or groups of services) on its own;
- ✓ Comparable service providers are charged comparable prices for comparable services purchased at broadly similar times of negotiation for access; (this is the principle of non-discrimination);
- ✓ Vertically integrated CAS suppliers must not offer services in a way which restricts downstream competition. In particular, they must not supply to their own downstream businesses on terms which are more favourable than those offered to third parties (again, this refers to the non-discrimination principle);
- ✓ The terms of supply of CAS should be consistent with the achievement of public policy objectives relating to universal access to public services and other general interest obligations; and,
- ✓ The terms of supply of conditional access services should maximise benefit to consumers in the long term, in particular by not creating unjustified barriers to entry of competitors.



We recommend that all broadcasters – i.e. including public service and/or FTA digital broadcasters should pay a commercial rate for conditional access services. This rate should be set through commercial negotiations between the different players. We believe that there is **no need for ex ante pricing, hence no need to develop a detailed modelling framework to analyse the FRND condition for prices.**

<sup>4</sup> See for instance the judgement of the Court in Case C-211/91, Commission v. Belgium, ECR I, 6757

<sup>5</sup> See for instance the judgement of the Court in Case C-288/89, Mediawet

The discussion related to the pricing of CAS applies, mutatis mutandis, to access conditions to associated facilities such as APIs. Hence, should NRAs decide to extend the FRND regime to associated facilities, this could be done by extending the regime defined for CAS.

## 1 Introduction

This report presents the results of research conducted to assess the economic impact of Member States' measures to meet certain general interest objectives linked to broadcasting, that are imposed on providers of electronic communications networks and services. The principal measures that fall under the scope of the present study are the conditions attached to a general authorisation and to rights of use for radio frequencies, must-carry obligations and obligations requiring access to conditional access systems (CAS) and to associated facilities.

Chapter 2 presents the background and objectives of the study.

Chapter 3 presents an overview of the measures that can be imposed by Member States on providers of electronic communications networks and services within the context of the new regulatory framework (NRF) for electronic communications and services (a package of measures published in the Official Journal on April 24, 2002). With the NRF as its point of reference, Chapter 3 then presents an overview of the measures relating to must-carry, rights of use of radio frequencies and access to CAS that are currently in place in the Member States.

Chapter 4 describes the organisation of broadcasting markets in the different Member States and the interactions between operators at different levels. Assessing the economic impact of the measures and conditions attached to the obligations under review requires defining a model or process whereby the consequences of these measures on the activities of the various players can be determined. The telecommunications sector offers a precedent. Liberalisation in the telecommunications sector has indeed had a positive impact on the availability, quality and price of services of general interest. A balance has been achieved between universal service obligations and permanent market opening, while encouraging operators to adopt a dynamic approach to universal service. In addition to the minimum service requirements, competition has encouraged undertakings to propose innovative pricing and contractual conditions which have improved the basic services offered to consumers all over the Community.

Bearing this in mind, Chapter 4 draws a parallel between the organisation of the telecoms sector and that of broadcasting, and reviews various approaches which have been adopted in the telecoms sector in order to assess the impact, or measure the costs, of certain general interest obligations.

In Chapter 5, we discuss the economic effects of the measures considered in this study. The chapter proposes different methodological frameworks that can be used to assess the economic impacts, in particular the costs, of the measures considered in this study and suggest ways in which the implementation of these measures by the Member States could be assessed, given the actors concerned, their business model and the type of information technically available.

Chapter 6 summarises this analysis and describes processes which the European Commission and the Member states could adopt to assess whether the measures imposed on electronic communications network and service providers are implemented in a way that is proportionate, transparent and non-discriminatory with respect to the NRF objectives.

Part II of this report presents the country reports for selected EU members, based on meetings held by members of the study team with regulatory authorities and market operators in these countries.



## 2 Background and objectives of the study

### 2.1 Background

The Lisbon European Council in March 2000 set the objective of transforming the EU into a competitive and dynamic knowledge-based economy. Meeting this target requires ongoing efforts to improve the environment in which firms conduct business and the development of a regulatory climate that is conducive to investment, innovation and entrepreneurship. This requires, *inter alia*, creating a level-playing field for companies in all sectors, and especially those operating electronic communications networks and services, as well as fostering healthy competition amongst market operators, irrespective of technology or platform.

The new regulatory framework (NRF) for electronic communications networks and services is a key tool to meet the EU's objective. The legal texts of the NRF were published in the Official Journal of the European Communities on April 24, 2002. They consist of a Decision by the European Parliament and the Council with respect to Radio Spectrum (Decision No 676/2002/EC), along with four Directives adopted by the European Parliament and the Council on March 7, 2002: the Access Directive (Directive 2002/19/EC), the Authorisation Directive (Directive 2002/20/EC), the Framework Directive (Directive 2002/21/EC) and the Universal Service Directive (Directive 2002/22/EC).

The objective of the NRF is to define a coherent framework applicable to all transmission infrastructures, irrespective of the types of services they carry (horizontal approach). The new framework therefore covers all electronic communications networks, associated facilities and electronic communications services, including those used to carry broadcasting content such as cable, terrestrial and satellite broadcasting networks. Content issues are, however, excluded from the framework.

Within the context of the NRF, Member States can pursue general interest objectives related to broadcasting, such as universal access for certain programmes, plurality of the media, cultural diversity, freedom of opinion, freedom to receive and disseminate information and ideas, and others. With a view to achieving these objectives, Member States can impose certain measures and conditions on providers on electronic communications networks and services. Some of these relate to their activity as network operator or service provider. These are:

- Conditions attached to a general authorisation and to rights of use for radio frequencies,
- Must-carry obligations,
- Obligations requiring access to conditional access services and to associated facilities.

These obligations and conditions are the subject of this study.

Other measures and conditions can be imposed on providers on electronic communications networks and services, which relate to their activity of content providers. For example, an undertaking providing electronic communications networks or services that also provides broadcast content may be subject to conditions attached to the authorisation stemming from national or European broadcasting legislation (e.g. the “*Television without Frontiers*” Directive 89/552/EC). These latter conditions, attached to the provision of broadcast content, do not fall within the scope of this study.

The obligations imposed on providers of electronic communications networks and services and the conditions attached to these obligations may entail costs which vary by operator and by platform. For example, conditions attached to the rights of use of radio frequencies entail costs for broadcasters distributing their programmes through terrestrial means. Must-carry obligations apply to cable operators but not, generally speaking, to satellite networks nor to terrestrial operators. The new framework also requires access to CAS systems for all broadcasters seeking to distribute their programmes via digital means.

Operators on different platforms or using different technologies are thus not subject to the same types of costs. Moreover, the conditions attached to the rights of use of radio frequencies, the must-carry obligation and the conditions of access to CAS are often operator-specific. Nor should it be forgotten that, while supporting some costs linked to the conditions attached to the rights of use of radio frequencies, terrestrial operators receive frequencies free-of-charge. Telecommunications operators, who would potentially be interested in using the same frequencies, have had to pay a (sometimes high) price for the radio frequencies allocated to them..

The question which arises therefore is that of the economic impact, in particular the cost, entailed by the conditions attached to the measures under consideration (must-carry, rights of use of radio frequencies and access to CAS). A related question is how can one assess whether the measures implemented by the Member States meet the requirements of the NRF, by being objectively justified, proportionate, transparent and non-discriminatory and, in the case of access to CAS, fair, reasonable and non-discriminatory?

## 2.2 Objectives of the study

The objectives of this study are, in relation to the NRF, to:

- analyse the implementation of national measures established to fulfil certain general interest objectives linked to broadcasting, concerning conditions attached to a general authorisation and to rights of use for radio frequencies, must-carry obligations and obligations requiring access to conditional access services and to associated facilities;
- describe and assess the economic impact, in particular the cost, of these measures on network operators and related service providers; and,
- recommend a methodology or process that can be used by the European Commission and the Member States to ensure that the measures imposed on electronic communications network and service providers are implemented in a way that is proportionate, transparent and non-discriminatory with respect to the NRF objectives, and in the case of access to CAS, fair, reasonable and non-discriminatory.





### 3 Overview of Member States measures within the context of the NRF

This chapter reviews the implementation by the Member States of measures aimed at fulfilling certain general interest objectives referred to in the previous chapters of this study. For each type of measure considered, a brief introduction is provided to recall the main provisions – and to place these measures within the context - of the NRF.

The chapter is primarily descriptive. Additional detail on the implementation by Member States of measures to meet these general interest objectives linked to broadcasting is provided in the country reports in Part II. The following overview of the measures currently imposed in EU countries, however, illustrates the variety of situations that exist and therefore serves as essential background to the definition of an appropriate framework to assess the costs of these measures, as will be done in chapter 5.

#### 3.1 Authorisation procedures

##### 3.1.1 Authorisation procedure in the NRF

The Authorisation Directive underpins a single European market for electronic communications services and networks by harmonising the rules for authorising the provision of such services and networks.

Whereas the networks and services used for the transmission of radio and television broadcast content, such as satellite broadcasting networks, terrestrial broadcasting networks or cable television networks, are subject to the general authorisation regime provided in the Authorisation Directive, the authorisation procedures for the provision of *broadcast content* to the public lie outside the scope of the new framework.

One implication is that the provision of electronic communications networks<sup>6</sup> or services can no longer be subject to an individual licence (Article 3(2) of the Authorisation Directive). Where an individual licence currently includes *both* an authorisation to provide an electronic communications network or service *and* an authorisation to provide broadcast content to the public, the former authorisation needs to be separated from the individual licence. For terrestrial broadcasting, this implies that the rights and obligations relating to the provision of a network or service must therefore be included in the general authorisation and not in the individual rights of use of radio frequencies (Article 6(4) of the Authorisation Directive).

Member States can attach conditions to the general authorisation for the provision of electronic communications networks or services in order to achieve general interest objectives. Some of these conditions are directly related to the provision of electronic networks and services, and are covered in the Authorisation Directive. Other conditions that can be imposed relate to broadcast content and stem from national or European legislation (e.g. the *Television Without Frontiers* Directive). The conditions which relate to broadcast content are outside the scope of this study.

The exhaustive list of conditions that can be imposed on providers of electronic communications and services within the context of the Authorisation Directive is provided in

<sup>6</sup> The provision of electronic communications networks is defined in Article 2(m) of the Framework Directive as “the establishment, operation, control or making available of such a network”.



Part A of the Annex to the Directive. These include, *inter alia*, interoperability of services and networks interconnection; must-carry obligations; environmental, town and country planning requirements; requirements and conditions linked to the granting of access to, or use of, public or private land; conditions linked to co-location and facility sharing; terms of use during major disasters to ensure communications between emergency services and authorities and broadcasts to the general public; measures regarding the limitation of exposure of the general public to electromagnetic fields caused by electronic communications networks in accordance with Community law; access obligations; and, maintenance of the integrity of public communications networks.

### 3.1.2 Authorisation procedures in the Member States at present

At present, authorisation procedures vary across Member States. Depending on the country, authorisations may be granted at different administrative levels (federal, regional or state level), and apply to different types of users.

The box below provides examples of how the system works in various EU Member States.

Authorisations are generally granted to four types of operators:

- Cable network operators
- Satellite network operators
- Terrestrial network operators
- Broadcasters

In some cases, the operators do not need to go through an explicit authorisation procedure, but are only required to submit a “declaration” to the regulator which provides the latter with information on their business operations and technical means.

The authorisation requirements are therefore more or less formalised depending on the country and/or type of operator, and sometimes entail competitive procedures. Conditions are generally attached to the authorisations. For broadcasters, these typically relate to the provision of certain content, and to population or territorial coverage. For network operators, the obligations typically relate to coverage and to the types of programmes to be carried over the networks.

In most Member States, we find that the authorisation to operate the network is often NOT separated from the authorisation to provide certain broadcast content to the public. The two will thus have to be separated in upcoming reviews of the national regulatory framework in order to ensure compatibility with the provisions of the NRF.



For terrestrial broadcasting, the NRF states that the rights and obligations relating to the provision of a network or service must be included in the general authorisation and not in the individual rights of use of radio frequencies (Article 6(4) of the Authorisation Directive).

In practice, one finds that, for terrestrial operators, the authorisation to broadcast is not always separated from the right to use the frequency. Even where this is so, the two often remain closely associated, as illustrated by the example of broadcasters seeking local licences in the UK: in a first stage, the applicants have to register their interest for a licence for local television services in a given locality. The *Independent Television Commission* (ITC) then proposes a frequency assignment to the *Television Planning Group* (TPG) in that locality. If an assignment is available, a broadcasting licence is awarded to the applicant subject to the provision of a Wireless Telegraphy (WT) Act licence issued by the *Radiocommunications Agency* (RA).

Another example of the complex linkages between the attribution of licences to broadcasters and the assignment of frequencies is that of Channel 5, described in the box below. The example of Channel 5 illustrates that the conditions attached to the use of radio frequencies are sometimes effectively attached to the authorisation to broadcast as opposed to directly linked with the right of use of the frequency.

Must-carry, dealt with later in this chapter, is typically one of the conditions attached to the authorisation for cable operators. Other conditions attached to the authorisation for network operators are coverage obligations, for example obligations to make the service available to at least 98 percent of the population, or to cover at least that population which is already covered by one of the other networks (as in the UK and Sweden, see the box below).

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## Box 1

### Authorisation procedures in selected Member States

#### *France*

*In France, the operation of cable operators is authorised by the Conseil Supérieur de l'Audiovisuel (CSA – the French media authority) upon proposal from the communal authorities upon which territory the cable network is established. The authorisation is granted for a period of 30 years and “may contain obligations”. These are must-carry and certain content requirements<sup>7</sup>. There is thus a ‘single’ authorisation for cable network operators in France which is granted subject to certain content requirements, under recommendation from the communal authorities. The single authorisation does not separate “networks” from “content” provisions.*

*For satellite operators, there is no formal authorisation procedure but a requirement to declare their services to the CSA. The declaration must include, inter alia, the composition and structure of the satellite operator's offer. Any change to the service portfolio has to be notified to, and approved by, the CSA.*

*Broadcasters are also subject to a specific authorisation, granted at national level by the regulator (Loi n° 86-1067 du 30 septembre 1986 relative à la liberté de communication modifiée et complétée).*

#### *Germany*

*In Germany, broadcasting, considered to be a cultural activity, is regulated at the level of the Länder (or regions). The main instrument is the Interstate Treaty on Broadcasting, the Rundfunkstaatsvertrag, which defines the general framework for all Länder. Then, each Land has its own Rundfunkgesetz, or broadcasting law, and its Landesmedienanstalt, or media agency. These agencies coordinate their actions through a Conference of their Directors. Authorisations to broadcast are granted by the broadcaster's state media authority. Once the authorisation is granted, the broadcaster applies to the federal authorities for the transmission licences and frequency allocation. The “cost” of the authorisation procedure is aimed at covering the cost of running the authorisation system, and is not considered to be excessive by broadcasters.*



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<sup>7</sup> There is an obligation to retransmit the services which are broadcast via terrestrial means and normally received in the area concerned, and to retransmit the international service which has been the object of a convention pursuant to Article 33-1 of the Law and which is part of the external audio-visual action of France, the influence of French-speaking communities and French language, and in which at least one of the public channels takes part. Moreover, there are conditions on the composition and the structure of the services offered, and notably the proportions of the channels in the French languages which are independent from the service distributors.

**The Netherlands**

*In the Netherlands, cable broadcasting (which accounts for more than 98% of the broadcasting market) is regulated by a series of laws and bodies, some of whose responsibilities overlap. These include the Mediawet (Media Law) and the Commissariaat voor de Media (Media Commission) as well as the Telecommunicatiewet (Law on Telecommunications) and OPTA (the telecoms regulator). The Nederlandse Mededingingsautoriteit (the Competition Authority) also plays a role. Section 82 of the Dutch Media Law<sup>8</sup> sets out the requirements imposed on operators of cable networks. These include must-carry provisions which define the core of what cable operators can offer to the public (see Part II for more on this).*

**United Kingdom**

*In the UK, television broadcasting licences are awarded under the auspices of the 1990 and 1996 Broadcasting Acts. The Independent Television Commission (ITC) is responsible for licensing all television broadcast services that emanate from the UK including satellite, cable and terrestrial channels other than BBC licence fee services and S4C. Where competitive processes are required in order to assign a licence (for example for a national analogue or digital terrestrial service), the ITC is responsible for holding the competition. For non-competitive programme services (such as satellite channels), any applicant can submit an application directly to the ITC for approval. There are currently around 600 licensed television services operating in the UK.*

*The ITC is also responsible for issuing licenses for cable networks (which were originally awarded through a competitive process). As indicated in the UK country report, the government has recently proposed bringing a number of regulatory bodies together into one 'super-regulator', which will be known as OFCOM (the Office of Communications). Although this will not in itself impact the licensing regime in the first instance, it may be expected that closer working between the relevant parties may bring about future changes in how the UK broadcast regulations are structured. In any event, and subject to the passing of the Communications Bill, the process of allocating spectrum to television broadcasting, and between the BBC and independent services, will be determined by OFCOM subject to the Government using its powers of direction.*

*The licence for use of frequencies is separate from the entitlement to broadcast, however as with many other countries the two are intimately linked. Whilst no coverage roll-out obligations exist as such, the licensee must maintain the coverage as currently provided by existing stations.*

*A recent example of the way in which the two licences interplay is the case of Channel 5. The Broadcasting Act 1990 required the ITC to make provision for the service making the most effective use of the frequencies provided (and the Government made available channels 35 and 37 which were then used for linking TVs by cable to video recorders.) The ITC made proposals to the TPG for assignments using these channels (and other frequencies) albeit without being able to match coverage of the other 4 analogue services. Following TPG agreement, the ITC packaged the use of these frequencies together with other (content) requirements and offered the licence to broadcast to potential bidders subject to gaining international co-ordination of the frequency plan. Channel 5 succeeded in winning the licence which enabled it to use the frequency blueprint agreed by the TPG subject to the provision of a licence under the 1949 Wireless Telegraphy (WT) Act. However, the WT Act licence is issued by the RA and is awarded to the broadcaster or, at the broadcaster's discretion, a person contracted by the broadcaster to provide transmission facilities. In the case of Channel 5, this was ntl who thus takes responsibility for abiding by the terms of the WT Act licence, including payment of fees. It is worth noting that Channel 5 do not have coverage obligations relating to the use of their frequencies.*

**Sweden**

*In Sweden, it is the Swedish Radio and TV Authority (Radio och TV verket - RTVV) which is responsible for setting the licence conditions for broadcast services. This is done*

<sup>8</sup> The Media Law dates from 1987 but has been amended many times, most recently in December 2000.

*through the Radio and Television act of 1996 (1996:844). The act sets out the regulators' obligations in ensuring a fair licensing regime as well as outlining the conditions for licences given for each of the services (including broadcast television and radio, and re-transmission by cable) that it regulates.*

*The 1996 act also stipulates the conditions under which a cable service must operate including different rules for services provided to 10-100 households and services provided to 100 households or more. No licence is required in order to operate a cable network.*

*Broadcasting licences issued by the government may be subject to obligations including:*

- *Broadcasting the programme throughout Sweden or to a certain part of the country;*
- *Utilising certain radio transmitters;*
- *Designing the transmissions in a manner which ensures reception is not confined to a limited section of the general public in the transmission area.*

*The way in which licences are awarded effectively imposes these (and other content related) obligations on the use of the frequencies. However, the way in which the licences are issued attempts to separate the two. Frequencies are first identified as being free, then are offered for use. Hence the licence to broadcast implicitly incorporates the use of a radio frequency. Although the two licences are issued separately, it is clear that one is of little use without the other.*

*As an example of the first condition, the three government licensed television channels (SVT1 and 2 and TV4) are all obliged to reach 99.8 percent of the population. SVT1 and 2 must do this by terrestrial means, whereas TV4 need only provide for 98 percent terrestrial coverage and is allowed to complete coverage using other mechanisms and in practice provides its service to the remaining population by satellite.*

In summary, most Member States do not seem to make a clear distinction between the authorisation to use the network and the authorisation to distribute certain content. In many cases the 'authorisation' is implicit rather than explicit. Where there is an explicit authorisation procedure to be followed, this procedure per se does not seem to be particularly costly. The conditions attached to it entail costs, however, which will be dealt with in Chapter 5.

## 3.2 Rights of use of radio frequencies

### 3.2.1 Rights of use of radio frequencies in the NRF

The Framework Directive and the Authorisation Directive set out the regime for the use of radio frequencies for electronic communications networks and services, including for broadcasting purposes.

As a general rule, the allocation and assignment of radio frequencies must be based on objective, transparent, non-discriminatory and proportionate criteria (Article 9(1) of the Framework Directive).

The Authorisation Directive gives more details as regards the assignment procedures and criteria: the granting of individual "rights of use" of radio frequencies must be done according to "open, non-discriminatory and transparent procedures", "without prejudice to specific criteria and procedures adopted by Member States to grant rights of use of radio frequencies to providers of radio or television broadcast content services with a view to pursuing general interest objectives in conformity with Community law (...)" (Article 5(2) of the Authorisation Directive).





While rights of use would generally be granted to providers of electronic communications networks or services, they can also be granted to broadcasters not themselves operating electronic communications networks or electronic communications services. In particular, Member States may grant directly to broadcasters, in charge of a public service remit, the rights of use of radio frequencies necessary to achieve such a remit. Recital (12) of the Authorisation Directive clarifies this: “This directive does not prejudice whether radio frequencies are assigned directly to providers of electronic communication networks or services or to entities that use these networks or services. Such entities may be radio or television broadcast content providers (...) The responsibility for compliance with the conditions attached to the rights to use a radio frequency and the relevant conditions attached to the general authorisation should in any case lie with the undertaking to whom the right of use for the radio frequency has been granted”.

When the granting of the rights of use for radio frequencies needs to be limited, Member States must grant such rights on the basis of selection criteria which are objective, transparent, non-discriminatory and proportionate (Article 7(3) of the Authorisation Directive).

Member States also have the possibility of **attaching conditions** to the rights of use of radio frequencies. These conditions must be objectively justified in relation to the service concerned, non-discriminatory and transparent (Article 6(1) of the Authorisation Directive). An exhaustive list of these conditions is provided in Part B of the Annex of the Directive. These conditions include in particular: “designation of service or type of network or technology for which the rights of use for the frequency have been granted, including, where applicable, the exclusive use of a frequency for the transmission of specific content or specific audiovisual services”.

### 3.2.2 Rights of use of radio frequencies in the Member States at present

Spectrum allocation takes place at an international level, through a process of negotiation through organisations such as CEPT and ITU. These allocations set the framework within which individual assignments can be made, and limit the flexibility of national administrations to use spectrum for any purpose (for example, broadcasting can only occupy frequencies allocated to broadcasting).

Today, in most Member States the rights of use of radio frequencies for broadcasting purposes are provided directly to the broadcasters. Traditionally, spectrum licences are granted on a first come first served basis, so long as channels are available. Fees are set to recover the cost of administrating the licence-issuing organisation, but the spectrum itself is – with a few exceptions<sup>9</sup> - not paid for. We will, therefore, refer to it in what follows as being ‘free of charge’ or without remuneration<sup>10</sup>. Conditions are, however, often attached to the right of use of the radio frequency, which entail costs. These generally consist of, or are equivalent to, “the exclusive use of a frequency for the transmission of specific content or specific audiovisual services”. In some cases, there are also coverage requirements. In most Member States’ legislation, however, there is no reference to explicit criteria defining when the conditions attached to the rights of use are considered to be “objectively justified in relation to the service concerned, non-discriminatory and transparent”.

In principle, licences can be revoked by administrations to allow for other uses of spectrum but in practice they rarely are. Long notice periods of licence revocation are the norm.

<sup>9</sup> Spain is one of the first countries to have introduced payments for the frequencies used by digital broadcasters.

<sup>10</sup> As indicated above, in broadcasting conditions are typically attached to the rights to use of radio frequencies, notably positive programming obligations, which entail costs. This cost is viewed by some as a “shadow price” for the frequency.

Below, the key features of the national regulatory environments with respect to the allocation of radio frequencies for broadcasting are described.

In France, where terrestrial broadcasting still accounts for two thirds of the market for broadcasting, it is the Agence Nationale des Fréquences (the National Frequencies Agency, ANFR) which allocates spectrum bands at national level to the different sub-allocators: the Ministry of Defence, the police, the Autorité de Régulation des Télécommunications (ART - for telecommunications) and the Conseil Supérieur de l'Audiovisuel (CSA - for broadcasting).

Rights to use the frequencies are allocated to the broadcasters by the CSA, without remuneration. The counterpart to the use of the public domain lies in production and positive programming obligations. The treatment differs for public and private broadcasters. For FM radios and private television companies, the CSA issues licences for terrestrial broadcasting through “beauty contests”. For television channels, the list of frequencies available is published at the same time as the offer of licences, and a public presentation is mandatory. A procedure is currently underway for DTT, which was due to be completed before the end of 2002. The licences have a maximum duration of ten years. They can be renewed once for five years by the CSA, without new bidding. The licences are issued subject to the signing of an agreement between the CSA and the licensed operator. For public television stations, the allocation of frequencies is decided by the CSA independently of the bidding for licences. The Law gives public broadcasters priority access to terrestrial frequency resources when extra frequencies are necessary to accomplish their public service mission.

In Germany, terrestrial broadcasting accounts for a declining share of the market, with fewer than 10 percent of households presently receiving their programmes over-the-air. It is the Federal telecommunications regulator (RegTP) which is responsible for transmission licences and frequency allocation for broadcasters. These licences are granted and the frequencies are assigned once the broadcaster has obtained an authorisation from its regional state media authority. In some parts of Germany, there are now no available frequencies for additional terrestrial broadcasters. Public broadcasters ARD and ZDF have an obligation to cover the whole federal territory.

In the Netherlands, where cable dominates the market, frequency allocation for terrestrial broadcasters and other service providers is granted by the Ministry of Transport and Water Management, on the basis of the authorisation to broadcast granted to the applicant by the Media Commissioner via the Ministry of Education, Culture and Science.

In Sweden, the use of radio spectrum for broadcast purposes is regulated by the National Post and Telecom Agency (Post- och Telestyrelsen, PTS). The PTS (at the request of the RTVV or the government) identifies frequencies for use for a particular service within international frequency plans. The RTVV or the government then conducts a process to award the use of that frequency. The licence is issued by the RTVV or government for the service and by PTS for the use of the radio spectrum. For national radio and television services, the licence is awarded directly by the government. For local or regional services, the RTVV is responsible.

In Sweden, a coverage condition is attached to the authorisation, as the radio frequency licences granted to the public service broadcaster and to the commercial broadcaster, TV4 require them to reach 99.8 percent of the population. TV4 (the commercial broadcaster) is, however, allowed to complete coverage (beyond 98 percent) with mechanisms other than terrestrial, which it currently meets by satellite. Withdrawal of that satellite service would constitute an infringement of its licence conditions.



In the UK, there is also a coverage obligation attached to the licences given to the public service broadcasters, which is to provide coverage to 99.8 percent of the population (or maintain a service from those sites already in use). This obligation, however, only applies to the analogue public service broadcasters. Channel 5 for example only needs to provide service to those areas where it is commercially viable to do so<sup>11</sup>. With coverage now at 99.8 percent of the population, this obligation is deemed to have been met and no further coverage expansion (other than self-help schemes whereby a pocket of viewers fund their own relay station and sites required to fill-in coverage black-spots generated by new buildings) is expected.

In Spain, as in Italy, spectrum presently used by analogue terrestrial broadcasters has not been assigned through a structured procedure, but rather on a first come, first served basis as the market developed. As a result, the frequencies currently used by terrestrial analogue broadcasters were neither paid for, nor are there explicit conditions (programming, coverage or other) attached to their use. With the development of digital television, there is in both countries a desire to allocate the frequencies to be used for digital terrestrial television (DTT) in a much more structured way, in order to bring some clarity back into the market. The hope is that at the end of the transition period (once analogue switch-off has taken place) all frequencies used by terrestrial operators will have been assigned on a structured basis. The approach followed in the two countries, however, differs.

Spain is in fact one of the five EU countries in which (commercial) operators have had to pay for radio spectrum: national digital licenses were granted to the broadcasters by the State Government via two calls for tender in September 1999 (Quiero TV: Pay TV-three multiplexes and a half) and in November 2000 (Net TV y Veo TV: Free-To-Air-a quarter of multiplex each one). Regional digital licenses are granted to the broadcasters by the Regional Government, also via calls for tender. To date, there are two solved beauty contests and two granted licenses in each one of two Regions (Madrid: Onda Seis y Quiero TV; La Rioja: Rioja TV y Cope TV). Coverage obligations are attached to the digital licence, which provide for:

- 50% of coverage before June 1999 (national operators) and October 1999 (regional operators)
- 80% of coverage before June 2000
- 95% before 2012

In Italy, in contrast, the situation remains very complex as market forces are being left at play during the transition period from analogue to digital. As in Spain, frequencies used by terrestrial operators were originally not allocated through formal procedures but assigned on a first come, first served basis as the market developed. Following the first wave of market liberalisation in 1976, hundreds of local broadcasters emerged who used up most of the available frequencies. On October 30th, 1998, AGCOM, the regulator for telecommunications and broadcasting, approved a national television frequency plan, the objective of which was to bring some order into the market and clarify the frequency allocation situation at national level. The television frequency plan proposed 11 national radio frequencies. Three were granted to the public broadcasters (RAI), and the remaining eight were proposed to private broadcasters. These had to compete against each other in a beauty contest procedure to be allocated the frequencies. Some 12 private broadcasters competed to obtain one of those eight licences. Four broadcasters (Telepiù, Retequattro, Retecapri, ReteA) did not obtain a licence although they were already exploiting the frequencies and therefore had already deployed the infrastructure to use these frequencies. These four broadcasters were thus in theory not allowed to continue using the frequencies which they had been using until then, which created a major business issue. In

<sup>11</sup> As indicated earlier, Channel 5 neither pays for the frequencies, nor does it have coverage obligations.



order to facilitate a transition period, two of these four broadcasters were granted temporary licences by the government to enable them to launch a digital satellite platform and shift their customers onto that platform. These two broadcasters are Telepiu and Retequattro. It was initially proposed that those broadcasters would have the right to use the frequencies as long as the penetration rate of digital satellite television hadn't reached 50% of Italian homes. However, the two channels are still exploiting the frequencies today.

In contrast, Europa 7, one of the eight broadcasters to obtain a new licence, could not launch its service because the frequency allocated was already occupied. It has undertaken legal action to obtain access to this frequency, but the case had not been settled at time of writing this report.

A new regulatory framework is currently in preparation in Italy in order to set the framework for DTT. The new framework, due to be announced in March 2004, is expected to clarify the frequency situation and solve the problems that emerged in the past. During the transition period to digital television, the government and AGCOM have decided to let players work out the frequency situation among themselves, through commercial negotiations. A market for (local) frequencies has thus emerged, as those operators who need new frequencies in order to organize the shift to digital broadcasting are buying them from other players. Currently, large analogue players such as Mediaset are thus buying frequencies from smaller players at a price which is based on the number of viewers (i.e. on a price-per-audience basis).

After the transition period, however, the network operators who transmit digital signals will have to offer at least 40 percent of their total broadcasting capacity to other broadcasters. In other words, the subsidiary of Mediaset which owns and exploits the network will have to transport at least 40 percent of signals which do not come from Mediaset. This creates an incentive for smaller broadcasters operating today in analogue to "sell" the frequency they are using to the larger players, since after the transition period they will have access to part of the upgraded network capacity operated by the major players.

AGCOM has announced that it would re-assess the situation at the end of the transition period and take measures to bring further clarity to the market, if needed.

All in all, the shift to digital is not expected to free up much spectrum in Italy, but rather to lead to improved spectrum management and to allow new entrants to come into the market.

Although the conditions attached in the Member States to the rights of use of radio frequencies for broadcasting purposes entail costs, relating to positive programming obligations and/or coverage obligations, the fact is that most broadcasters receive radio spectrum - a finite resource increasingly in demand - without charge. Other players, in particular in the telecoms' sector, have had to pay for this resource. With the convergence of networks and the fact that an increasing number of data services are being delivered across broadcast platforms, there have been claims from within the telecommunications sector that broadcasting should no longer have a special status, and that the spectrum it uses should be treated and licensed on the same terms as telecommunications spectrum.

Another point is that the costs associated with the obligations often cited as justification for free spectrum usage, are not homogeneous across users. In fact, some broadcasters use the radio spectrum without being subject to any content or coverage obligations other than content obligations universally applicable, e.g in the framework of the Television without frontier Directive.

A third point is the fact that cable operators, who do not use spectrum, have had to undertake infrastructure and network investments in order to transport the signals. They therefore argue



that the award of spectrum at a lower expense is a form of discrimination, as (private) cable operators have to pay for the development of the infrastructure to carry the signal whereas terrestrial operators get it for free.

An argument can thus be made whereby revealing the value of the resource which is used in broadcasting (as for other applications) would contribute to an improved management of a scarce resource and to the creation of a level playing field for operators of electronic communications networks and related service providers.

Chapter 5 will come back to this, by discussing ways in which the economic impact of the conditions attached to the rights of use of radio frequencies could be assessed. In particular, we will review in that chapter the issues surrounding spectrum valuation and spectrum pricing for broadcasting uses, taking into account the likely economic impact for broadcasters and other market players.

### 3.3 Must Carry

#### 3.3.1 *Must Carry in the NRF*

The Universal Service Directive sets out the rights that users have in respect of electronic communications services, and deals with the conditions that can be imposed on undertakings providing electronic communications networks. It includes a provision on so-called “must-carry” rules imposed on certain network operators (Article 31 of the Directive). The issue of which broadcasters have must-carry rights, in line with the regulatory framework, is not addressed.

Must-carry rules seek to ensure that certain radio and television broadcast channels and services are made available to users. As per the NRF, such obligations may only be placed on “electronic communications networks used for the distribution of radio or television broadcasts to the public where a significant number of end-users of such networks use them as their principal means to receive radio and television broadcasts”<sup>12</sup>.

Article 31 of the Universal Service Directive aims at ensuring that these obligations shall be “reasonable”. They “shall only be imposed where they are necessary to meet clearly defined general interest objectives, and shall be proportionate and transparent”. The obligation “shall be subject to periodical review”. Member States have the ability “to determine appropriate remuneration, if any, in respect of measures taken in accordance with this Article while ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing electronic communications networks. Where remuneration is provided for, Member States shall ensure that it is applied in a proportionate and transparent manner”.

As regards the services eligible for must-carry rules, Article 31 of the Directive states that “Member States may impose reasonable « must-carry » obligations for the transmission of

<sup>12</sup> Recital 44 makes clear that this includes cable, satellite and terrestrial broadcasting networks and “might also cover other networks to the extent that a significant number of end-users use such networks as their principal means to receive radio and television broadcasts”. Currently the vast majority of households use a traditional “broadcast” platform for reception of broadcast channels and services, and are expected to continue to do so for some time to come. The use of other networks (e.g. 3G mobile networks or fixed telecommunications networks using DSL technologies) for broadcasting purposes is so far very limited, and extension of must-carry rules to such networks would be disproportionate at the present stage of technological and market development. Extension of these obligations to other networks would only be legitimate if a significant number of end-users were to use such networks as their principal means to receive radio and television broadcasts.

*specified* radio and television broadcasts channels and services (...). The radio and television broadcast channels and services benefiting from « must-carry » must thus be “specified”, i.e. they should be identified in advance by Member States. It is explicitly mentioned in Recital 43 that such « must-carry » obligations may include the transmission of services designed to enable appropriate access by disabled users.

Must offer obligations refer to the obligation on broadcasters to make their programmes available for diffusion on all platforms. To this extent, must-offer obligations relate to content and therefore fall outside the scope of this study. There is no such obligation imposed at present on broadcasters within the EU.

### 3.3.2 *Must-Carry in the Member States at present*

#### *a) Definition and current situation*

Currently, with the exception of Italy, Luxembourg and Greece, all Member States impose « must-carry » obligations for the distribution of radio or television broadcasts to the public.

At present, the must-carry obligations in place in the EU member states apply to cable distributors or to the entity which operates the (cable) networks. The market impact of the must-carry regulation thus depends in part upon the relative importance of cable in the different Member States – a share that varies widely across the EU, as illustrated in Chapter 4. Other factors influencing the economic impact of must-carry regulations include the number of channels to be carried or the share of the capacity of the network operator concerned, the types of remuneration systems between network operators and broadcasters, market conditions and the business plans of operators, and the intensity of competition between platforms. These factors will be considered in more depth in Chapter 5. Here, we describe the different must-carry regulations currently in place across the EU, and build a typology of the different remuneration systems that exist between broadcasters and network operators.

In most Member States, the must-carry obligation is technology specific and applies directly to cable operator, in some cases only to analogue distribution.

The channels which benefit from the must-carry obligation are often, but not exclusively, (national or regional) public service channels. Different situations arise:

- In some cases, the channels that benefit from must-carry status are explicitly nominated in the must-carry regime;
- In other cases, *the types of channels* qualifying for must-carry are defined in the legislation (for example, in some border areas of Germany, cable operators must carry at least one programme from the neighbouring country that can be received over the air with a normal antenna; other examples from Germany and the Benelux countries are requirements to carry local broadcasting programmes within their dissemination area, or local community channels, in France, there is a requirement for cable operators to retransmit the services which are broadcast via terrestrial means and normally received in the area concerned);
- In still other cases, media agencies or local programme councils draw up lists of criteria on the basis of which they define which channels ought to be selected.

In Germany, for example, cable must carry the programmes of public broadcasters ARD and ZDF, then all licensed terrestrial television programmes that cover the territory of the Länder, the local programmes of the region and the open channels. If the cable operator's capacity is not sufficient to carry all the remaining programmes, then the media authority of the land draws up a priority list of programmes to be carried.



For digital broadcasting, the selection of programmes to be carried by the cable operators must take account of such factors as the interests of existing subscribers, the plurality of programme providers, programme diversity, programmes offering full coverage as well as thematic channels, free programmes, foreign language programmes and media services. Priority is given to programmes already retransmitted in analogue form. The media agencies of the Länder may intervene to ensure respect of these factors in the cable operators' offerings.

In the Netherlands, the Media Act first introduced must-carry obligations in an amendment of 1995. It designated 11 channels as must-carry: the three channels of the Dutch public broadcaster (NOS), the two Dutch-language channels of the Belgian (Flemish) public broadcaster and at least six public broadcasters drawn from three or more EU states, three of which had to be in German, French and English. The size of the package was then reduced in a subsequent amendment to the act which took effect in 1997: the must-carry requirement for the six non-Dutch-language public broadcasters was removed while one regional and one local broadcaster were added, bringing the total to seven.

In addition to these national must-carry obligations imposed on cable operators in the Netherlands, local authorities have created programme service councils<sup>13</sup>, who can select a further eight programmes for general broadcasting purposes to be carried by the cable operator. This brings the total number of programmes to be carried to 15. Dutch cable operators are not legally obliged to carry the programmes designated by the councils but they must, as the Media Act puts it, have "weighty reasons" for not so doing. In selecting their eight programmes, the programme service councils have to work on the basis of a diverse package of general interest programmes, paying due heed to the social, cultural, religious and spiritual needs of those living in their municipality. The 15 channels thus form the core of the service offering of the cable operators.

The seven "national" must-carry programmes must be carried free of charge (with carriage costs covered through subscription fees from users). Although this is not required for the other programmes, the cable operators' scope for negotiating commercial tariffs for the further eight programmes is clearly limited by the virtual must-carry status accorded to the broadcasters by the local programme service councils. In many municipalities, Canal+ is included in the virtual must-carry package.

In Belgium, there are three sets of must carry: one for the French-speaking community, one for the Flemish-speaking community and one for bilingual Brussels. In the Flemish community, there are 15 must-carry channels, and there are nine in the French-language community. The channels to be carried are explicitly designated. In Brussels, the list of must-carry programmes was largely the combination of the must-carry programmes of each language community, with a total of 17. But programmes launched since 1998 with must-carry status in a community do not have automatic must-carry status in Brussels. The number of must-carry channels in Brussels was reduced to 14 by a federal ministerial decision (*arrêté ministeriel*) of 17 January 2001.

In France, must-carry obligations for cable operators are linked to the authorisation provided by the CSA upon proposals by the communal authorities, but have to be consistent with the provisions in Article 34-II of the French Law on freedom of communication of September 30, 1986, amended by the Law of August 1, 2000 (*Loi n°86-1067 du 30 septembre 1986 relative à la liberté de communication modifiée et complétée*). As a result, cable network operators all have must-carry obligations with regard to a range of channels, covering both public and commercial channels.

<sup>13</sup> As authorised under Section 82k of the Media Act.

In the United Kingdom, all analogue cable operators have must-carry responsibility for those services deemed by the ITC to be ‘qualifying services’. At present this includes BBC1, BBC2, ITV, Channel 4 (outside Wales) and S4C (in Wales). Digital cable services are subject to the obligation to carry the same qualifying services as their analogue counterparts. However, there is currently some discussion as to what other services may be required to be carried, centred on the BBC’s additional digital services, such as BBC Four and CBBC. At present these services are carried by digital cable services without regulatory intervention (ie commercial arrangements have been reached). As a result, the issue as to which service may or should be included in a list of ‘digital qualifying services’ has not been of critical importance. As analogue cable services close and more bandwidth becomes available for digital services, it is unlikely that there will be pressure to remove channels, rather there will be space for more to be added.

In Sweden, the 1996 Broadcasting Act states that any facility which distributes television programmes via a cable network to reach more than 10 homes must ensure that residents of connected properties can receive ‘*broadcasts conducted under a licence from the Government and which are intended to be received in the area without conditions for special payment*’. For the majority of the country this directly translates into must-carry obligations for SVT1 and 2 (including UR, the education channel) and TV4, the terrestrial analogue broadcasters. The Broadcasting Act further states that it must be possible to receive the transmissions in a satisfactory manner and with no charge for the actual reception. Should any of the existing services decide to become a pay service, its right of carriage under this obligation would be removed. The Act goes on to define the number of channels as not more than three that are financed by the television fee and not more than one programme broadcast by another licence holder. Thus the maximum obligation is restricted to a theoretical maximum of four channels, and a practical maximum of only three.

Entities owning or controlling a cable transmission facility in which television programmes are relayed to more than 100 homes must provide, without charge, a specifically determined frequency for television programme broadcasts by one or more undertakings appointed by the RTVV (local cable transmission undertakings) in each municipality in which the entity has such a facility. This relates to the carriage of local (radio) channels as licensed for cable broadcasting by the RTVV.

The Swedish Broadcasting Act is also quite clear about which digital channels should be carried and how. It states, ‘*A programme which has been transmitted exclusively by means of digital technology only needs to be re-transmitted if the facility transmits other programmes employing digital technology. In this case, the programme need only be re-transmitted in digital form.*’ Hence DTT channels in any given area have, if they are free-to-view, must-carry status on any digital cable platform. This may cause problems for cable operators if channels decided, from time-to-time, to change from being a pay service to being a free-to-view service; however in practice, this rarely occurs. It is worth commenting that the obligation to provide these channels ‘without conditions for special payment’ does not appear to hold true.

It is also worth noting that these obligations apply to every cable network if they are connected to over 10 properties.

In Italy, as indicated above, there is no must-carry regulation. Cable operators account for a minimal share of the market, and, in the absence of must-carry regulations, have experienced difficulties in negotiating with national channels which have little interest in being distributed via cable. They favour must-carry on the ground that it would give them a more attractive programme package with which to woo new customers.





As the examples above illustrate, the share of total cable capacity used up by must-carry channels varies widely across Member States. It is generally below 50 percent of capacities, although in Germany with must-carry and designated priority channels taken together, it can reach 100 percent.

In several countries, cable operators complain that they have little, if any, free choice in deciding on the programmes they wish to offer to subscribers. For a given capacity, this may limit their revenue potential. The designation of must-carry for a particular broadcaster indeed reduces the cable operator's scope to negotiate straight commercial deals with that broadcaster.

A distinction probably ought to be made between must-carry channels, which can also be categorised as "must-have" channels, and the others. Must-have channels are those which cable operators would wish to include in their programme package in any case. Typically, these are long-established generalist channels which are "must have" channels for their customers. There is thus a strong commercial incentive for cable operators to carry such channels. There are, however, other channels that cable operators would not willingly carry, as – given capacity constraints - this limits their scope to offer more commercially attractive channels. Among these one would find channels with public interest value but low audience, such as parliament channels and possibly also new digital services of public broadcasters which still have small audiences. For "must-have" channels, one economic impact of being included in a must-carry obligation is to create a distortion in the negotiation which takes place between the broadcaster and the network operator with respect to the transport fee. In the case of "other" must-carry channels, there is both a distortion in the negotiations due to the fact that they benefit from must-carry status, and there is an 'opportunity' cost, for the operator in the form of foregone revenue if he cannot use the capacity to carry another, commercially more attractive, channel.

Chapter 6 will come back to the issue of assessing the cost of the must-carry obligation.

With respect to the criteria on the basis of which the must-carry regulation is defined, namely<sup>14</sup> that the obligation be "reasonable", only imposed where necessary to meet clearly defined general interest objectives, proportionate and transparent, the situation again varies across Member States. In most Member States, the "general interest" objective is *implicit* and not *explicit*, contrary to the requirement of the NRF.

#### **b) Remuneration systems**

The NRF specifies that a remuneration may be granted to the operator subject to the must-carry obligation: Member States indeed have the ability "*to determine appropriate remuneration in respect of measures taken in accordance with <this Article> while ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing electronic communications networks. Where remuneration is provided for, Member States shall ensure that it is applied in a proportionate and transparent manner*".

The principle of remunerating cable operators for the transport function does not apply to all EU countries. In practice, several situations arise:

1. The cable operator receives payment from the broadcasters to carry the programmes;
2. The cable operator pays the broadcasters for the right to carry their programmes; this is the situation to date in France, for example;
3. The cable operator carries some broadcasters' programmes free of charge: this is the case for must-carry programmes in the Netherlands;

<sup>14</sup> as per the NRF

4. Depending on the market power of the different players and the national regulatory provisions, there may be combinations of the above.

The situation is further complicated by the issue of payments linked to copyright and performers rights.

In Germany, it is an accepted principle that broadcasters should pay the cable operators for carrying their programmes. German cable network operators thus receive from the broadcaster a fee for carrying his programme(s) on the cable network. These fees have to be paid by broadcasters with must-carry status as well as by commercial broadcasters. The only minor exception is the so-called open channels for local community events, which have to be carried free-of-charge. The cable operator has to pay copyright and performers' rights for the tv programmes he carries. This is a direct cost. It is generally passed on to the subscriber.

In France, for historical reasons, it is the cable operators which currently pay the broadcasters to carry their programmes, but they are currently seeking to reverse the payment flow in order to receive payment for the services.

In the Netherlands, must-carry programmes are carried free of charge, while the transport fee for other programmes is determined through commercial negotiations between the broadcasters and the cable operators. For the must-carry programmes, the cost of transport is directly paid by end-customers (viewers), in subscription fees. In some cases, the outcome of the negotiation between the non-must-carry broadcasters and the cable network operators is that the broadcasters *receive payment* for the carriage of their programmes on cable networks. This is the case for example for CNN, Eurosport or MTV. The same holds for Canal +, which has 'virtual' must-carry status on some cable networks by dint of being selected for inclusion by municipal programme councils. One can argue that the virtual 'must-carry' status gives the channel an advantage in the negotiation process. Cable operators have to deal with broadcasters or collection agencies on issues related to copyright and related rights.

In Belgium, as in Germany, there is a general principle that broadcasters pay to have their services carried by cable network operators, which is supported by current jurisprudence. The only minor exception concerns regional (local) public-interest programmes broadcast within the Flemish community, which must be carried free-of-charge by cable operators in Flanders. In practice, the payment flow situation is, however, complicated by the fact that royalties for author's and performer's rights also have to be paid. The French broadcaster, TF1, which does not have must-carry status in Belgium, is paid by cable operators who carry its signal. This is on the ground that it should receive more from the cable operators to cover copyright royalties than it owes them in carriage costs. In general, it is the more recent broadcasters, like TV4 and the Discovery channel, who pay the highest carriage fees. In addition to paying for performers' rights, cable operators in the French-speaking community contribute a small "must-pay" levy to support French-language broadcasters and film makers. (See the Belgian country report for details)



Figure 3.1 illustrates the payment flows between broadcasters and network operators.

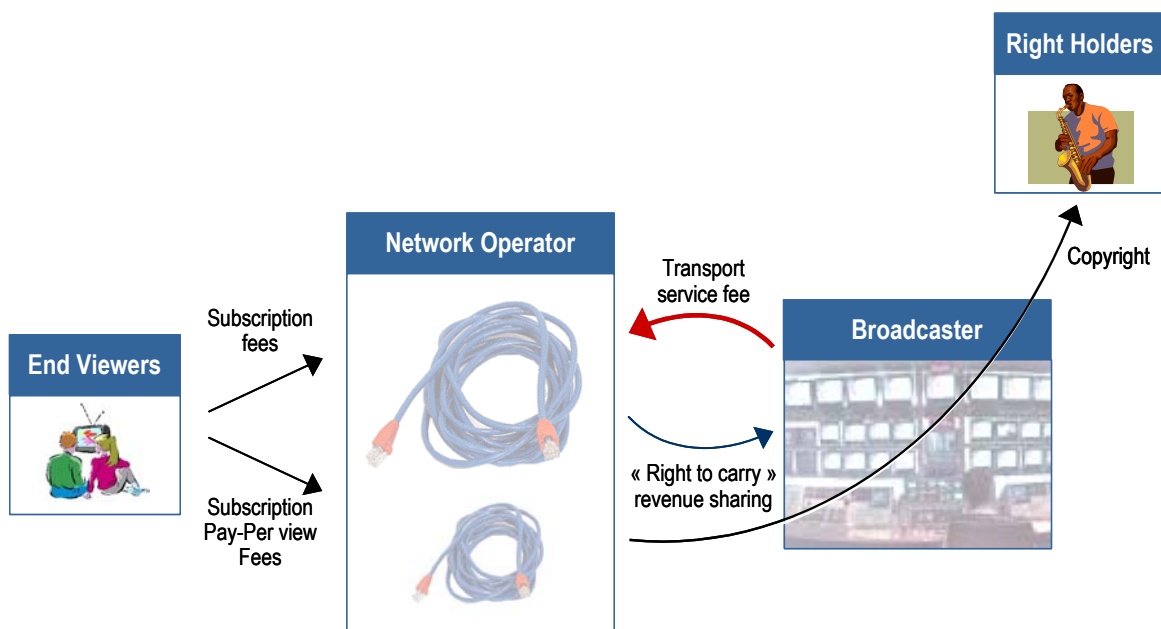
In summary, there is at present no clear-cut situation or general principle in the EU whereby cable operators ought to be remunerated by the broadcasters for the service of carrying their signals. In practice, payment flows between cable operators and broadcasters represent *net fees*, the amount of which is determined through negotiations which take into account at least three elements:

- authors' and performers' rights,

- the price (if any) to be paid to the cable operator by the broadcaster for distributing the latter's signal, and
- the payment (if any) to the broadcaster by the cable operator for the right to carry his signal.

An additional complication arises from the eventual separation that needs to be made between the remuneration for the network operation per se provided by the network operator (the "carriage" service) and other services offered to the broadcasters by the cable operators, which can also be part of the negotiation.

**Figure 3.1**  
**Payment flows between operators in broadcasting**



Most often, it is the "net fee" that is the object of the negotiations between network operators and broadcasters, and not the gross fees or each of the components listed in the previous paragraph. This leads to a wide variety of rates effectively paid to or by the cable operators, and explains why, in practice, the actual situation in the EU today is one where net payments between cable operators and broadcasters flow in both directions.

**c) Implications of must-carry for the network operators**

In summary, must-carry is widespread in the EU at present, but its implementation varies across Member States. As the must-carry regimes currently in place in the various EU Member States were defined and entered in force before the adoption of the NRF, few Member States meet exactly the conditions set in the NRF, in the sense that few define explicitly the general interest that is pursued and/or the criteria on the basis of which the obligations are to be assessed (proportionality, transparency,...). A clarification of the criteria/measures to be used to define acceptability of the measures is probably necessary to avoid market distortions, not only across



Member States in the context of the internal market, but also to take into account competition between platforms.

In Chapter 5, we will provide a framework for assessing the “costs” of this obligation and define the criteria that should be taken into consideration to correctly assess their impact on operators.

### 3.4 Access and interconnection agreements

#### 3.4.1 Access and interconnection in the NRF

The Access Directive establishes a framework for access and interconnection agreements between operators of electronic communications networks and services across the European Union. The Directive aims towards “deregulation” by establishing the principle that negotiations on access between market players should be undertaken on a commercial basis first, and are thus not subject to ex-ante regulations, except when one of the players involved is identified as having significant market power (SMP). When competition is not effective on specific markets, i.e. when one of the players or several players together have significant market power, access remedies can be imposed on operators that have been designated as having significant market power on a specific market following a market analysis by national regulatory authorities (Article 8 of the Access Directive).

The access remedies are: transparency, non-discrimination, accounting separation, access to, and use of, specific network facilities, price control and cost accounting obligations (see Articles 9-13 of the Access Directive) or other types of obligations in exceptional circumstances and with the agreement of the Commission (Article 8.3 of the Access Directive). Access to associated facilities other than conditional access systems (dealt with in Section 3.4.3 below), such as Application Program Interface (API) and Electronic Program Guide (EPG), are also covered in the Directive. Where access to these types of facilities is necessary, and where one of the players has SMP, Member States can impose *access rules* on the SMP providers of the associated facilities concerned, under Articles 8 to 13 of the Access Directive, subject to the market analysis regime in the Framework Directive. This possibility has been introduced to take into account the fact that technological and market developments, in particular the emergence of competitive interactive digital television services, make it necessary to include flexible mechanisms to enable the situation regarding access to associated facilities such as APIs and EPGs to be reviewed.

The Access Directive provides the possibility for NRAs to impose fair, reasonable and non-discriminatory obligations on operators to provide access to other associated facilities such as APIs and EPGs (referred to in Annex I, Part II), to the extent that this is necessary to ensure accessibility for end-users to digital radio and television broadcasting services specified by the Member State (Article 5(1)(b) of the Access Directive). All obligations and conditions imposed shall be objective, transparent, proportionate and non-discriminatory, and shall be implemented in accordance with the procedure in Articles 6 and 7 of the Framework Directive (Article 5(3) of the Access Directive).



#### 3.4.2 Access in the Member States at present

The regulatory frameworks in the Member States are based on the principle that negotiations on access between market players should be undertaken on a commercial basis. The national regulatory frameworks also define how access-related disputes between broadcasting network and service providers have to be dealt with.

In the Netherlands, for example, Article 8.7 of the Telecommunications Law gives the regulatory authority OPTA the power to settle access disputes with cable network providers brought before it by programme and/or service providers. In the UK, Ofcom regulates the running of telecommunications systems for the provision of conditional access services, which it does through a so-called ‘class licence’ granted by the Secretary of State for Trade and Industry under section 7 of the Telecommunications Act 1984. The regulator may take action against anti-competitive agreements or in cases of abuse of a dominant position.

### 3.4.3 CAS in the NRF

Conditional Access Systems (CAS) allow broadcasters to supply services to those viewers who are entitled/authorised to receive these television services. Conditional access services include encryption services, authorisation services, subscriber management services and certain other technical services.

The authorisation of conditional access systems is covered by 98/84/EC<sup>15</sup> Directive. Recital 6 of the Authorisation Directive clarifies that: “Provisions regarding the free movement of conditional access systems and the free provision of protected services based on such systems are laid down in Directive 98/84/EC of 20 November 1998 on the legal protection of services based on, or consisting of, conditional access. The authorisation of such systems and services therefore does not need to be covered by this [Authorisation] Directive”.

The Access Directive lays down special provisions applicable to the providers of Conditional Access Systems. In this respect, the Directive takes over the specific regime for access to conditional access systems in Directive 95/47/EC<sup>16</sup> on the use of standards for the transmission of television signals. The main provisions of this specific regime are as follows:

- CAS operators are required to provide services to other broadcasters on “fair, reasonable and non-discriminatory” terms, and to license their intellectual property rights to manufacturers on the same basis.
- Cost-effective transcontrol between CAS providers and other local network operators has to be possible, so that for example cable operators can directly manage CAS services offered to their own customers.

Compared to the general access regime, the CAS regime applies to *all* service providers, and not only to those with significant market power.

Notwithstanding the above-mentioned provisions, Member States may permit their national regulatory authority to roll back these obligations following a market analysis in accordance with Article 16 of the Framework Directive. It may determine whether to maintain, amend or withdraw the conditions applied to non-SMP operators subject to the consultation and transparency mechanism (Articles 6 and 7 of the Framework Directive). Before removing the obligations, however, the regulator must ensure that there would be no adverse effects of such amendment or withdrawal on accessibility for end-users to radio and TV broadcasts and broadcasting channels and services specified in accordance with Article 31 of the Universal Service Directive. The NRA must also conclude that the prospects for effective competition in

<sup>15</sup> Directive 98/84/EC of the European Parliament and of the Council of 20 November 1998 on the legal protection of services based on, or consisting of, conditional access OJ L 320, 28/11/1998 p. 54.

<sup>16</sup> Directive 95/47/EC of the European Parliament and of the Council of 24 October 1995 on the use of standards for the transmission of television signals (OJ L 281, 23/11/1995, p. 51).

the markets for retail digital television and radio broadcasting services and conditional access systems and other associated facilities will not be unduly compromised or diminished. An appropriate period of notice shall be given to parties affected by such amendment or withdrawal of conditions.

Finally, the European Commission can, in the light of market and technological developments and using its powers under comitology (regulatory procedure), review the conditions contained in Annex I (Conditions for access to digital television and radio services broadcast to viewers and listeners in the Community) in order to have the most suitable harmonised basis across the Community (Article 6(2) of the Access Directive).

#### 3.4.4 CAS in the Member States at present

Access to conditional access systems on fair, reasonable and non discriminatory terms, and the interoperability of systems are both important to ensure competition in the broadcasting market.

Because CAS provisions were defined in earlier Commission Directives, in particular Directive 95/47/EC, and have mainly been folded back into the NRF, the related provisions and obligations have been in force for some time in the EU. To a greater or a lesser extent, the national regulatory frameworks in the Member States thus already take account of the obligations and conditions specified in the NRF, in particular with respect to the interoperability of systems and the granting of access to CAS on fair, reasonable and non-discriminatory (FRND) terms. Many EU countries require cost-effective trans-control and separation of accounts for conditional access services. But, although many countries have held consultations with industry to decide on the appropriateness of a single standard for interoperability of CAS, most have opted to let market forces play until the market matures.

The example of Germany illustrates this. Conditional access systems in Germany are regulated at federal level by the *Fernsehsignalübertragungsgesetz*, and at the level of the Länder by Article 53 of the *Rundfunkstaatsvertrag*. The *Fernsehsignalübertragungsgesetz* requires (in §6) cost-effective transcontrol, so that cable operators can directly manage services which use CAS. Both texts refer to the need for owners and operators of such systems to make them available to any broadcaster wishing use them or to manufacture them on fair, reasonable and non-discriminatory terms, as well as to the requirement to keep separate accounts for their CAS activities. The same rules which apply to CAS also apply separately to Electronic Programme Guides (EPGs). In addition, EPGs must give equality of access to public and commercial broadcasters. They must also give direct access to individual programmes. Article 53 goes on to give details of what is meant by fair, reasonable and non-discriminatory conditions: these include the provision of information on all relevant technical parameters, the indication of the financial charges, and the timely announcement of coming technical changes. Non-discrimination requires the use of open Application Programme Interfaces (APIs) and the use of recognised open European standards.

In the Netherlands, conditional access systems are regulated under Articles 8.5 to 8.7 of the Law on Telecommunications<sup>17</sup>. There is no specific legislation concerning standards for CAS set-top boxes, and no agreement among providers and users of the systems on a single standard, but the general principles of competition law apply. Canal+ currently owns the set top boxes used by subscribers to cable networks which distribute Canal+ services, and cable network operators like UPC are developing their own set-top boxes. Articles 8.5 and 8.6 of the Law on Telecommunications require providers of conditional access services to provide the necessary technical facilities to providers of broadcast services with whom they have reached agreement

<sup>17</sup> *Telecommunicatiewet* of 19 October 1998



on a fair, transparent and non-discriminatory basis. Providers of conditional access systems have to offer a system with the necessary technical capacity for cost-effective transcontrol. The system is to be set up in a way which allows the provider of a network to take over full control of the services which are distributed by means of the conditional access system. As in Germany, providers of conditional access systems are bound to keep separate accounts for this activity. Disputes between providers of conditional access systems and programme providers are settled by OPTA (the regulator) in accordance with 8.7 of the Law on Telecommunications.

In Belgium's Flemish community, Articles three to five of the *Decreet van 3 maart 2000 inzake het gebruik van normen voor het uitzenden van televisiesignalen* require those who produce or market decoders to make all necessary technical services available to all broadcasters who need the decoders to deliver their service on a fair, transparent and non-discriminatory manner. They must keep separate accounts for their CAS activities. Holders of industrial property rights for decoders or other conditional access systems must offer licences to other manufacturers of systems destined for the general public on a fair, transparent and non-discriminatory basis. Broadcasters offering digital services via a conditional access system must include the cost of buying or renting a set-top box in their published tariffs.

Regulation for CAS in the Belgian French-speaking community is contained in Chapter Vter, which has been added to the *Décret du 17 juillet 1987 sur l'audiovisuel*. It has the same content as the Flemish decree but adds the requirement (absent in the Flemish text) for a *low-cost transcontrol system* enabling a cable network operator to take control of its customers' access to digital services via its own conditional access system. In both regions, thus, current EU legislation on conditional access systems is already incorporated in the relevant broadcasting legislation in each community and entails separation of accounts.

As in the Netherlands, Canal+ in Belgium has direct access to its subscribers and owns their set-top boxes. The cable operators merely supply distribution capacity for the Canal+ signal.

In the United Kingdom, as elsewhere, conditional access providers are all obliged to offer their services to any broadcaster who seeks them, on a fair, reasonable and non-discriminatory basis. The only closed system is the satellite service operated by Sky. In this instance, Sky offers an indicative ratecard of prices for access to its CAS and EPG. However, for more complex services (such as regionalisation for different parts of the UK) commercial arrangements would be agreed between Sky and the programme service provider, with the ratecard serving as a starting-point for negotiation. There is no sense in which the Sky ratecard represents 'officially approved' prices. In the event of a dispute over prices or terms of supply, the broadcaster may (and in fact, recently has) refer(ed) a complaint to Oftel.



## 4 Telecoms & broadcasting compared

### 4.1 Introduction

Having described the implementation by the Member States of measures established to fulfil some general interest objectives linked to broadcasting that are imposed on providers of electronic communications networks and services, the next step is to describe *how* the economic impact, in particular the cost, of these measures on network operators and related service providers ought to be assessed.

To do this, it has been suggested that it would be useful to review how similar obligations were dealt with in the case of telecoms. The telecommunications sector is, indeed, an interesting case in point. Liberalisation in telecoms has called for regulatory measures in order to foster the development of a competitive market place while respecting the “general interest”. Among the measures that have been enforced are measures related to access and measures providing for a cost-orientation of prices for interconnection services. The way the regulatory environment in telecoms was defined has effectively had a positive impact on the availability, quality and price of services, including services of general interest: equilibrium has been achieved between universal service obligations and permanent opening of the market, while encouraging operators to adopt a dynamic approach through the maintenance of a highly competitive environment.

Before reviewing the methods and approaches that have been used to assess the economic effects of obligations in telecoms, however, and discussing how these ought to be adapted to the situation of the broadcasting sector, it is important to recall how broadcasting markets are organised, and see what parallels can be made with the telecommunications’ sector.

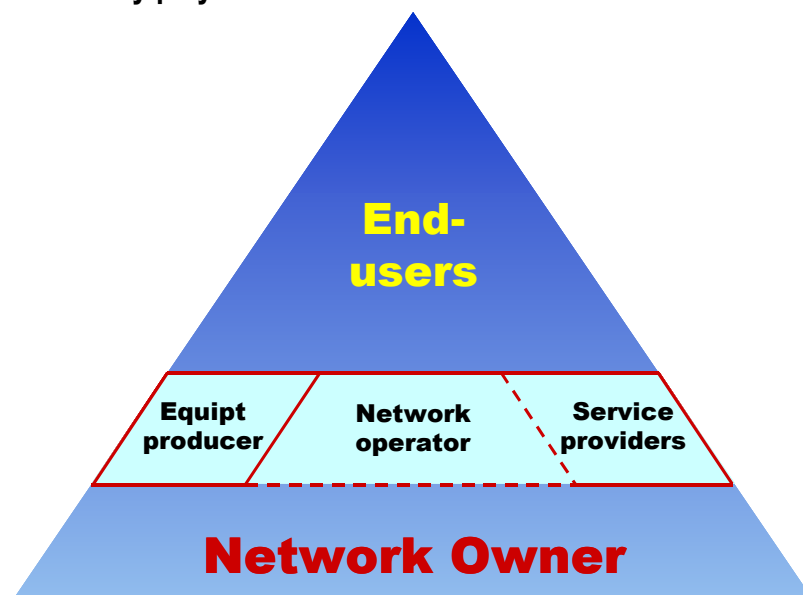
### 4.2 Organisation of a telecommunications’ cluster

For reference purposes, the pyramid below presents a representation of a telecommunications’ “cluster”, showing the different types of players that operate in the market. This representation of market players in the telecoms’ sector is deliberately simplified, in order to facilitate comparisons with the situation in broadcasting. The pyramid illustrates the composition of a broadcasting “cluster”, in the sense defined by Michael E. Porter in “The Competitive Advantage of Nations”, where clusters are composed of all the types of economic actors whose actions are likely to have an impact on the operators involved in the production of a given good or service. At the top of the pyramid one finds the final customers or end users of the goods or services, while the bottom layer of the pyramid represents the “economic infrastructure” upon which the key players in the market rely. The pyramid is thus not a representation of a “value chain” but represents the levels of inter-linkages between players jointly involved in a given economic activity.



At the bottom level of the pyramid is the network owner or Level 1 operator, which in the past was the incumbent telecoms operator. Now, at this level one also finds other organisations which have built and/or own part of the basic infrastructure or network.

**Figure 4.1**  
**Key players in the telecommunications' cluster**



On the second level, one finds the “operators” of the network, i.e. often the network owners themselves (which explains the dotted as opposed to the solid line between the two layers) plus a set of other operators which ‘buy’ capacity from the network owner and sell this directly to end-users. Examples of “network owners” or Level 1&2 operators in France are France Telecom or Cegetel, and examples of Level 2-only operators are 9-Telecom or Tele2, which buy minutes from France Telecom and sell them to the public. On the second level, one also finds service suppliers, such as internet service suppliers or other value added service suppliers. These also rely on the basic infrastructure provided by Level 1 operators but may have developed and expanded this infrastructure in order to provide for example meteorological or other information distributed by phone to end-users. These service providers either sell their services to the public via the telephone operators, or have direct client linkages. We have also reported on that level the equipment manufacturers which sell the phone devices to the public.

To give a complete representation of all players involved in the telecommunications' cluster, one should have added another layer below the bottom one indicated on the chart, with the manufacturers of the basic equipment and infrastructure which are used in the network development, as well as a whole set of other players which directly or indirectly contribute to the activity of this sector.



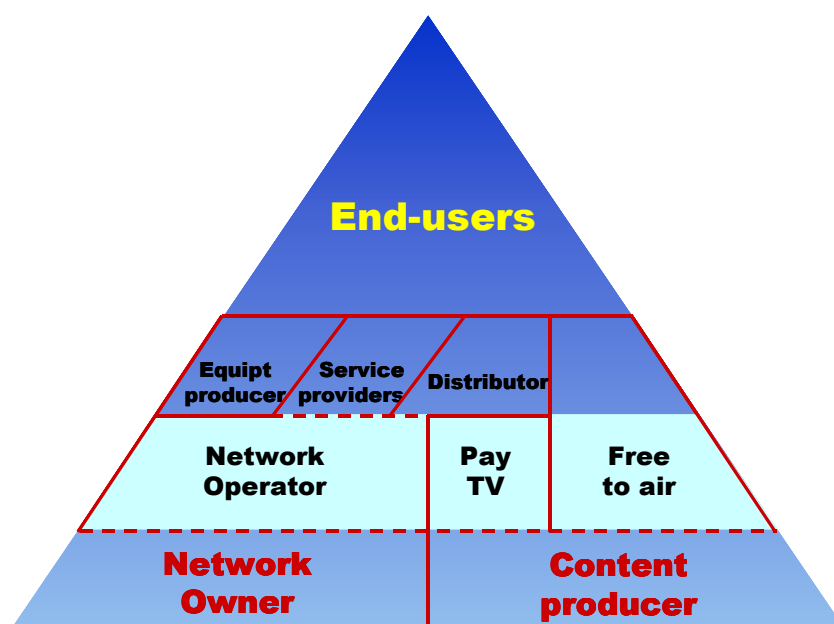
### **4.3 Organisation of a broadcasting cluster**

The second pyramid, in Figure 4.2, describes the equivalent structure for broadcasting. Although again a simplified illustration of the reality, it is clear that the variety of functions and the types of operators in the broadcasting sector are much greater than in the telecoms sector, as reflected by the greater number of cells at each level, and the existence of a fourth layer. The companies or market players that operate in each of these cells and the relationships between them vary by country (as in telecoms), by platform, and also based upon the degree of vertical and horizontal integration between players. The frontiers between cells are themselves



becoming blurred or change, as the business plans of the operators evolve to adapt to market and technology conditions.

**Figure 4.2**  
**Key players in a broadcasting cluster, by function**



Making a parallel with the telecoms' cluster, on the first layer of the pyramid for broadcasting, one finds the network owners, i.e. companies like TDF and NOOS in France (the latter having recently become full owner of its network), along with satellite operators like Eutelsat or Astra for satellite broadcasting. Also at this level are "primary" content producers, such as Endemol in France, along with film producers and various programme producers, who "sell" these programmes on to the broadcasters, at level 2. These generally have no direct relationship with the network owners, but, as these, "sell" services to players operating at the second level of the pyramid.

On the second layer of the pyramid, one finds, on the one hand, the network operators, i.e. companies which do not necessarily own the network (though some may, in which case the company is both on level 1 and level 2), but which operate it and sell services (the service being broadcast transmission) to the next level of operators.

The third layer of the pyramid refers, as was the case in the pyramid for telecoms, to the market operators which have direct access to the end-users.

The German example can be used to illustrate the market structure for cable. On the bottom layer one finds Kabel Deutschland, a company set up as a fully-owned subsidiary of Deutsche Telekom, which owns and operates the basic network, and the regional network infrastructure owners and operators<sup>18</sup>.

<sup>18</sup> In Germany, operators in the bottom cell of the pyramid are referred to as "level 1" and "level 2" operators, and are respectively the network owners who operate at national level and the network owners who operate at regional level.

On the second layer, one finds what the Germans themselves call Level 3 operators, which are operators' responsible for carriage from the point of signal reception to the curb. These are Deutsche Telekom itself, and two commercial companies – ish GmbH & Co. KG which operates in two Länder, North-Rhine Westphalia and Baden-Wuerttemberg, and iesy Hessen GmbH & Co. KG, which operates in Hessen.

These distributors supply their signal to retailers and wholesalers who operate cable networks at level 4 (from the curb to the individual households) – on the third layer of the pyramid. They themselves directly own a small number of retail service providers and distributors at level 4, but the large majority of households are supplied by, and contractually linked to, one of about 4,000 local companies who control network level 4 in their district or city. The separation between the first, second and third layers of the pyramid is thus non-existent for some operators and very real for others.

Lack of direct access to clients is, in fact, one of the problems with which German cable operators are confronted, as it makes it more difficult for them to unfold their business plan. The extra layer between them and the final users indeed makes it difficult to develop and sell new, value-added, services, and thereby reinforce their competitive position vis-a-vis other platforms, and grow their business.

Coming back to the second layer of the pyramid, one finds the right hand side the broadcasters, which include the free-to-air broadcasters, and the Pay-TV operators. Whereas free-to-air TV operators rely on the network operators and the service providers (in layer 3 of the pyramid) to transmit their services to the public, Pay-TV and digital operators have one more layer between them and the public, which is the producers and operators of CAS. In the cell entitled “distributors”, we put the distributors of CAS who manage the subscriptions of Pay-TV to the public. These can be (and often are) the Pay-TV operators themselves (like Canal + in Belgium and the Netherlands, which distribute the set-top-boxes to users entitled to have them) but also retail distributors which sell set-top-boxes to the general public.

The above representation is, of course, a stylised representation of what is in practice a much more complex reality. Depending on the country, depending on the platform and depending on the degree of vertical and horizontal integration between players in the market, the lines separating these cells are more or less blurred, and the roles of players are more extensively or more narrowly defined. The implication from a market point of view, however, is that the cost of obligations which impact on certain ‘functions’ of the players can be more easily supported or paid back by some operators than by others, depending on the breadth of their activity and their revenue structure. Theoretically speaking, the more diversified the activities of an operator and the more end-users it has for services relying on common cost elements, the more room there is for cross-subsidisation of activities...



The identification of the “cells” of the pyramid which are directly impacted by the different obligations under review in this report is thus important, as this helps identify the part of their activity which ought to be taken into consideration when assessing the costs associated to the obligation.

In practice, the “must-carry” obligation applies to cable network operators in the second layer of the pyramid, but not to operators of other platforms on the same layer of the pyramid. Rights of use of radio frequencies are in most countries granted directly to broadcasters, in most cases without remuneration but subject to certain obligations, among which positive programming obligations. Conditions of access to CAS services refer to the pricing of services between network operators and service providers (on layers 2 and 3 of the pyramid respectively). Conditions of access to CAS concerns service providers and broadcasters.



Another consequence of the varying levels of integration of players across countries, platforms and markets is that the business models that the many players operating in this market are likely to adopt (in particular the revenue sources they have access to and the types of costs they incur), and the ease with which they can implement their business model vary across Member States, platforms and players. Whereas all automotive assemblers follow a unique business model, whereby they purchase certain inputs (materials, intermediate products and services, human resources) to add value and generate revenue by selling the final product to their end customers, in broadcasting operators get revenue from various sources. If we consider the case of cable operators, in some countries, these receive revenue from the broadcasters to carry their signal across to consumers. When the cable operator also provides other services than television broadcasting, for example high speed internet access or multimedia services, the sources of potential revenues increase, even if the cost base also becomes more diversified. This revenue then comes on top of revenue from end-users for the basic television services. In other countries, cable operators do not get paid by the broadcasters for transporting the signal, and their only source of revenue is the subscription to the basic package to the end-user. In yet other countries, cable operators receive revenue from advertising, and/or benefit from the payment by the broadcasters of the advertising of their package offering. This also contributes to offset part of the costs linked to the development and maintenance of the basic infrastructure.

Below, we recall the market organisation of broadcasting across the EU and describe the typical product offerings of network operators on the various platforms.

## 4.4 Market organisation across the EU

### 4.4.1 Cable operators

The share of cable in the broadcasting market varies significantly across the EU, from less than two percent in Italy to more than 95 percent in the Netherlands and Belgium (see Figure 4.3).

The conditions under which the network was developed, the relative market share of players on other platforms and the degree of maturity of the market determine the present (financial) situation of operators in the sector, and impacts their potential business plan.

Beyond the simple provision of television services (whether through a basic package or in the form of multiple broadcasting packages), cable operators can offer a whole range of other services, including high-speed internet access, interactive value added services and telephony services.

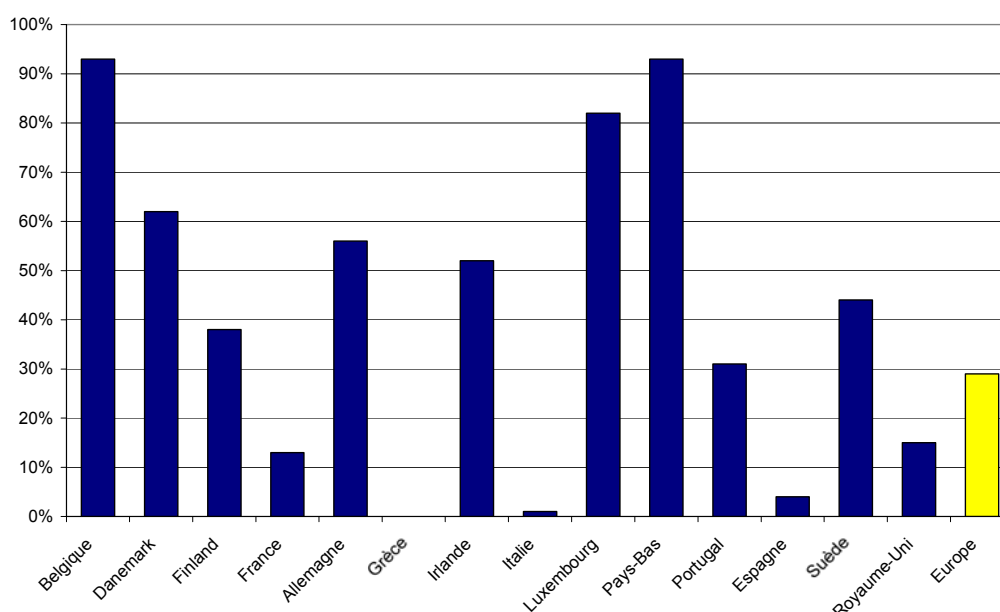
As other operators in broadcasting, cable operators are presently suffering from the sharp downturn in telecoms and internet activities, the fall in advertising revenues, the slow uptake of internet and voice telephony via broadband cable and the slow development of a digital offer. These factors have combined to tighten the financial constraint for all operators in broadcasting.

However, in addition to these general factors which affect all operators, in many EU countries, cable operators face an increasingly competitive business environment. In several Member States, their market share is at threat due to the rapid growth in demand for satellite services, and in some cases to the development of DTT. In those countries where competition is strong, the business plans of cable operators is predicated on the expansion of their activities from distributors of broadcast programmes to full service providers. This means that the cable operators' ambition is to progress from a utility/public carrier role, consisting in simply



transmitting other people's channel, to creating their own bouquets. This implies making decisions on which services they carry, and ultimately offering their own content services. The margins for carriage indeed do not provide a strong incentive for investment as the higher margins lie in the service level. Of course, the backdrop for this is that television will not be the only service they offer on their networks, as per the triple play model.

**Figure 4.3**  
**Market share of cable across the EU**  
(Percentage of households receiving television programmes via cable)



The migration to digital broadcasting, which would be a step in the direction of becoming full-service providers by allowing cable operators to offer more attractive services, is, however, moving more slowly than forecast. Had demand for digital services grown rapidly, this would have made it possible for cable operators to find financing for the network enhancements and to progressively widen their offer. This would have put them in a better position to compete successfully with satellite operators. The reality, however, is that the demand for the new services has not risen as rapidly as had been hoped: the development of digital television has been slow (few digital channels on offer) and the take-up of other services such as broadband internet access or telephony has also been much slower than anticipated. A compounding problem has been that digital TV remains essentially in the hands of Pay-TV operators. In countries where the diversity of programmes on offer is already large, as is the case in the core group of "cabled" countries, the advantages of shifting to digital are not seen by consumers to be worth paying more for additional services. Yet, major efforts had been made by the cable operators to upgrade the networks to digital. These investments, which have been costly, need to be paid back and in some cases completed.

The problem is most acute in markets where competition from other platforms is keen and growing. In fact, whereas cable operators' costs have risen as a result of the network upgrades and other investments, the cost of a satellite receiver has come down. Moreover, satellite operators offer a wider range of channels for a one-off payment. There is thus heightened



competition for cable operators, which makes them very sensitive to costs and capacity requirements.

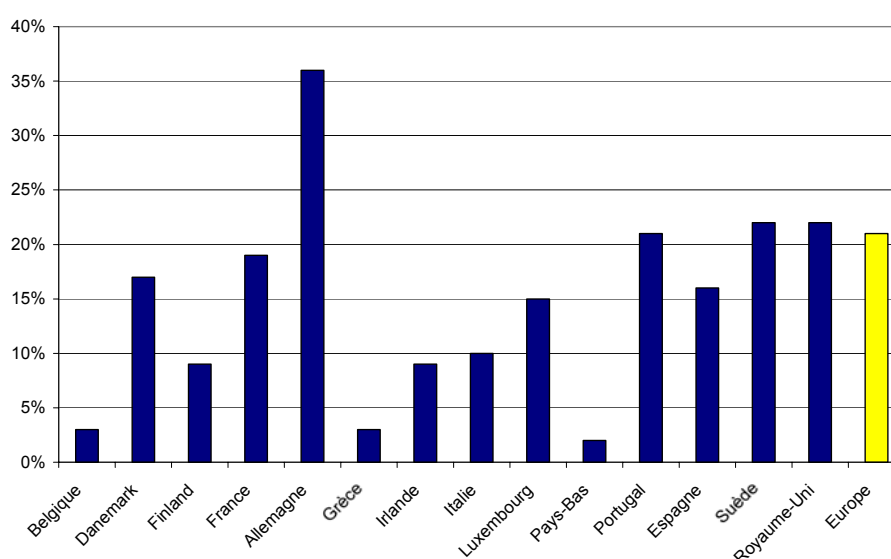
Given the poor prospects in terms of expanding the variety of services on offer, some cable operators privilege another strategy which consists in seeking to add value to their current offer by selectively buying broadcast content and packaging and marketing the result. Increasing the value of content to users indeed means an increased ability to raise prices charged to end-users and to increase revenue. Yet, again, because digital has not developed as expected, present restrictions on the analogue operations, notably restrictions on the use of capacity as implied by must-carry obligations, are felt more acutely. Cable operators claim that the must-carry requirement cuts their earnings potential since their offer may include services the customer is not interested in but has to buy along with the rest.

Finally, in countries where the market is very segmented or where the low vertical integration of cable network operators prevents network operators from having direct access to the end-users, as in Germany for example, another challenge for cable operators is to increase their access to end-users (i.e. without going through intermediaries at Level 4). Being able to sell directly to the end users would allow cable operators to market more aggressively their new services, and thereby improve their competitive situation as compared with satellite and digital terrestrial television operators.

#### 4.4.2 Satellite operators

The market share of satellite also varies significantly across the EU, as illustrated below. In many countries, the share of satellite is rising rapidly over time, challenging other distribution modes.

**Figure 4.4**  
**Market share of satellite across the EU**



As indicated earlier in this report, although the costs of cable operators have risen substantially as a result of the investment upgrades which these have had to undertake to switch to digital, the cost of satellite has tended to come down, making this an increasingly attractive distribution mode for price-sensitive customers. Regulatory constraints limit the rate of growth of satellite in certain countries, but the underlying trend is undisputable.

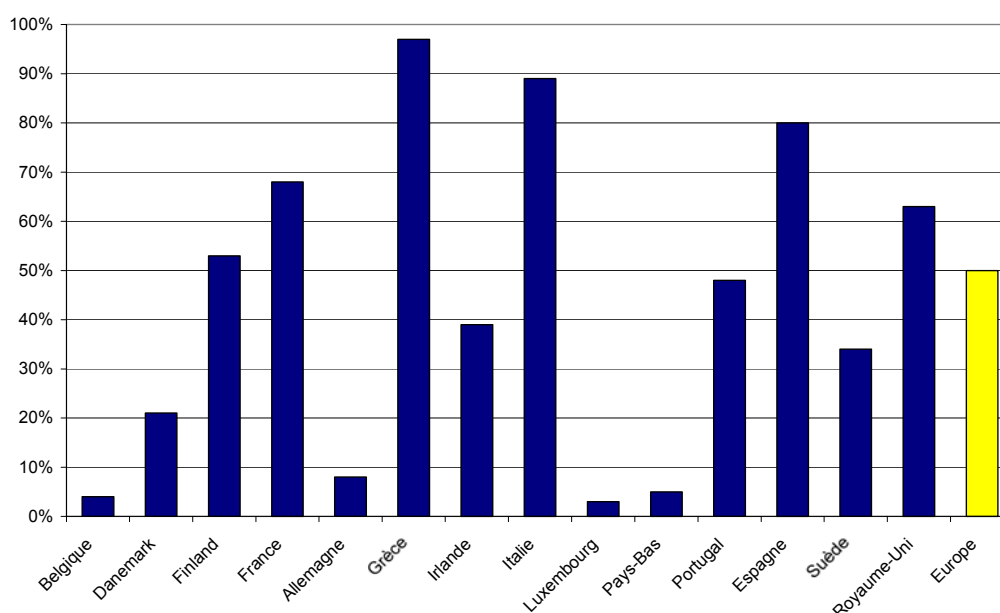
Satellite operators' revenues come from the sale of mobile communications services, analogue and digital radio and television broadcasting services and related services, internet communications and corporate networks.

#### 4.4.3 Terrestrial network operators

Terrestrial network operators provide radio and television broadcast services to the public. At present, terrestrial access to analogue television remains dominant in Europe in terms of the installed base of receivers. Variations between countries are, however, important, as illustrated in Figure 4.5.

The importance of terrestrial television owes much to historical and technological factors: prior to the arrival of multi-channel television via cable and satellite, terrestrial broadcasting was the least expensive way of covering 80 percent of large territories with the technologies available. Population density and the demand for more numerous channels then facilitated the development of cable in certain countries, along with a possibility which appeared more recently but is steadily making headways, i.e. satellite.

**Figure 4.5**  
**Market share of terrestrial broadcasting across the EU**  
(percentage of households receiving television programmes via terrestrial means)



## 4.5 Cost assessment methodologies in telecoms

As indicated in the introduction to this chapter, the experience of telecoms is an interesting case in point, as regulatory measures have been implemented in this sector to respect the general interest, for which specific methods were developed or adapted. Below, we present some examples of approaches that have been used in telecoms to assess the costs of two fundamental general interest obligations: interconnection and universal service.

Under the universal service obligation, telecom operators have to connect customers at a reasonable market price, whatever the location of these customers. Under the interconnection obligation, telecom operators must guarantee that two telephone subscribers can connect to each other in all circumstances, across networks.

The interconnection obligation derives from the universal service obligation in a market opened to several players. Indeed, as markets open to new entrants (because of the development of new technologies or of deregulation) there is a need to interconnect networks. Interconnection services are thus defined as services offered by telecom operators to operators of other fixed-line or mobile networks either to collect traffic, or to deliver it to a correspondent on a different network.

The universal service obligation creates a need to set guidelines for interconnection fees to avoid unfair treatment of new market players as markets open up.

Different methods have been proposed over the years to assess the costs of these obligations for telecom operators. Among these one can mention the fully allocated costs (FAC) approach, the Efficient Component Pricing Rule (ECPR) method, the Ramsey-Boiteux and Laffont-Tirole methods, which take demand into account, and the Long Run Incremental Costs approach (LRIC). The objective of this “costing” of the obligation was to help set an appropriate price for interconnection between operators, in markets where the existence of an incumbent operator caused a disequilibrium in market forces in the negotiations (i.e. lack of symmetry between players). The methods aim at assessing the “cost” for the network operator of granting access to another player to allow this other player to offer a service which the incumbent operator could have provided itself (and actually often continues to provide). The “cost” is defined as the sum of an actual cost linked to the provision of the service (or of the use of the infrastructure), plus an opportunity cost for not being able to provide the service exclusively to the end-users.

The service to be “costed” is, however, a service rendered to other players at the same level of operation (i.e. in the same cell of the pyramid) as the incumbent operator. In other words, it represents the cost of providing a service to an operator with whom the incumbent operator directly competes.

Below, we describe how the economic impacts of two different types of general interest obligations in telecoms was assessed, as an illustration of methods that could be used in broadcasting, and introduce a set of concepts which will be useful in the remainder of the study.



### 4.5.1 The net avoidable costs' approach

#### a) The methodology

The net avoidable costs' approach is a method which has been used for example to assess the cost of the universal service in telecoms in France.

The “net avoidable” cost associated to the universal service obligation in telecoms is assessed by measuring the *net cost* associated with the universal service obligation, minus the *additional revenue* associated with the provision of the service that would not have been offered were it not for the obligation. The “*net cost*” is defined as the difference between the actual cost and the cost that would have been observed in the absence of regulations.

In this approach, the costs that are measured are ‘actual’ costs, i.e. they represent the actual costs incurred by the operators, as taken from their books.

The methodology is called the “net avoidable costs” method since all costs evaluated are net costs that could be avoided in the long term. The approach takes into account the cost of renewing the equipment associated to the provision of telephone services in given areas that would possibly not be covered were it not for the obligation. The approach is possible in this case because the universal service obligation entails an obligation to provide “more” services than would otherwise be offered, so that the “avoidable” costs are, indeed, observable and measurable in the company’s accounts.

The assessment of the cost of the universal service obligation involves identifying and describing:

- The underlying objectives and constraints associated with this obligation
- The specific dispositions imposed on the network operators
- The situation that would be observed in the absence of the obligation
- The revenue and expenditure structures that result from the imposition of the obligation

Applied to the universal service obligation in telecoms, the above elements can be translated in the following way: the universal service in telecoms is:

- An obligation to offer a range of services
- Of a given quality
- To all users
- Independently of their geographic location
- At a reasonable price

The services to which the universal service obligation applies are the provision and operation of telephone services, of public phone booths, of information services, of an emergency service and the production of a telephone directory.

With the exception of telephone services, the services listed above could have been either :

- Offered by *all* telecom operators on the market, in which case the cost of offering these services would have been equivalent for all (relatively to the size of the business); such a system would, however, not have been economical (duplication of costs at the macro level);
- Of limited cost, in which case resources for its financing could have been found within the framework of a universal access service fund;
- Offered on a « pay or play » basis.

There are two features of the universal service obligation which create specific constraints on operators, and therefore lead to a rise in costs: these are the geographic coverage condition (ubiquity) and the requirement to charge a « reasonable » or « affordable » price for the service.



The ubiquity constraint translates into an obligation not only to connect customers wherever they are, but also to charge uniform prices for the services. The uniformity of fees applies to the basic subscription fee and to a set of reference tariffs applied across the whole territory (or country).

The « affordability » constraint reflects a social objective. Telephone tariffs are deemed to be “affordable” when they allow a penetration rate of phones in households that is compatible with the social objective pursued.

Taking these two constraints into account, one can decompose the « cost » of the universal telephone service (or of universal access) into two components, to which a third can be added to reflect the benefits that result from the universal service obligation.

1. The first component is equal to the cost induced by subscribers who benefit from reduced tariffs or other forms of subsidies. This cost component relates to the social objective. In the case of specific (reduced) tariffs, the cost per subscriber induced by the obligation is equal to the difference between the commercial fee and the special or reduced fee for given end-users. In the case of individual subsidies, the cost is equal to the value of the subsidy. The additional « cost » component associated to this constraint is the minimum of the subsidy and the net avoidable cost associated to a given user. The minimum value is used as opposed to an average or to another combination of the two values in order to avoid undue subsidisation of operators that would maintain abnormally low fees.
2. The second component of the total cost of the universal service obligation results from the uniform territorial coverage. In the absence of the universal access constraint, areas in which the operator would have to support higher than average costs to offer the service based on available technologies may not be covered by the service. In this case, the universal access obligation translates into an obligation to set uniform tariffs across the whole country, under a constraint of financial equilibrium. This cost component can be approached by assessing the net avoidable prospective cost, defined as the difference between the revenue and the cost of telephone services in areas where costs are significantly higher than average. Costs used for this assessment are replacement costs, measured on the basis of available technologies.

In practice, these costs are evaluated through a two-step procedure:

- In a first stage, one seeks to identify the regions or areas where the costs of delivering the service are likely to be so high that operators may not offer the service in the absence of the universal service obligation;
- The second stage involves measuring the net avoidable cost in these areas. The revenue associated with the service is equal to the direct revenue collected by the operators in those areas, plus the indirect revenue attached to incoming communications (i.e. people from outside the area calling correspondents within the area). The costs include the (avoidable) costs associated to the development and maintenance of the infrastructure, and the cost of operating the (telephone) service in the areas concerned. Indeed, were it not for the obligation, the costs of building and maintaining the infrastructure and operating the service would not be incurred. If the difference between the cost and the revenue is positive, the amount thus calculated represents the implicit subsidy provided to subscribers in that area.





3. The third component, measuring the benefits associated with the universal service obligation, is then also assessed and deducted from the two previous cost components to get the « net » cost to operators of the universal service obligation.

Clearly, the assessment of costs is very dependent on the precision and quality of the data, the quality of the model and the underlying assumptions (notably regarding the cost of existing technologies).

***b) Example: assessing the cost of the universal service obligation in France***

Below, we describe how the above methodology was applied in France to assess the cost of the obligation for the incumbent operator, France Telecom.

The first step consisted in segmenting the population of users of France Telecom services in several groups of homogeneous customers. Then, for each group, one assessed whether the cost associated to the provision of telephone service to this group of customers was greater than the revenue derived from the provision of the service to this group. When the costs associated to a given group are higher than the revenue, the difference represents the cost of the universal service condition that is associated with the provision of the service for this group.

To the extent that nearly all France's population has access to telephone services (given the high rate of penetration of phones in French households) the costs thus calculated give a measure of the net total cost associated to the social objective and to the land planning objective.

Given the nature of the obligation, however, the results have to be adjusted to take into account the net benefits attached to the provision of universal access. In the case of the universal service obligation as applied to the incumbent operator in France, the benefits are those associated with the image (or brand-name) effect, the effect on reputation and the universality of presence.

The segmentation of the population into homogeneous groups was based on the definition of local areas used by France Telecom. The cost of providing services to each local area was then assessed by taking the sum of infrastructure costs plus maintenance costs. Information on these was taken from the company's accounts.

These costs, which as indicated above represent the costs associated with the social objective *and* the land planning objective, and which measures the net costs that the operator would have avoided if it did not have to cover all areas under the universal service obligation, must then be compared to the net revenue that is associated with the service. The next step thus consists in measuring the direct revenue (outgoing traffic) and the indirect revenue (incoming traffic) associated with the provision of services in the different local areas.



Substitution effects must also be taken into account. Indeed, the non-provision of service to specific groups of users does not necessarily lead to an absence of revenue from these subscribers, as some of these rely on public phone booths or on other operators to meet their demand. One thus has to assess the costs that would have been incurred in the absence of the universal service obligation (such as the cost of more public phone booths in a given area), and the revenue that would have been observed in that situation, in order to offset one against the other.

The net total costs thus calculated constitute **real net avoidable costs** in the sense that they are directly attached to the relevant service and represent net costs that would not exist in the absence of the service.



#### 4.5.2 The LRIC method

The second example of costing general interest obligations in telecoms relies on the long run average incremental cost (LRIC) method. This method is generally considered to be the most appropriate to provide information or 'benchmarks' for interconnection fees between telecom operators.

As stated above, the interconnection obligation creates an obligation for telecom operators to guarantee that two telephone subscribers can connect to each other in all circumstances, across networks.

The obligation to interconnect networks is imposed where competition exists: there is no question of duplicating expensive infrastructure which would constrain the subscribers to subscribe to as many connections as there are networks. Furthermore, in a market economy, freedom of negotiation and contract must be exercised within the framework of this obligation. However, once these principles are established, it is necessary to take account of possible disparities which could render these negotiations unfair: this may be the case once one of the parties is in a dominant situation in the market concerned.

Telecommunications regulations provide for a number of safeguards: on the one hand, intervention by the regulator to endorse fair interconnection conditions; on the other hand, a supplementary principle of aligning interconnection rates with actual costs.

It is therefore necessary for regulators to be able to assess the degree of cost-orientation of the interconnection rates proposed by an incumbent, who is indisputably in a dominant position at the time markets are opened up. Assessing this requires an ability to grasp how costs for interconnection services are formed.

The verification of orientation of prices towards costs can actually be done in two ways:

- **An approach by comparison (benchmarking)** which consists in comparing prices offered in different contexts (see the table below which compares the subscription fees of various cable subscriptions in selected EU Member States, for example); in general, however, economic conditions differ from one country to another for reasons linked to the market, to geography or to special economic or socio-economic conditions; this method therefore only makes it possible to establish ranges of prices, which can nonetheless be of considerable value.

For illustration purposes, the table below compares subscription tariffs for the standard cable package in the three most heavily cabled countries in the European Union. Only the Belgian operator gives a full breakdown of its charges in its published price list.

The prices are for a one-year subscription. The German prices are those for direct private subscribers. Other rates apply to local distributors (network level 4). All prices are in euro.

Member state (& operator)	Subscription	Copyright	VAT	Total
Belgium (Brutélé)	83.30	14.13	20.46	117.89
Netherlands (UPC)	-	-	-	126.-
Germany (DT Kabel Deutschland)	-	-	-	160.08
Germany (ish)*	-	-	-	165.37

\* The rates for ish are those following its price increase of 1 May 2002.



It is interesting to note that it is the operator with the heaviest must-carry obligations that has the lowest rates. Based in bilingual Brussels, Brutélé has to include must-carry channels for both language communities in its service offering.

- An ***analytical approach***, which involves examining the costs presented by a given operator. It is such an approach which is described below.

The definition of an analytical framework to estimate the costs of any given operator is, however, a difficult task. Similarly to broadcasting network operators, telecom network operators implement networks which are the result of substantial investments spread out over time, and offer a portfolio of services which are more or less interdependent, i.e. which often call on the same productive resources. Moreover, different operators are bound to offer different portfolios of services, under different market conditions, hence entail different types and levels of costs. Although the framework can be generic, the models themselves must thus be company specific. Furthermore, some of the services that are offered by telecom network operators are sold on a retail basis (in the final market) while others, such as interconnection services for telecom operators, are sold to other market operators and form what could be called a wholesale range of products. Assessing the costs of a range of services in a context of this type therefore requires an ability to ***allocate the costs incurred to the operator's various lines of business or activities***.

LRIC methods are designed to estimate the costs created by offering a sub-section of services which call on the same network elements. The costs considered are those which would be avoided if these services were not offered. To apply this method, it is necessary to clearly characterise the whole operation of the service provider, identifying all the activities depending on the “shared” network elements, then to demarcate the sub-section of the activity whose costs the analyst is trying to assess. This ‘sub-section’ is then referred to (and treated as) an increment.

In the case of interconnection services in telecoms, the selected increment comprises network elements belonging to the core network, i.e. those *shared* among the users, with the exception of network elements *dedicated* to users and whose size does not vary as a result of the presence of interconnection services.

The LRIC method consists in estimating the costs induced by the provision of the incremental ‘sub-section’, i.e. the costs that come in addition to those related to the provision of a given portfolio of services. The incremental cost associated with the provision of the service, say service A, corresponds to the net saving that would have been observed if service A had not been produced/offered. The notion is similar to that of a marginal cost, except that a marginal cost represents the extra cost associated with producing another unit of an existing product or service, whereas the incremental cost as defined here represents the extra cost of providing another service.

“Incremental costs” associated with the production of a given product or service are generally considered by economists as the cost that the firm will take into consideration when deciding whether to add the product or service to its current offering. It is the cost that will be balanced against the expected revenue from this new product or service in order to decide whether or not to launch it. All costs are not necessarily included in this equation: a company may exclude, for instance, a certain set of basic fixed costs, that it usually does not include in the assessment of the incremental cost attached to adding the service.



In the case of interconnection in telecoms, the “incremental” service is the interconnection service, and the “incremental” cost represents the additional cost to produce this service as against not producing it in the long term. The “long run” element in the LRIC method refers to the fact that incremental costs are measured in a long term perspective. In the long term, fixed costs indeed become variable costs, so that in order to have a complete view of the incremental cost associated with a given obligation one has to measure both the operational costs associated to the provision of the services, and the fixed or investment costs associated with it. It is, however, necessary to associate with the cost only that part of the fixed cost which is directly attached to it, which is why one generally refers to “average long run incremental costs” and not total long term incremental costs.

The measurement of interconnection costs in telecoms thus requires developing a model which specifies how all the costs of the operator are structured, based on its actual service offering and its specific organisation. The model must thus be company specific, given the variety of service offerings of the different market players, and the different market conditions (geographical dispersion of customers, technologies used, etc...).

The model specification relies on a set of parameters which have to be defined a priori:

- The technology used: one generally assumes that the operator would pick the best technology;
- The service architecture and the available capacity: one has to reproduce the service architecture and take into account all the capacity parameters of the operator;
- Prices: market players may not communicate the complete fee structure for all the services; revealed market prices can be a good second best solution.

Additional parameters to be taken into consideration are special provisions related to depreciation (the historical rate of depreciation, the specific technical constraints resulting from the existing technologies that would not apply with a new technology, etc.).

Given the difficulty of setting all parameters and the variety of possible situations, two variants of this approach have been used in practice:

- A top-down approach: in this variant, the model is defined based on the incumbent operator’s own network and service structure, and is calibrated based on the historical accounts of the operator, except for the fact that the value of the equipment is calculated based on actual costs and takes into account foreseeable changes in network organisation or structure by adapting it based on different hypotheses;
- A bottom-up approach: in this case, the model describes an “optimal” network that a new player could be building to provide the service considered based on the best available technology; here, equipment costs are valued at their present as opposed to their historical cost.

Both methods rely on similar hypotheses, even if the underlying methodology is different. Their results are compatible provided that certain conventions are made, in particular on the structure of the service offering and the necessary infrastructure to provide the service.



## 5 Economic impact of the obligations

As indicated earlier in this report, the obligations that are imposed on the providers of electronic communications networks and services apply to different types of operators and are often technology linked. Each obligation entails different types of costs and has a different economic impact. For example, conditions attached to the rights of use of radio frequencies apply to broadcasters distributing their programmes through terrestrial means. Must-carry obligations apply to cable network operators. Access to CAS systems is required for all broadcasters seeking to distribute their programmes via digital means or for Pay-TV, but is not relevant for FTA terrestrial television broadcasting. In addition, the conditions are often *operator specific*.

Given that the broadcasting market is a competitive one, in order to fully understand the economic impact of the measures considered, one needs to discuss the effects of the measures on those operators directly affected by them, taking also into account the indirect impact on other players.

This chapter describes in turn the economic impact of the three types of measures under consideration in this study (rights of use of radio frequencies, must-carry and access to CAS).

### 5.1 Authorisation procedures and rights of use of radio frequencies

#### 5.1.1 Economic impact assessment

As indicated in Chapter 3, authorisation procedures in broadcasting can vary according to Member State and type of actor. The procedure itself carries a cost but it is generally not considered to be excessive. Conditions can, however, be attached to authorisations, which entail costs. These include positive programming obligations for broadcasters, must-carry for network operators and in some cases coverage obligations. In this section, we discuss the economic impact of the conditions attached to the rights of use of radio frequencies.

Radio frequencies are typically granted to broadcasters, who “subcontract” them to a network operator. The conditions that are attached to the right of use of the frequency also typically apply to the broadcaster.

Assessing whether the cost supported by the broadcaster is “fair” in comparison to the right to use the frequency falls outside the scope of this study. One issue of concern, however, is whether the granting without remuneration of the right to use the frequency to a terrestrial broadcaster is not a form of discrimination against operators on other platforms or in other sectors, such as telecoms.

Indeed, radio spectrum is a finite resource of substantial and increasing economic importance. At the same time, demand for frequencies is increasing as more and more products look towards wireless technology to provide greater mobility.

Broadcasting, and in particular television, occupies a significant amount of spectrum. Many administrations are considering the future demand for broadcast spectrum and thus the supply that should be made available.

In view of the expanding demand for radio spectrum, satisfying demand is becoming increasingly difficult. Traditional methods of spectrum management are not bringing about the levels of spectral efficiency so keenly sought after by administrations. New methods of



managing scarce spectrum resource have thus been suggested including beauty parades, spectrum valuation and pricing, spectrum auctions, secondary trading and recognised spectrum access.

One should be aware of the differences between valuation of spectrum, and the pricing of it. **Valuation** entails determining a notional financial value for a given portion of spectrum. There are many means of achieving this, some of which are described below. However, valuation alone is only the first stage in the process and purely acts to clarify what might or could be charged for the use of certain spectrum. Whilst providing transparency, valuation does nothing to encourage action amongst spectrum users. **Pricing** is the translation of valuation into practicality. The price applied to a piece of spectrum may not be directly equivalent to its value. In the UK, for example, in the initial investigations into spectrum pricing, the price attached to the spectrum was increased gradually to a level of a half of the calculated value. This was felt to be a good balance between encouraging efficient spectrum use whilst allowing wireless applications to develop in the wider interests of the economy.

Below, we review some of the proposed methods to value spectrum used in broadcasting and summarise the discussions related to the benefits that could be derived from spectrum pricing. The reference to “spectrum pricing” below does not prejudice of the level of the price (i.e. whether it is equal or not to the real underlying value of spectrum), nor of the fact that the price may be paid for indirectly, for instance through obligations to provide coverage, services, content, as a means of paying for the licence. ( The debate on spectrum valuation and spectrum pricing is ongoing, however: given the large amount of spectrum occupied by broadcasting, there are fears that the cost to broadcasters of any move towards more market-based pricing for spectrum could lead to a position whereby services become commercially unviable, as they were built on the premise that spectrum was cheap, or indeed free.

### 5.1.2 Spectrum use in broadcasting

#### a) Spectrum allocation at present

**Spectrum allocation** is the process of determining which spectrum is to be used for which type of service (e.g. fixed, broadcasting or aeronautical). Spectrum allocation takes place at an international level, through a process of negotiation in organisations such as CEPT and ITU.

**Spectrum assignment** is the selection of a particular frequency to be used for a particular service (e.g. a specific television or radio station or air-traffic control at a specific airport). The allocations set the framework within which individual assignments can be made, and limit the flexibility of national administrations to use spectrum for any purpose (broadcasting services can only occupy the frequencies allocated to broadcasting, and so on). Obtaining international agreement, even for unilateral changes in spectrum usage, can be a lengthy matter, taking five years or more with the need to gain agreement at World Radio Conferences, which typically take place every four years, for any change.

Traditionally, spectrum licences are usually granted on a first come, first served basis, so long as channels are available. Fees are set to cover the operating costs of the licence issuing organisation. In principle, licences can be revoked by administrations to allow for other uses of spectrum but in practice they rarely are. Long notice periods of licence revocation are the norm due to the need for an affected licensee to modify or replace all equipment in use.



**b) Why talk about pricing spectrum?**

Radio spectrum is becoming increasingly congested. Although advances in technology are increasing the amount of usable spectrum by using it more efficiently, such developments cannot keep pace with the ever-growing demand for spectrum from existing and new uses, all of which stem from the development of applications requiring mobility which cannot be serviced by wired or other fixed means.

The traditional approach used to manage spectrum in many countries does not work well in this environment, and can result in economically and technically inefficient use of spectrum. A main goal of spectrum pricing in broadcasting, and in fact the main argument underlying the discussions related to the spectrum pricing across the board, is to provide incentives to users to use the spectrum more efficiently and/or to release that part of the spectrum that is unnecessary or not used efficiently. As indicated above, this discussion does not prejudge the ways spectrum licences could be paid – for example indirectly through certain programming obligations.

There are a number of problems in awarding licences using the processes currently employed. These are that:

- The spectrum assignment process is economically inefficient because spectrum is not assigned to the user with the highest value use (however ‘value’ is defined);
- Users have few incentives to give up underused spectrum or invest in spectrally efficient techniques (indeed if congestion is anticipated by users, there is a tendency to hoard licences);
- Changing the use of spectrum is a slow process, which can lead to delays in introducing new technologies and can impede competition and innovation.

Two other reasons are sometimes mentioned to justify the need to price spectrum used in broadcasting:

1. The fact that spectrum is currently provided without remuneration to many broadcasters entails discrimination between different platforms in broadcasting; cable operators pay for the development of the infrastructure that allows them to distribute their services, so why should terrestrial operators not pay for the spectrum?
2. It entails discrimination between broadcasting and other spectrum users, who have had to pay for spectrum; one example is mobile telecom operators.

What the two above arguments imply is that, beyond achieving higher spectrum efficiency, pricing spectrum could be a means to ensure a level playing field for digital terrestrial, satellite and cable operators and between broadcast and non-broadcast spectrum users.



To date, the discussion around pricing spectrum has focused on the valuation and pricing of spectrum used for terrestrial UHF and VHF broadcasting. Satellite broadcasting requires much more spectrum than terrestrial, but at much higher frequencies which are not “prime” spectrum for national-coverage terrestrial services such as mobile, so that its value has in the past been, in the main, ignored or neglected.

The Cave report<sup>19</sup> in the UK, however, recognises that only charging for spectrum used by terrestrial broadcasters and not that used by satellite broadcasters would be inequitable. Whilst it is possible to charge for spectrum use for those sites where signals are uplinked from a given country onto a satellite, the downlink transmissions from the satellite are outside the jurisdiction of the countries in which they are received, unless interference is caused to existing (terrestrially

<sup>19</sup> *Independent review of Radio Spectrum Management, Consultation Paper, June 2001, HM Treasury*



based) services. Charging for spectrum for uplinks in one country could simply lead to operators relocating in another country. The UK has recently issued a consultation document on *Recognised Spectrum Access*<sup>20</sup> whereby satellite operators would pay for a licence to recognise their use of the spectrum for the downlink in the UK, enabling the regulator to act in the satellite operator's interest to protect the downlink from harmful interference from other services. There is one potential flaw in this so far as satellite television operators are concerned. This is that those people who view the services and would be affected by any interference believe the service is as protected as their normal (terrestrial) television service. Perception in the eyes of the public in the case where the regulatory body knowingly allowed interference to satellite reception would be likely to yield significant negative backlash.

More spectrum is used for satellite downlinking than for terrestrial television, though it is of 'poorer' quality because of difficulties linked to developing sufficient power in space, fading due to rain and atmosphere and thus cannot be as effectively utilised. However, the spectrum can be effectively re-used from neighbouring orbital positions and thus has a re-use factor that is much greater than that of terrestrial television. Without further analysis it is difficult to say whether 1 MHz of satellite spectrum has a similar value to its user as 1 MHz of terrestrial television spectrum. Using current technologies, it takes almost four times the spectrum to deliver the equivalent number of channels using satellite rather than terrestrial means.

Cable operators do not use spectrum *per se*. Even though their networks transmit signals using radio spectrum, it is in a sealed environment, at least in theory, protected from causing interference to and receiving interference from other radio-based services. This is not always the case but in the main holds true. Cable operators have to undertake significant infrastructure and network investments in order to transport the signals. As indicated above, some therefore argue that the "free" award of spectrum is a form of discrimination, as (private) cable operators have to pay for the development of the infrastructure to carry the signal whereas terrestrial operators get the equivalent 'raw asset' for free. It should be noted, however, that terrestrial operators still need to invest in their own transmission infrastructure, e.g. masts and transmitters, though this is of significantly lower cost than the infrastructure required for cable.

The convergence of networks and the fact that an increasing number of data services are being delivered across broadcast platforms, have also led to claims from the telecommunications sector that broadcasting should no longer have special status, and that the spectrum it uses should be treated and licensed on the same terms as telecommunications spectrum.

There is, however, apart from the differences regarding general interest obligation applicable, a major distinction between telecoms and broadcasting, which is that the former is a point-to-point (or one-to-one) service, whereas broadcasting is a point to multipoint service: in broadcasting, a single stream of programming or associated data is received by many users, whereas in telecoms it is received by only one user. Another distinction is that broadcasting is one-way whereas telecoms are two-way. However, these distinctions are becoming blurred with the advent of interactive TV whereby an end user can act to modify the stream being broadcast and thus in some way personalise their experience. As the usage is, in the main, on a different basis, it follows that the underlying value of the bandwidth used is not necessarily identical.



### ***c) Issues related to spectrum pricing for broadcasting purposes***

It is generally recognised that spectrum pricing is unlikely to be of benefit (i.e. to lead to improvements in spectrum efficiency) in the following circumstances:

<sup>20</sup> *Introducing Recognised Spectrum Access, A Consultation Document, July 2002, Radiocommunications Agency*



1. There is not, and/or is unlikely to be in the foreseeable future, an excess demand for spectrum;
2. It is not feasible to collect licence fees (for example, because the application not subject to a license or there are a large number of currently unlicensed users);
3. There is no opportunity for users to change their behaviour except by abandoning their service;
4. There are political or policy factors which get in the way of the application of spectrum pricing.

On the face of it, the application of the above criteria to broadcasting indicates that there does not seem to be obvious obstacles to the implementation of spectrum pricing for broadcast spectrum. In fact, the main obstacle lies in the difficulty in valuing spectrum adequately, i.e. in assessing the “right price” or the price at which there will be no competitive distortion.

The first of the above conditions, related to trends in demand for the resource, is increasingly untrue for broadcasting. Demand for additional frequencies, especially for the expansion of DTT, is ever growing.

The second condition (the collection of licence fees) can easily be applied to broadcasters. Only in the case where there is a large number of dispersed users (such as for baby alarms or other widespread wireless devices) or where users cannot readily be identified is the collection of licence fees difficult.

As for changing behaviour (the third condition), broadcasters have already shown that they can be more spectrally efficient through the development and introduction of DTT. There are also opportunities for broadcasters to vacate the valuable VHF and UHF spectrum they occupy by moving to cable, satellite or DSL delivery. The ultimate spectrum efficiency step of closing inefficient analogue services has, however, not yet been taken.

The biggest questions surrounding spectrum pricing concern the fourth condition. It is, in fact, arguable whether there are political or policy factors which would get in the way of spectrum pricing. Certainly for public service organisations with obligations such as those considered in this study placed upon them by national governments, it could be argued that there are policy or political factors at play. This is especially true for free-to-air broadcasters, or in countries where DTT is seen as competition to existing pay-TV platforms. For commercial services generating revenue directly from consumers, however, political or policy considerations are less evident. Indeed, these commercial operators are fundamentally businesses out to make a profit, and thus whilst government might welcome competition between platforms, national policy factors do not come into play to the same extent.



Of course some DTT services are run by public service organisations who (also) have certain obligations placed upon them. These obligations may entail capital expenditures linked for example to the provision of guaranteed coverage, and in this sense could be regarded as hidden spectrum fees. Such payments should be taken into account in evaluating the spectrum fees appropriate for such organisations.

One objection to spectrum pricing generally raised by public broadcasters concerns their ability to pay an additional spectrum fee. They mention two arguments for this:

1. One is the fact that, as indicated above, they already support a number of obligations to “offset” the fact that they receive the possibility to use the spectrum for free – or nearly for free.

2. The other is that they are subsidised activities. Hence, pricing spectrum would simply entail cost and revenue transfers between different parts of the same administration (or a tax from one government department to another).

If spectrum pricing is introduced for broadcasters, there is indeed an interesting situation that arises in respect of public service. The revenue of public service broadcasters partly comes from a licence fee or other funding sources, in addition to revenue from commercial advertising. Where there is a licence fee, this is usually set by the government in order to offset the part of the costs of the public service broadcaster's operations that cannot be entirely offset through advertising revenue. Any change to the cost structure of the organisation - to reflect payment for spectrum for example - would eventually result in a modification of the licence fee or public funds received by the broadcaster, and thus the net effect to the broadcaster is likely to be effectively zero. However, even if the spectrum fees paid to the government are given back to the broadcaster in order to pay the licence, it does not imply that the *evaluation* of the spectrum is irrelevant. Indeed, the valuation of the spectrum will both increase transparency and provide some incentives for more efficient use of scarce resources. The net effect to the government of the valuation of spectrum used by these publicly funded broadcasters would be a zero increase in overall revenue, however the circular payments would at least offer the transparency of indicating the value of that spectrum, which may prove important if it is to be re-farmed for other uses at a later date.

There are other arguments brought forward against the valuation of spectrum used for broadcasting purposes. One of these is that, given the significant amount of spectrum occupied by broadcasting, and given market conditions in this sector, the cost to broadcasters of any move towards more market-based pricing for spectrum may lead to a position whereby services become commercially unviable. Hence, even if the pricing of spectrum used for broadcasting purposes makes sense from an economic point of view, taking into account the benefits to society of using spectrum more efficiently (i.e. taking into account the benefits associated with other potential uses of spectrum or in relation to the costs of other platforms), changing the present economic conditions of the sector by setting a fee for spectrum could lead to the squeezing out of some operators in the sector, or to the disappearance of commercially unviable services (including potentially public utility services).

Another argument sometimes advanced against the pricing of spectrum used in broadcasting is the fact that DTT services, especially those in new market places such as portable and mobile, are not (yet) proven businesses. Hence, the value of the spectrum based on revenue generating opportunities can not easily nor accurately be ascertained. Similar arguments could, however, have been applied to the auction of third generation mobile licences where the services it will deliver (mobile internet and data services) are also an unproven business. Yet, those operators were prepared to pay high prices for licences, even for unproven services. The long term consequences of the overestimation of the value of licences have, however, been devastating.

Thirdly it should be borne in mind that spectrum is of greatest value when it is scarce. The release of a significant portion of, especially UHF TV broadcast, spectrum carries the potential of creating a short-term glut, thus pushing prices down. Setting the 'right' price then becomes a challenge, when it is recognised that the mere pricing of spectrum might entail such a reduction in demand that the "equilibrium price" would in effect be much lower than what can be estimated with present information.

Below, we review some of the mechanisms which have been proposed, and in some cases used, in the past in order to arrive at a price for spectrum. Some of these rely on assessing the underlying *market value* of spectrum to users or to society, whereas others are more designed to



send appropriate signals to the market in order to achieve the desired objective of increased spectrum efficiency.

### 5.1.3 *Spectrum pricing methodologies*

#### *a) Overview of the possible pricing mechanisms*

Various pricing mechanisms have been suggested to help bring about higher spectrum efficiency, including:

**Administrative Pricing:** in the case of administrative pricing, prices are set which ration demand so that it matches available supply. Administrative pricing requires that administrations set prices for spectrum that encourage people to hand back unused, hoarded licences and to make use of more spectrally efficient equipment. This requires setting prices for licences that encourage this kind of activity by determining the next best feasible use of the spectrum.

Administrative pricing involves the least change to traditional systems whilst providing the benefit that, so long as prices are correctly set, the decision as to whether existing users change their behaviour is left largely with that user.

In theory, when prices are correctly set, administrative pricing leaves all users paying the marginal value of the spectrum to them, and thus provides realistic costs and revenues for users and administrations alike. In practice, however, prices can only be set using publicly available information and hence cannot reflect individual users' perspectives. In this sense the price will in practice always be incorrect, even if it does provide an incentive to use spectrum more efficiently.

**Auctions or Tenders:** under this system, licences are assigned through a competitive bidding process.

As a general rule, market-based transactions are likely to yield more economically efficient outcomes than other spectrum pricing methods. However, they provide less of an incentive for migration to spectrally efficient technologies and can only usually be applied to reasonably 'virgin' spectrum.

"Anticipating" the price that the market would set for spectrum used in broadcasting through auction processes can be done using telecoms as a benchmark – with all the adjustments that are needed to make the comparison valid. Alternatively, one could think of using the same "process" as that used to "value" frequencies in telecoms, despite all the travails this entailed, which consisted in the case of telecoms, in getting market operators to assess the value of a new customer.

Another method as proposed by BIPE in a study for the EU is that of valuation based on **spectrum users' revenues**<sup>21</sup>. This mechanism is best suited to organisations that are using spectrum for commercial uses and is, indeed, the way in which the Irish regulatory authorities are planning to charge for the use of spectrum for DTT. Although the method creates strong incentives for commercial organisations to use spectrum efficiently, it should probably be combined with administrative pricing for public service broadcasters. Public broadcasters indeed currently use significant swathes of valuable spectrum, for a revenue per bandwidth

<sup>21</sup> Digital Switchover in Broadcasting – A Report by BIPE to the European Commission, Directorate-General Information Society, April 2002.

which has no comparison with that of private operators. Hence, spectrum valuation based on spectrum users' revenues would not provide the right incentives for these users.

One further method is using a valuation based on **simulation of the market**. This makes it possible to determine how much users are ready to pay (through mechanisms to reveal willingness to pay). This method is theoretically the most exact, however it is also the most difficult to implement as the market model has to be accepted by all the players and it is difficult to gather and update the data which feeds a model of this type.

To be complete, one should also mention **secondary trading**, whereby licences may be traded between users without the need for further regulatory or administrative intervention. In such instances, licences may be packaged in a number of different ways with none or more conditions attached to the spectrum use (in addition to any conditions required for adhesion to ITU recommendations). For example licences may be packaged:

- **Geographically:** Each licence could cover a given region or area such that for national coverage a number of licences are required. Licences could be traded between groups depending on the commercial situation of each licence holder in each area;
- **By frequency:** Each licence could be for a limited amount of spectrum such that more than one licence is required for a service. Licensees could trade licences to provide contiguous blocks or to allow expansion of service when necessary or as commercially appropriate.

In addition, conditions such as the type of technology that might be used within a given area or set of frequencies may be put in place or a requirement to enable existing users to migrate to alternate spectrum. Little use of secondary trading is yet made in Europe, but an increasing number of administrations are investigating the possibility of its introduction.

Each of the above methods has advantages and drawbacks, however, in terms of their efficiency in achieving the desired objective and in terms of the economic implications for the market players' concerned. Society welfare is, in fact, not solely dependent on how efficiently spectrum is used. There are general interests that must be preserved, which may imply a less efficient use of resources for that activity, at least at a given point in time. For example, the need to allow for simulcast of analogue and digital programmes during the transition period to digital clearly justifies allowing the broadcasters which are preparing the shift to digital to continue to diffuse in both modes until consumers have all shifted. Also, even after the switch-over to digital has been completed, it may be in the general interest to let service broadcasters use a given frequency for public utility programmes while paying a lower fee for this than the marginal value of spectrum to another, commercial, user interested in using the bandwidth for commercial purposes.

Below, we describe in more detail some of the pricing mechanisms listed in this section and discuss in more detail the likely benefits and problems associated with pricing via auctions.



#### **b) Administrative Pricing**

As indicated above, administrative pricing requires setting prices at a level which rations demand so that it exactly matches available supply. The method implies that administrations set prices for spectrum that encourage people to hand back unused, hoarded licences and to make use of more spectrally efficient equipment.

Achieving this requires setting prices for licences that take account of (or are based upon) the **next best feasible use of the spectrum**. This could be either the existing use or some alternative, higher value service. In the case of the best feasible use being the existing service, **then the**

*price needs to be set to encourage efficient use of the spectrum by that user.* If the best feasible use is some other service, then the price needs to be set to ensure that either the spectrum is cleared for that other user, or the existing user pays the value that the alternative user would attach to that spectrum.

In the case of the application of an administrative based price<sup>22</sup> which forces the existing user into action, possible outcomes for the user include:

- Moving to an alternative service (e.g. public rather than self provided telecommunications)
- Moving to uncongested frequency bands which are in some way less attractive than that currently in use (in cost of exploitation or coverage for example)
- Using an alternative technology (e.g. narrower bandwidth systems)
- Not using spectrum and thereby incurring higher costs, or forgoing profit.

The additional (net) cost of these alternatives over and above the cost of using the spectrum in question is effectively the value of the spectrum to that organisation.

In order to estimate the value of broadcast spectrum we must therefore consider the costs and savings involved in undertaking one of the activities listed above. It is important to consider **savings** made as well as **additional costs**. As long as the savings associated with undertaking one of the above activities in order not to pay for spectrum are greater than the additional costs (linked to the shift) then there is an incentive for the operator to shift. This can be written:

If licence fee is greater than the net cost of switching (= total switching cost minus saving associated to switching) then there is an incentive to switch

If licence fee is smaller than the net cost of switching, then the operator will prefer to pay the licence fee

where the net switching cost is defined as the difference between the two sets of cost elements in Figure 5.1.

Clearly, the switching cost depends on the platform considered to be the “alternative” platform. This can be either cable or satellite.

In fact, if the savings are greater than the additional costs, this implies that there is already impetus for broadcasters to move to more spectrally efficient technologies. Whilst this might be true for infrastructure costs (satellite is generally regarded as achieving similar coverage at significantly lower cost than terrestrial means) the cost of replacing consumer equipment also needs to be borne in mind.



<sup>22</sup> Not necessarily of the “right” price for the spectrum, but an incentive-price that would get the user into action to at least increase efficiency of using the spectrum from the present situation

**Figure 5.1**  
**Elements composing the net switching cost**

Cost of terrestrial broadcasting	Cost of alternative diffusion mode
Broadcasting cost on terrestrial platform	Broadcasting cost on alternative platform
	+ /- Cost associated to the provision of an identical service to that provided by the terrestrial platform
	+ Cost of other obligations related to that mode (must carry, CAS)
+ Cost of other obligations related to that mode (content, coverage, ...)	+ Cost of switching from terrestrial to the alternative mode

Examples of situations which could be costed to give some indication of likely spectrum value are:

- Moving all terrestrial broadcasting to another platform such as cable, satellite or even DSL;
- Being forced into less spectrum and having to re-engineer the networks to take account of this (a study undertaken by the BBC showed that it is, in theory, possible to operate existing analogue networks in less spectrum, although the quality of reception would deteriorate as interference increased);
- Vacating VHF spectrum and allowing only UHF spectrum (VHF coverage is significantly wider for the same transmitter site and power, hence additional network infrastructure would be required in order to replicate VHF coverage at UHF frequencies);
- Changing transmission to all-digital (the move to digital from analogue broadcasting would, *for the same services*, require significantly less spectrum – however the cost of the necessary receivers required by viewers in order to allow the spectrum to be vacated must be taken into account – not just the cost of the additional network equipment).

In costing these different elements, however, one has to bear in mind the fact that the costing has to be done for **equivalent service provision**. Indeed, the coverage of alternative delivery platforms may not be equivalent. Ensuring that the costing is made for equivalent service provision is a pre-condition for not taking revenue into account in the above calculations (as the revenue can be considered as identical only if service provision is identical).

For example, satellite platforms may not necessarily provide the same ubiquitous coverage as the digital network it would be replacing if operators were indeed to switch platform, as there may be legal or other obstacles (such as restrictions on satellite antenna). The problem is thus





not necessarily technical. The holes in the satellite coverage will tend to coincide with regions that were effectively covered by the analogue or digital service. Hence, an adjustment has to be made to the above calculations to ensure that the comparison of costs is done at “equivalent services”. Using actual (measured or known) costs for the calculation is thus not adequate – one has to make corrections to take into account additional investment required to provide the same service.

Another cost element that has to be taken into account in the above calculations, if one were to try to calculate the price that would provide an incentive to use frequencies more effectively, is the cost of other obligations imposed on broadcasters on the different platforms. In fact, some argue that the cost of obligations imposed at present on terrestrial operators is a “shadow” price for spectrum usage, in that the authorisation granted to them to use a “public good” (spectrum) is offset by positive programming obligations, among others. Calculating this part of the “cost” thus implies costing content production and coverage costs (above that which would be commercially viable).

Although there is merit in assessing the value of spectrum for pricing purposes in this way, it is, however, important to stress that there is no “economic” argument as to why the pricing of a public good should be used to equate costs of different technologies. There are nevertheless other markets in which such situations arise. In telecoms for example mobile operators typically pay a large amount for spectrum, yet compete with fixed operators who support no such fee.

### c) *Auctions or Tenders*

Another way to realise the true market value for spectrum is to allow the market to set the prices by means of an auction. Numerous auctions have taken place across Europe for spectrum in recent years, most notable for 3G licences, and these have raised substantial sums of money for administrations. Whilst these have achieved their objective of raising such funds, the amounts received fell rapidly as auctions spread across Europe, indicating that the value of spectrum in the initial stages may have carried some ‘prestige’ value, above and beyond the true market value for the spectrum itself. In fact, given the massive down-shift in payments for 3G-licences as time progressed, telecoms operators may have originally miscalculated the value of the spectrum.

One reason why spectrum used for 3-G licences was so highly priced by operators was that it was foreseen that there would be no further spectrum available for mobile services in the near future, hence the spectrum had a scarcity value. With respect to broadcasting, it appears that with the quantity of spectrum that could be available, were broadcast spectrum to be released in future years, there could be a glut of spectrum and thus the scarcity premium would be small and prices paid much lower. The timing of auctions would, however, be critical.

Beauty parades or calls for tender for radio spectrum are another way of allowing the market to set prices. Closed bids or full tender evaluations can be used to award spectrum to the most beneficial tenderer, with the desired benefits being set by the administration. These benefits may not necessarily be financial but may include:

- Commitment to service quality
- Commitment to fast roll-out of coverage
- Introduction of new services and applications
- Strategy for clearing existing users (where the spectrum is not ‘clean’)
- Delivery of financial benefits to the country concerned (employment, investment etc)
- Innovation in technology or services





Many GSM licences were awarded on this basis, though there is more scope for bidders to challenge the results, and in some cases (such as the awarding of a GSM1800 licence in Ireland) this has significantly delayed the roll-out of services. This is not to say that the auction process is flawless as there have been court cases following auctions in many countries, but the rules for award by auction are less judgemental and less subject to challenge than for beauty parades.

As indicated above, the timing issue is critical, as in many countries spectrum scarcity is expected to be mostly a constraint during the transition from analogue to digital. Once switchover is completed, however, significant frequencies will be released which can be farmed for other uses. The experience of the telecoms sector, where other considerations than the true market value of spectrum entered into the assessment of the price that operators were willing to pay, and which partly explains the present difficulties of some telecoms operators, highlights the difficulties for operators to correctly assess the underlying 'value' of spectrum when the end-market is in the midst of transition and rapidly evolving.

In summary, it is difficult to reach a conclusion at this stage, as all spectrum valuation methods have advantages and drawbacks, in particular because of data availability constraints which make a rigorous application of these methods impossible. Moving from spectrum valuation to pricing is even more challenging given the fact that this would force a decision on which part of the spectrum value ought to be paid for directly by the broadcasters, and which part is paid indirectly, for example because of other obligations placed on certain market operators which can be assimilated to an indirect shadow fee for spectrum.

## 5.2 Calculating the value of the coverage obligation

### 5.2.1 Key cost elements

Another condition sometimes attached to the authorisations or the rights of use of radio frequencies is an obligation to provide coverage to some predetermined threshold of population. The threshold is typically measured in terms of the percentage of the population to be covered (99.8 percent), but can also be set as an obligation for coverage to extend to communities with a minimum size of, say 200, people, with smaller communities being responsible for self-provision or being left without a service. As indicated in the country reports in Part II, in those countries in which coverage obligations exist, these are presently met by the operators and no further expansion coverage is expected. The obligation is generally covered by supplementing the coverage via another network, for example by satellite.

It is clear that without a coverage obligation, there comes a point where extending coverage any further becomes commercially unviable, as the advertising revenue that could be generated from the additional population covered is less than the additional cost of coverage. The cost of the obligation is therefore the cost of providing the total coverage required, over and above that which would be commercially viable. This approach to costing the coverage obligation is similar to the net avoidable costs' approach used to assess the cost of the universal service in telecoms, except that in the net avoidable costs' approach as described in Chapter 4 one also takes into account the long run avoidable costs linked to infrastructure development. To be complete and precise, the cost of the coverage obligation in broadcasting should also take into account the necessary network extension<sup>23</sup>, except where the additional coverage is provided from another platform, as is the case in Sweden, for example. Indeed, in this latter case, the



<sup>23</sup> This is not done in the example below which illustrates how costs can be assessed in the case of the UK, for example.

infrastructure costs to provide the additional coverage beyond what is commercially viable would not be 'avoided' in the absence of the obligation.

It is perhaps worth considering that for services which do not carry any commercial content, it could be argued that the cost of the obligation is the ***total cost of providing all the coverage***, as the 'break even' point at which coverage costs and advertising revenue increases balance is never reached. Below, we consider the cost of the obligation as being that additional cost paid by a broadcaster with universal coverage obligations above the commercially viable cost of coverage. Similarly to the calculation of the cost of the universal service obligation in telecoms in Chapter 4, one finds that the important factors to determine are the revenue that can be generated, in this case from advertising, and the cost of the network.

One point to note is that the level of competition for audiences and thus advertising revenues will alter the break-even point: in a market with five strong competitors, the total revenue per viewer would be split between all five, whereas in a market with only two, it would be split only two ways. It will thus be more commercially viable for a broadcaster in a market with only two commercial players to roll-out service to a greater degree than in a market with five players. Of course content has a part to play in securing advertising revenue in addition to coverage. Assessing this would lead to a more subjective and complex analysis which is not part of the present study.

Below, we outline how the costs can be calculated.

## 5.2.2 Methodology

### a) Advertising revenue

From the above, one question is whether the advertising revenue should be assessed on a per operator basis or by constructing a model for the whole market. In a study conducted as part of work going on for the Digital Terrestrial Television Action Group (DigiTAG), it was estimated that the average value of advertising revenue that can be generated per head of population is around €100 per annum.

Comparing this with figures from the UK, published accounts of Carlton Television for 2001 (published December 2001), one of the main UK commercial terrestrial television operators, state that they cover 26 million people and generated UK£800 million of advertising revenue. This equates to around £31 (€46) of revenue per person per annum. However, Carlton is not the only commercially-funded channel serving that population. In addition there is Channel 4, and in some areas the 5<sup>th</sup> channel. In addition to this, there are those households who receive multi-channel television on which there are other channels also competing for advertising revenue.

The annual UK television licence (the revenue for which goes to the BBC) is UK£112 (€168) per annum to support two analogue television channels, five analogue radio services and a number of digital television and radio services. The BBC receives little other income. Whilst dividing this up between the services provided is not straightforward, it does tend to suggest that, for the UK, the income available per television channel per viewer is in the order of the €46 evident from Carlton.

The figures from the DigiTAG study therefore seem reasonable given the UK example, in the light of its slightly higher GDP per capita than for all those countries who are members of DigiTAG which includes both eastern and western European countries.



From this example it appears that it is perhaps better to consider a single operator such as Carlton in isolation rather than trying to develop a model for the whole market. This offers the additional benefit of having already taken the competitive nature of the market into account, insofar as the decisions made by a single broadcaster will reflect their own commercial decisions.

**b) *Network costs***

Estimating network costs (on an annual basis) can be done in a number of ways depending on the information available. The simplest and most realistic would be to obtain information from broadcasters on the price they pay for their transmission contract where such is provided by a third party, or for their transmission facilities where these are internally provided. However, such data may be regarded as commercially sensitive and as such not be available for the performance analysis.

Another method would be to build a bottom-up model of the network in question, incorporating all major capital items and operational costs and then amortise this over a number of years to produce an annual cost.

In either instance, a similar issue will emerge. That is that the fixed costs associated with the provision of coverage from a site do not diminish substantially as the coverage provided by a site goes down. For example, almost any small site will require antennas, a mast (or similar mounting), a transmitter, cabling and housings, a power supply and various other items that will not vary greatly whether coverage is to 10 people or 200. As the site size increases, some of these costs will rise, although until large, high-powered sites are reached, many of the costs will not increase significantly.

Thus if the cost of a small site can be ascertained, a simpler task than costing a whole network, and its average potential coverage in terms of population ascertained, a cost per viewer for those lying in the more sparsely populated areas can be ascertained.

The point at which the cost of this coverage is less than the advertising revenue that can be generated is that at which it becomes cost effective to roll-out services.

**c) *Anecdotal evidence***

From discussions with broadcast network providers in the UK and Sweden, it would appear that the cost of providing near-universal coverage compared to that of providing only commercially viable coverage is around a factor of three-to-four times higher.

If we look at the UK context, we can compare the relative coverage of Channel 5 which is a commercial-only station whose roll-out has been limited partly by spectrum availability and partly by commercial decisions about cost, to that of one of the public service broadcasters in order to try and ascertain one possible value. Channel 5 covers around 85 percent of the UK population of 57 million, i.e. 48.5 million viewers. In comparison, the public service broadcasters cover 99.8 percent which for the sake of this simple analysis we shall take as being the whole 57 million. Thus the number of people for whom Channel 5 have taken a decision **not** to cover is 8.5 million.

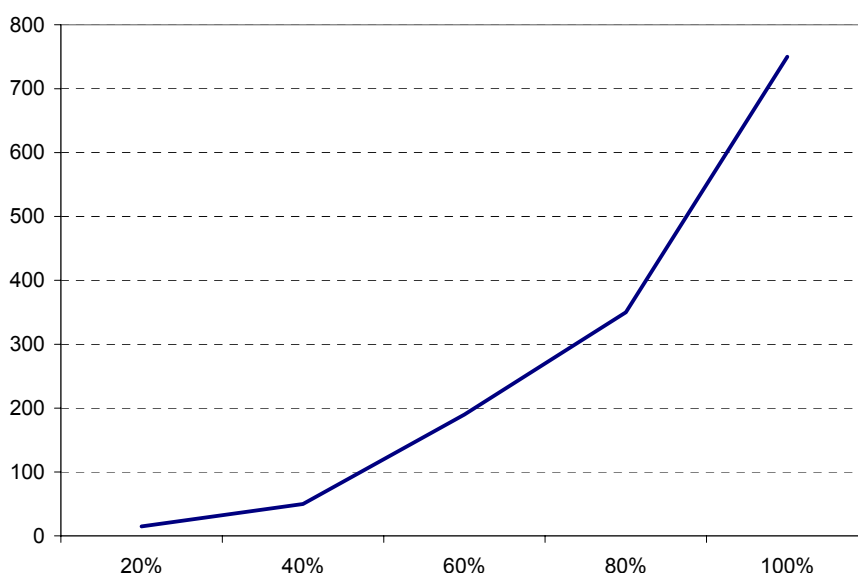
If we assume that the advertising revenue potential for a terrestrial analogue broadcaster in the UK is the same as for all terrestrial broadcasters, we would thus assume that for each viewer not covered, the potential advertising revenue available to Channel 5 would be €46. Thus the total value of the uncovered audience in terms of advertising revenue is €391 million per annum. The



cost of providing coverage to this population must therefore be €391 million per annum or more. This estimate gives one rough indication of the possible cost of meeting the coverage obligation for public service broadcasters, in particular the BBC, who have no mechanism for offsetting this cost against increased advertising revenue (though they could receive additional licence fees).

Another example is provided below, in the case of Italy. The chart illustrates RaiWay's estimate of the additional cost of upgrading the digital terrestrial network in order to meet a universal coverage obligation. The additional cost of coverage of DTT in Italy is thus estimated at €15m to cover 20% of the population, €50m for 40%, €250m for 80% and €750m for a universal coverage.

**The exponential cost of upgrading the terrestrial network to digital transmission in Italy (in million euros)**



Source : BIPE from RaiWay interview

## 5.3 Must-Carry

### 5.3.1 Economic impact of must-carry

Must-carry entails an obligation to:

- Reserve a certain bandwidth
- Free of charge, or against a certain remuneration,
- To certain broadcaster(s) (channels).

In the EU today, the obligation mainly applies to cable network operators.

A related concept to must-carry which is increasingly being referred to is must-offer. Must-offer is an obligation that lies on broadcasters and obliges them to make their programmes available on all platforms.

There is no must-offer obligation in place today in the Member States, nor is this condition explicitly referred to in the NRF, as the condition is essentially content-related. The reason for

the debate around must-offer, however, is that it is seen as an alternative to must-carry where negotiations between network operators and service providers, in particular with respect to conditions of access to CAS, fail to arrive to an acceptable commercial agreement for all players involved in the negotiation. Must-offer would, however, not be an alternative to must-carry if must-carry was not also seen as a means to exempt the player benefiting from must-carry status from paying a fee for the service.

Failure to arrive at an acceptable agreement between players can, in fact, occur if one of the players in the negotiation has a “dominant” position, where dominance is taken in the sense that one of the players in the discussion carries more weight than the other, hence is able to tilt the negotiation towards an outcome different than that which would have been the result of a negotiation with players of equal weight. For example, just as the must-carry status distorts negotiations between network operators and those broadcasters which benefit from must-carry, must-offer may distort negotiations between network operators and broadcasters, to the benefit of network operators. Although must-carry and must-offer can both be originally imposed to protect the general interest, in the absence of regulatory intervention they both carry a potential to create a socially undesired outcome.

The analysis below deals with must-carry, as this is an explicit condition imposed in order to protect general interests in the EU Member States today. There is no must-offer obligation in the EU today.

Article 31 of directive 2002/22/EC (the “Universal Service Directive”) stipulates that the general interest objectives which Member States invoke to justify the imposition of “reasonable” must-carry obligations must be “clearly defined” and “in conformity with Community law”. Member States have the ability to determine appropriate remuneration, if any, in respect of the measures taken in accordance with this article while ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing electronic communications networks. Where remuneration is provided for, Member States shall ensure that this is applied in a proportionate and transparent manner.

Below, we review how the economic impact, in particular the costs, of the must-carry obligations ought to be assessed with a view to verifying that the obligation is reasonable, proportionate and non-discriminatory, and describe a process that could be adopted to ensure that the remuneration provided to the network operator in relation with this obligation, if and where such remuneration is provided for, is proportionate and transparent.

The business model of cable operators is that they provide a service (remunerated or not) to broadcasters by carrying their programmes through to end-users. The cable operators’ revenue therefore potentially comes from two sources: the sale of subscription packages to end users (households) and a payment by the broadcasters for the transport of their programmes. The fee paid by customers covers part of the cable operator’s costs as well as the authors and performers’ rights. The fee paid by customers may also include an element of the cost of transporting the channels.

Competition between platforms at end-user (household) level is, however, a reality (with cable competing against satellite and terrestrial). Since the price elasticity of demand for cable by end-users is not nil, the “fee” that customers are willing to pay for a given service before switching to another platform is limited. In effect, with the reductions in the price of satellite services, the past years have been characterised by important shifts in customer bases and changes in the market shares of the different platforms as technologies developed and more attractive packages were offered by newcomers...

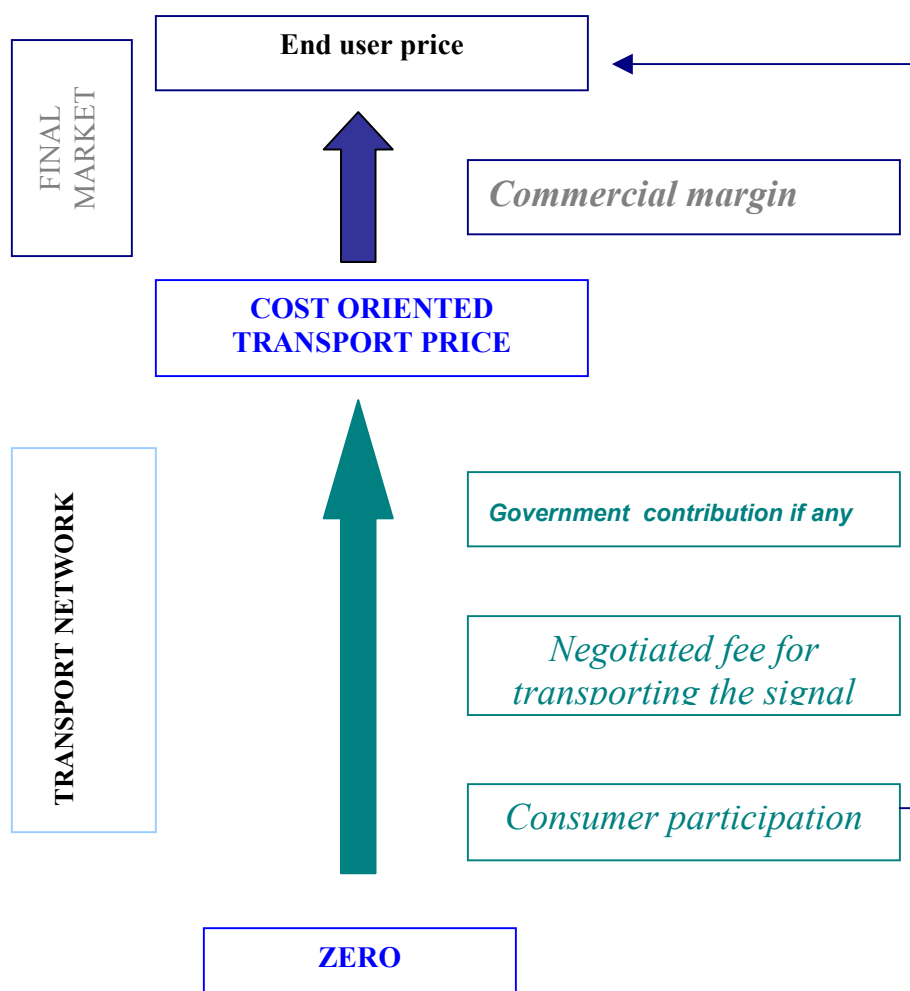


Hence, cable operators, who have had to undertake important investments to build their networks, upgrade them to permit two-way communications and diversify the range of services offered, cannot price their services to customers on a strict ‘cost plus’ basis, independently of other market forces, since the resulting price could be uncompetitive and lead to a loss of customers. Moreover, in some Member States, the price for access to the cable networks is fixed by the public authorities at a (generally quite low) level for general interest purposes.

At the same time, there is a value to broadcasters in being able to access a large client basis by using the services of the network operator (in particular, the cable operator), as this has direct implications on broadcasters’ revenues (notably through increased advertising income). Hence, it is “logical” that broadcasters would pay at least part of the cable operators’ costs, as they benefit from the service. A additional justification for broadcasters to pay carriage costs is that they use a capacity on the network that could be put by the cable operator to other (commercial) uses, raising revenue for the cable operator.

Figure 3.1 in Chapter 3 illustrated the revenue structure of a cable operator. Figure 5.2 shows the key factors at play in the definition of the revenue flows associated to transporting a television signal from a broadcaster to the cable operator.

**Figure 5.2**  
**Theoretical and market prices for television signal carriage on cable networks**





For the sake of clarity, we ignore in the figure the revenue which comes directly from end-users (subscription revenue), even though this revenue clearly helps to offset part of the cable operator's total costs, and we also consider that there is only one network operator and one broadcaster.

In practice, the fee (if any) paid by a broadcaster to the cable operator for the transport of its programmes is determined through bilateral negotiations between the two players. The fee thus corresponds to a market price. The fee is anywhere between zero and a cost-based-plus transport price<sup>24</sup>, as illustrated in Figure 5.2.

In Figure 5.2, the cost-oriented transport price represents the theoretical price that the cable-operator should receive to transport a channel on its network in order to just cover costs. The difference between the negotiated (market) price and the cost-based price will depend on commercial considerations such as the interest of the channel for end-user, in other words the extent to which transporting that particular channel enhances the attractiveness of the cable operator's package and helps to increase the number of subscribers. Other considerations can come into play, such as market conditions at the time of the negotiations. In fact, the experience of several EU Member States shows that the most recently negotiated transport fees incorporate some of the development costs that the operators have had to support to enhance their network. Historical factors and tradition will also tend to weigh heavily, as customers have become 'accustomed' to certain programmes and 'expect' to have them included in a standard package offer.

Depending on market forces, and irrespective of the price charged to consumers, the cable operator may choose to negotiate different terms with different broadcasters based on the pricing efficiency principle, i.e. taking into account users' willingness to pay and effectively subsidising the transport of certain channels by charging a higher prices to others. The issue when it comes to must-carry, however, is that the commercial negotiation between the cable operator and the broadcaster benefiting from must-carry status is biased. In that case, the regulator may have to intervene in order to define the price to be paid, or set a "reasonable" or guideline fee for the transport of the channel(s) considered. In the latter case, the regulator also needs to clarify the terms or reasons why the actual fee negotiated by the two players can differ from the guideline fee, and the conditions under which it would consider the negotiated fee to be unfair or discriminatory. The regulator can also be called upon to define the part of the total costs which are to be paid by consumers, in the name of "general interest", and the part which is to be covered by the broadcasters' whose programmes are being carried by the network operator, or which is to come from other sources, notably public revenue. In the Netherlands, for example, the regulator has set guidelines based upon which cable operators have to carry the must-carry channels free of charge, but the part of the cost associated to the transport of these channels is incorporated in the end-user subscription fee as opposed to being paid by the other broadcasters, or by other players. In France, subscription revenue and pay-per-view revenue are supposed to cover all of the cable operator's costs, including the revenue transfer from the cable operators to the broadcasters.

The question then is much broader than one of assessing the "cost" of must-carry per se. It is more one of defining how to eliminate the "bias" in the negotiations between the cable operator and the broadcaster benefiting from must-carry status, or of defining how to arrive at a remuneration for the cable operator, if such remuneration is to be provided for, that meets the conditions of the NRF.

<sup>24</sup> Where a cost-based-plus price is defined as the price which allows to offset production costs, plus account for a reasonable margin for the network operator.





Below, we analyse the problem in three stages:

- ❑ The first stage consists in assessing how much it “costs” to a cable operator (in terms of investment, of operating and maintenance costs) to provide **a given band-width to a given service provider**, whoever the service provider is and whatever it makes of the capacity (*What is the cost, and how can it be measured?*).
- ❑ Once the “cost” of making available a certain bandwidth to “an” operator has been assessed, the second question is to define **how** to allocate this cost across all “beneficiaries” of the service, i.e. the customers which derive some utility from receiving the programmes, and the broadcasters who benefit from an increased viewer base from making their programmes available on the cable network. (*Who should pay the cost?*)
- ❑ The third stage consists in defining whether, within the context of the NRF and under the principles of non-discrimination and proportionality in particular, there is any reason why the remuneration paid by two broadcasters benefiting from a similar service would differ. In other words, should a distinction be made between broadcasters, for example by recommending different fee structures or terms of access for certain broadcasters based on their nature (commercial or not, private or public) or on the basis of the obligations put upon them. (*What justification for paying different prices for a similar service?*)

Below, we discuss each of these points in turn.

### 5.3.2 Assessing the total costs of a cable operator

The first step is thus to define how one should assess the costs for a cable operator to provide a given band-width to ‘any’ service provider.

The assessment of this cost involves:

- Describing the cost structure of the cable operator
- Describing its service offering
- Delimiting the area of activity really concerned by this cost assessment

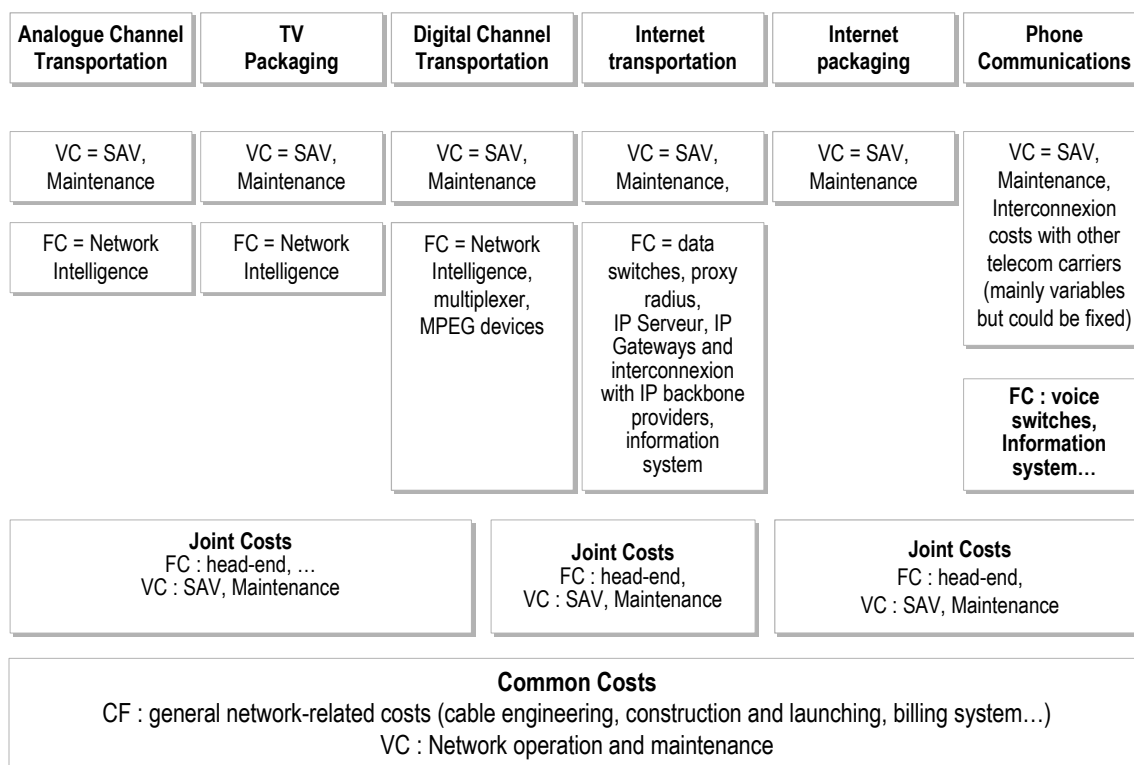
A main issue is that of defining precisely the “borders” of the activity of the operator which are to be “costed” for the purpose of this analysis.

As explained in Chapter 4, cable operators carry out a complex business. They implement networks formed as the result of substantial investments spread out over time and offer a portfolio of services which are more or less interdependent, i.e. which often call on the same productive resources: in effect, the cost function of the cable operator is characterised by the fact that it is less expensive for the cable operator to produce all of the outputs together, than to produce them separately. The total allocated cost of producing a given service is indeed lower than the isolated cost of producing this service. The existence of joint and common costs leads to economies of scope.

Figure 5.3 describes the typical cost structure and product offering of a cable operator.



**Figure 5.3**  
**Overview of the product offering of a cable operator and of the network elements each service relies upon**



The figure illustrates the different types of cost elements supported by cable operators. We distinguish six main products or service-types, and three main types of costs, within which further distinctions can be made. The three main types of costs are: common costs, i.e.; costs that contribute to the whole operation of the cable operator. Joint costs are those that are shared by two or more product or service categories, but not all of the cable operator's services. And, specific costs, which represent the costs directly linked to the provision of the service concerned. A definition of each of these costs is presented in Annex 1.

As indicated in the bottom layer of Figure 5.3, the provision of all the services provided by a cable operator is based on a set of "common" cost elements, which include fixed costs (notably the basic network itself) and variable costs, among them operational costs linked to operation and maintenance of the network. Certain services provided by the cable operator, however, do not rely on the same underlying network elements or service components. Thus, the distribution of analogue channels, the packaging of television services and the distribution of digital programmes rely on certain common cost elements (=joint costs), which are not required to provide internet services, or telephone services. Yet, part of the costs linked to the transport of signals from digital channels are not necessary to the transport of analogue services (hence, these costs would be entirely avoided if the cable operator only transmitted in analogue form), but are shared with internet transportation. Increasing traffic on the internet for instance can help share the fixed costs associated with the provision of digital television services. Similarly, the provision of internet services and of telephone services relies on certain common costs (see the Joint costs in Figure 5.3), that are not necessary to provide the carriage of television signals.



Beyond the common and joint cost elements identified above, there are also specific costs involved in the provision of certain services to the general public. To carry analogue television signals to the home, for example, cable operators incur costs that are specific to that activity. These include fixed costs such as specific network intelligence, and variable costs related to maintenance or management of the client base, etc.

A key question before allocation rules are defined is to define which part of the cable operator's activity should be considered in the cost assessment.

In several EU Member States where cable operators are currently facing difficult economic conditions, cable operators insist that their overall operations have to be assessed to calculate the correct cost, and not just the parts associated with the provision of broadcasting services. In particular, these operators insist that the investment undertaken – or to be undertaken - to expand the network capacity has to be taken into account, even where this is a “common” or “joint” cost –i.e. a cost common to all the activities of the operator.

Following a number of disputes between cable operators and programme providers over access conditions and carriage charges for their programmes, the Dutch regulatory body OPTA issued in 1999 a series of guidelines in cooperation with the Dutch competition authority, the *Nederlandse mededingingsautoriteit* or NMa. The guidelines were based on the principle of establishing a cost-based price per channel offered by the cable operators, where the cost-based price is defined by taking into account all operating and fixed costs involved in supplying the service, including the common costs.

From Figure 5.3, and considering that the bulk of the costs of cable operators are “common” costs linked to the backbone network, the specific costs attached to the provision of television services per se are small. An appropriate method to define the total costs associated with the transport of television signals will thus have to take into account all common and joint costs, and allocate these appropriately based on the part of the network capacity which is taken up by the service.

The next step consists in determining how the “total costs” should be allocated across the different product and service offerings. This is done by defining allocation keys, as discussed below.

### 5.3.3 Possible cost allocation methodologies

#### a) Overview of different cost allocation methods

Different methods of cost allocation have been proposed by economists. Some are based on the operator's accounts and involve allocating historical costs to different services according to principles prescribed by the regulators. Others, in contrast, estimate costs by reconstituting the networks on the basis of currently available technologies. Below, we describe some of these methods, and their advantages and drawbacks in the present context.

The methods are generally grouped in four categories, as defined below:

1. The Fully Distributed Costs method
2. The Efficient Component Pricing Rule (ECPR) method
3. The Ramsey-Boiteux and Laffont-Tirole methods
4. The Long-run (average) incremental costs (LRIC) methods



- The **Fully Distributed Costs (FDC)** method is also called the fully allocated costs (FAC) method. It records the detailed expenses of the operator and allocates these to the different products or services that it offers with the help of a cascading breakdown procedure, where the costs are grouped by nature and by function, according to a hierarchy of intertwined nomenclatures. In its original version, this approach - which is based on complete and reliable analytical accounting - runs up against the difficulty of allocating joint costs and common costs to several products. In order to do this, specific allocation rules are defined based on heuristic causality links. For example in the case of telecoms, general costs linked to the management of call traffic can be allocated based on the number of specialised telephone lines, or the number of phone or telex circuits. The method thus relies on the definition of keys to allocate non-directly attributable expenses to the different services based on variables which characterise the origin of expenses. Beyond its simplicity, the FDC method has the advantage of being fairly flexible and simple to implement, provided that complete and detailed accounting information exists. Although there is a certain degree of arbitrariness, in particular with respect to the allocation of fixed and common costs to the different products/service lines, the method does create incentives for firms to be responsible for the investments that are specific to each service. Among the weaknesses of this approach, however, beyond its arbitrariness with respect to the choice of variables to allocate costs, is the fact that it is difficult to give a sound economic interpretation to the allocation rules. Moreover, since it is typically indicators of volume which drive the cost allocation process, the method can be unfair, or inequitable: there are many possible options and the results are directly linked to the choices that are made. Finally, for services relying on rapidly evolving technologies, the method does not lead to economic efficiency since it is based on the measurement of historical costs. Hence, the outcome does not take into account new technological developments and the use of the method does not create incentives to increase the efficiency of production. Last but not least, the method may lead to cross-subsidisation of activities.
- The **Efficient Component Pricing Rule (ECPR)** method was originally proposed by Robert Willig et William Baumol. The method essentially deals with the pricing of services for new entrants. The method recommends that these pay a fee to the incumbent operator which is equal to the opportunity cost. In other words, the price to be paid by the new entrant on a given market segment is set in such way as to compensate the profits that the operator would have recorded in the absence of competition. The ECPR method permits the control of inefficient entries, hence carries a potential for efficiency gains in production at macro level. Furthermore, as there is no impact on the profits of the incumbent operator, the method is generally recognised to encourage competition since the incumbent operator has no reason to keep others out of the market. Unfortunately, the method also has a number of drawbacks, which explain why it is seldom used in practice and why it has been strongly criticised in the case of telecoms. These include an inefficient allocation of resources, downward price rigidity hence a loss in consumer welfare, and possible reductions in productive efficiency for the incumbent operator. The latter indeed has no incentive to increase the efficiency of production through sound management, since the monopoly rent that it enjoyed before the arrival of the new entrant has not been eliminated. The incumbent operator thus has all reasons to leave prices unchanged and rather emphasize product quality to retain and increase its customer base, while accelerating the decrease in the costs of the service which is being challenged by shifting productivity enhancing investments from one domain to another. Furthermore, by linking the interconnection fee to the retail price, as is the case with this method, the regulation of the intermediate and final markets become strongly linked. This can create problems when the regulation of the retail market and/or the determination of the retail price is the responsibility of another entity



than the regulator. Finally, the ECPR is based on a set of economic assumptions that do not apply to the telecoms or broadcasting sectors' today: the method assumes homogeneous services, new entrants that are essentially price-takers, the absence of sunk costs or monopoly rents, no price discrimination between players, and a homogeneous quality of services potentially provided to all market players.

- The **Ramsey-Boiteux and Laffont-Tirole** methodologies cover a set of methods based on demand, using tarification principles defined by Ramsey-Boiteux to maximise consumer and producer welfare. The approaches aim at maximising a clearly defined social objective – welfare – under the constraint of a financial equilibrium of the operator. The method consists in setting prices for each product/service and each market segment equal to the long-term marginal costs plus a few terms which take into account characteristics of the demand function, and certain aspects of the production function of the producers. In terms of cost allocation, the Ramsey-Boiteux method consists in adding direct (or specific) costs associated with the provision of the service with a share of the common costs which is determined based on the elasticity of demand. Thus, the share of fixed costs that will be allocated to a given service will be high for those services whose demand is fairly inelastic to prices, and low for those services that are very price elastic. The Laffont-Tirole method imputes common costs similarly to the Ramsey-Boiteux method, except for an additional term which is proportionate to the marginal cost for the operator of improving its cost structure and to the change in the substitution ratio between the effort made by the operator to leave its costs unchanged and the intrinsic productivity of the operator. The method has attractive theoretical properties and certainly defines a path towards which the methods that are used in practice to allocate costs should converge. There is, however, a major drawback to using the Ramsey-Boiteux or Laffont-Tirole methods in that the marginal costs and elasticities that the model relies upon are both difficult to measure, due to lack of data, and vary significantly across operators.
- **Long Run Incremental Costs methods (LRIC)** are based on the assessment of incremental costs. As indicated in Chapter 4, there are two variants of the approach. A top-down LRIC method, which is an analytic method. This measures incremental costs by summing all costs directly attributable to the service and adding to this figure a share of the joint and common costs, where these are determined based on keys derived from the accounting system. In this variant, the model is defined based on the incumbent operator's own network and service structure, and calibrated based on the historical accounts of the operator. Adjustments can be made, however, for example by calculating the value of the equipment based on actual costs but adjusting this to take into account foreseeable changes in network organisation or structure. The other variant is a bottom-up LRIC approach. Bottom-up LRIC models are constructivist methods. They consist in describing the "optimal" network that a new player starting from scratch would build to provide the service considered, based on the best available technology, and therefore value equipment costs at their present cost, taking account the necessary depreciation.

This method is generally considered to be a good representation of the factors affecting network organisations in sectors like telecoms or transport. Indeed, the incremental cost, which is a notion specific to companies offering multiple products or services, measures the additional cost for the company to produce a given service, against not producing it in the long term. In other words, the definition includes all the fixed and operating costs associated with the supply of the services that would not have occurred if the service had not been provided. The long-term dimension is fundamental, however. By providing accurate information on the cost structure of multi-product firms for which most costs are common fixed costs, the integration of the time dimension allows



account to be taken of the cost of building the network since in the long term all fixed costs are variable costs. The prices that are defined by using this approach create incentives for operators to efficiently use the equipment, and to adapt the size and capacity of the network to the actual market needs.

It is clear from the above that, since each of the above methods treats costs in a different way, each method also creates different incentives for operators. Depending on the policy objectives that are pursued, different methods will be the most appropriate.

**b) *Criteria for assessing the different methodologies***

The table below lists four economic principles which should ideally be respected to ensure that the allocation of costs across users and services to define the cost associated with the use of a certain bandwidth to transport broadcast programmes through cable networks creates the right incentives to all market players to maximise welfare. These four principles are that :

- the method would lead to a market equilibrium close to the economic optimum (where the economic optimum is attained when the welfare of all actors concerned is maximised);
- the costs considered must be pertinent;
- the outcome should be non-discriminatory;
- the financial equilibrium of the players should be respected.

Some of these criteria can be conflicting. The method that should be recommended is that which is closest to meeting all these criteria, i.e. which is equivalent to an optimisation under constraint.

The economic optimum is achieved where welfare is maximised, i.e. where the factors of production are used most efficiently. In broadcasting, this means *inter alia* that the method selected must provide incentives for a rapid penetration of digital television, which is more technically efficient (uses less capacity on the network) than analogue.

The requirement that costs be pertinent reflects the need for the outcome to be proportionate. The requirement that the outcome should be non-discriminatory also flows directly from the requirements in the NRF.

To be appropriate, the methodology to evaluate the average long run costs of providing television signals to end-users with a view to setting guideline prices as background for the negotiations between broadcasters and cable operators will also have to be simple, transparent, tested, and rely on technical, economic and accounting information that are both **measurable** and **pertinent**. The requirements of simplicity and transparency are important to ensure that the outcome is **unambiguous, clear and not easily contestable**.

A particular difficulty with respect to cable is that the optimum market price, which is the price that would be observed in a competitive market, is not revealed. The price paid by consumers or by broadcasters at present is, in fact, not the price that would be observed in a fully competitive market, due to the existence of must-carry obligations. To be practical (usable), the evaluation method will have to rely on a combination of techno-economic and accounting approaches.





Cross subsidisation of services must, however, be avoided in the case of cable, because of the different structure of operators within and across countries. Leaving room for cross-subsidisation would lead to discrimination in favour of the more technologically advanced players with a diversified offer, and against players who yet have to undertake the investments to upgrade their networks to be able to diversify their service portfolio. The selected method must also be able to **adapt to changes in technologies or in the organisation of the market**.

Two key objectives are sought to define the appropriateness of different methods: acceptability and adaptability. Table 5.1 summarises the economic principles that have to underlie the choice of the most appropriate method to be applied to must-carry in broadcasting, and the two key objectives that have to be pursued.

From the brief description of the four families of methodologies above, it is clear that each method has different advantages and disadvantages, and hence ranks differently based on the above criteria. Given the objective pursued, the method that should be privileged is one which:

- Leads to increased economic efficiency, i.e.:
  - Provides incentives for players to move towards the economic optimum
  - Does not create discrimination between players
  - Does not create incentives for cross-subsidisation
- Is based on reliable, readily accessible cost information
- Potentially applies to very different situations of market players across the EU.

Of the cost-allocation methods that have been proposed by economists and that were briefly described above, the Ramsey-Boiteux method has very attractive theoretical properties, and defines a path towards which the methods that are used in practice to allocate costs should converge. The method would indeed lead to increased economic efficiency by providing incentives to players to move towards the economic optimum, without creating discrimination between players not incentives for cross-subsidisation. Moreover, the approach carries the potential to lead to a price more consistent to that which would be the outcome of strictly commercial negotiations between non-must-carry broadcasters and network operators, or between must-carry broadcasters and network operators in the absence of any bias created by the must-carry status. Indeed, in assessing allocation keys that take into account the elasticity of demand, the method takes into account willingness to pay and the value of the service to the different players.

There are, however, two main reasons why this method should not be recommended in practice. A first major drawback is a technical one in that the costs and elasticities that the model relies upon are difficult to measure (hence contestable in fine) due to data availability problems, and vary significantly across operators. Applied to broadcasting, an activity which takes place in a multi-platform environment where technologies and services are rapidly evolving, the demand elasticities potentially vary over time, based on technology and market developments (for example, market entry of a new platform operator reducing the “value” or need for a must-carry channel to be transported by cable).

Another major argument against using this method comes directly from the NRF, in that the channels benefiting from must-carry status have been granted this status precisely because the content that they offer is deemed to be in the general interest, irrespective of willingness to pay. Estimating the demand elasticity of must-carry channels would imply getting into content considerations which are outside the scope of this study and inconsistent with the very principle



of must-carry. The estimation of demand elasticities to allocate costs between channels would indeed directly relate the remuneration to be paid by the broadcaster to the cable operator to content and demand for content, in other words to the “value” for the must-carry broadcaster of having its channel being carried by the network operator.

**Table 5.1**  
**Economic principles and objectives pursued to allocate costs**

<b>Principles</b>	
<b>Achievement of an economic optimum</b>	The fee to be paid for the transport of the channels must contribute to the achievement of the economic optimum, i.e. lead to an efficient use of all factors of production.
<b>Pertinence of costs</b>	The costs that are taken into account to set appropriate prices need to be directly related to the provision of the product/service considered. The costs used in the tariffication method must thus have a causal link with the service, whether the link is direct or indirect.
<b>Economic efficiency</b>	The selected method must create incentives for operators to be economically efficient.
<b>Fair competition (non-discrimination)</b>	Non-discrimination means ensuring that the operator applies equivalent conditions in equivalent circumstances to other undertakings providing equivalent services, and provides services & information to others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners.
<b>Budgetary constraint</b>	The cost structure of cable operators is characterised by important fixed (both common and joint) costs, and increasing returns to scale. Some of the methodologies described above can lead to a need subsidise some operations to ensure the financial equilibrium of the players.
<b>Objectives</b>	
<b>Acceptability</b>	The selected method must be simple, transparent and verifiable. The acceptability criteria also applies to the underlying information used by the model, in particular the accounting costs, the estimated marginal long term costs and the price elasticities that are required for example in the Ramsey-Boiteux method.
<b>Flexibility and adaptability</b>	In a field characterised by rapid developments in technology, the method must be able to adapt to changes in technologies or in the organisation of the market. The flexibility and adaptability criteria apply both to the types of costs that are assessed, and to the methodology. The criteria help to better take account of demand and changes therein.



Another method therefore has to be identified. An important factor to keep in mind is that, with the convergence of networks, the business model of cable operators is evolving and that network operators are in the process of upgrading, or have to upgrade, their systems to provide new services. With this in mind, and taking also into account the other characteristics of the modelling approach to be chosen, we recommend that a Long Run Incremental Costs (LRIC) methods be selected. The LRIC method is indeed generally considered to be the most

appropriate to estimate the costs of services in technology intensive sectors with a high rate of technical progress, as it provides incentives for players to move towards the economic optimum by becoming more efficient.

The very different rates of penetration of cable across the EU, along with the differences in market organisation, in the degree of competition both intra-platform and inter-platform, and in the range of services that existing players provide, all argue in favour of a bottom-up as opposed to top-down LRIC method, on the basis of which *guideline prices* would be set. A bottom-up LRIC approach could thus be used to assess the “theoretical cost-based price” of transporting a given channel on the cable network, assuming that the network was developed based on the latest available technologies, everything else being equal. By “everything else” one means the network capacity and the number of potentially passed homes.

*c) Applying the LRIC method to define cost-based price guidelines*

LRIC methodologies estimate the costs associated with the provision of a sub-section of services which call on the same network elements. To understand and apply this method, thus, it is necessary to demarcate the sub-section of the activity whose costs the analyst is trying to assess, i.e. the sub-section referred to as the increment.

For the estimation of the transport cost of a channel, the selected increment comprises all network elements belonging to the channel transport network, as illustrated in Figure 5.3.

The first step in assessing the costs consists in taking into account the average lifetime of each network element or cost component - in other words the length of time over which each cost item is likely to be amortised. The importance of fixed (both specific and common) costs and the different lifetime of the equipment concerned indeed calls for a need to clarify the “time” dimension of the fixed and variable cost components. This is essential to reconcile economic analysis and accounting analysis since, over the long term, all fixed costs become variable costs. Before allocating the costs, one therefore has to make the appropriate adjustments for depreciation.

Once all cost elements are assessed (both fixed and variable, the former seen in a prospective way and annualised through the use of an appropriate discounting factor for amortisation and interest), the second step is to define economic criteria to allocate these costs to all the different services.

As indicated above, we recommend the use of a **bottom up LRIC approach** to this effect, by calculating the costs of “rebuilding” the network based on the latest available technologies, and deducting the LRICs of this virtual network from the economic data input into this model. This method has found favour with regulators and economists in the utilities sectors. Taken in a long term perspective, the incremental cost includes all the operating and fixed costs linked to the provision of the service which are calculated as if one was rebuilding the system, hence also includes the fixed costs that do not vary with production. Introducing the time dimension also allows account to be taken of all the equipment and investment which will be implemented over time to satisfy a supplement in demand without degrading the quality of service.

The bottom-up LRIC model that we recommend to get a first approximation of the cost of using a given bandwidth on the cable network would be based on **forward-looking costs** as opposed to historical costs. The evaluation of average incremental long-term costs would rely on relevant technical and economic information on the size and key characteristics of the network, and on the actual costs of the most recent technologies - all information that is measurable and



verifiable. The virtual network that would thus be built should also be sized using actual information from the country or regional market for which it is developed. Contrary to the top-down LRIC method, which requires detailed accounting information and the result of which is likely to be very dependent on the particular history and structure of the cable operator, the use of the bottom-up LRIC method to define a “guideline price” as a starting point for negotiations is both less operator-specific or history-specific, and less open to criticism. The guideline price that would result from applying this method in first approximation also creates incentives for the cable operator to upgrade its network and increase its efficiency to meet the most recent efficiency standards.

The calculation of such a cost-based price will also increase the awareness on the part of the users of the service as to the investment costs that they are responsible for. In other words, the total costs that they generate for the operator (or an approximation thereof) will be revealed. This increase in price transparency will create incentives for all players to become more efficient, hence move the system closer to the economic optimum.

*d) The experience of some Member States*

The example of the Netherlands illustrates both how the relevant framework of the activity of the cable operators has been defined in practice in an EU Member State, and the problems that have arisen as a result of the choice of a particular cost allocation system to define the revenue structure of cable operators.

In 1999, the Dutch regulatory authority (OPTA) published a set of guidelines for cable operators based on a Fully-Allocated-Costs (FAC) approach as opposed to a (top-down) LRIC method, on the grounds that the latter is best suited to determining the costs of new services rather than existing ones. This, however, is not the case of an appropriately defined **bottom-up** LRIC approach, based on the costing of a virtual network of equivalent capacity but built on the basis of the latest technologies.

The guidelines defined by the Dutch regulator OPTA make a distinction between the three functions that the provider of a broadcasting network can fulfil:

1. Provider of infrastructure
2. Provider of the standard package of services
3. Provider of other services, including programmes, broadband internet access and telephony

The guidelines mainly relate to the first two. Given the high market share of cable in the Netherlands, the providers of cable networks are deemed to have significant market power. The guidelines state that the operators must apply transparent and non-discriminatory access conditions to all programme and service providers using their infrastructure, and calculate a cost-based price per channel.



In detail, the OPTA guidelines state that:

- Prices are to be calculated in accordance with the principle of fully allocated costs, whereby costs are determined by the different elements making up the network. These costs include depreciation and a reasonable rate of return on investment, in so far as this is relevant for the particular service or activity in question.
- Only the costs for the elements of the infrastructure which are specifically used for the transport of the service in question can be allocated directly to the channel price, in

proportion to the use made of this element. Costs that cannot be specifically allocated are distributed across the different service and programme providers on the basis of their effective capacity utilisation.

- Cable network providers must determine their unused and reserve capacity in a rational and transparent manner. All programme and service providers must pay a share of the costs for the unused and reserved channels.
- Providers of digital programmes and services should not in principle pay for the full use of an analogue channel if they use only part of this capacity for their programmes or services. However, exceptions can be made in the case of a low uptake of digital capacity.
- Within reasonable limits, a network operator can grant to a new service or programme provider a temporary rebate on the cost-based channel price for a period not exceeding two years, providing he, the operator, carries the cost. The value of the rebate must be recovered from the service or programme provider over the following five years via a supplement on the cost-based channel price he has to pay. Rebates have to be based on transparent, objective and non-discriminatory rules, and must be published in advance.
- Goodwill is not included as an infrastructure cost.

For determining the final carriage charge, the OPTA guidelines state that cost-based channel price plus the specific costs involved in transmission of the channel in question, must represent the *maximum carriage charge to be paid*.

In the case of channels which must be carried free-of-charge, as per Article 82i of the Dutch Media Law, the carriage of these programmes must be financed by subscriber revenues. This means no cross-subsidisation.

In the case of the standard package, the carriage costs paid by providers of services included in the standard package must not be higher than:

- the cost-based channel price
- plus programme-specific transmission costs (such as copyright or performers rights)
- and a proportional share of the specific costs linked to the programme package, such as collecting subscription revenues;
- minus a share of any net subscription revenues generated by the standard package which can be attributed to the individual programmes.

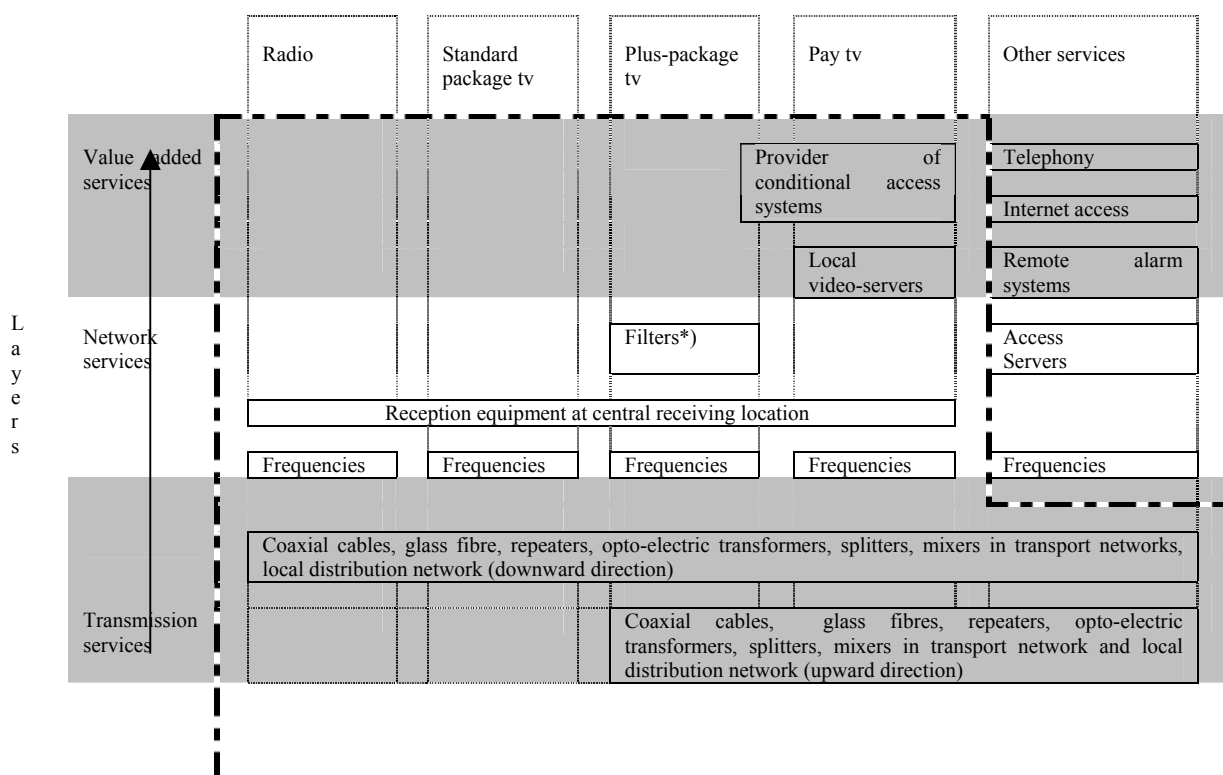
Using the three-layered model of transmission services, network services and end-user services, OPTA has produced the following synthetic model for a cable television network. The model identifies only those network elements that are used to produce infrastructure services. These infrastructure services are then used to produce final services. Some of the functions are common to more than one service; others apply to individual service categories.



Given the extremely difficult economic conditions under which they currently operate, Dutch cable operators find themselves in a situation of near paralysis: new revenue sources or increased revenue from existing sources have to be found in order to help finance the necessary investments that cable operators have engaged in order to diversify and expand their offer and complete the upgrade of the network to digital (according to Vecai, the association of Dutch cable operators, only 65 percent of cable homes passed now have access to two-way digital services).

In view of their difficult financial situation, in which the OPTA guidelines play no role, cable operators argue that these guidelines are outdated. They also claim that, with seven 'must-carry' channels which have to be carried free-of-charge, plus another eight for which their scope to negotiate carriage fees is limited given that these channels benefit from virtual 'must-carry' status (see the report on The Netherlands in Part 2 of the present study), they are dependent on the remaining 15 or so broadcast providers for their main revenues.. This creates a need to cross-subsidise channels to cover the free must-carry ones.

**Figure 5.4**  
**The layer model for a cable TV network**



\*) for the plus package supplied without decoder

#### Legal definition of the broadcast network

Cable operators in the Netherlands have therefore welcomed the review that OPTA has initiated into cable tariff rebalancing. The current review of the OPTA guidelines is, in fact, not solely motivated by intrinsic problems attached to the 1999 guidelines or to the cost-allocation rules as such, but rather by the fact that OPTA recognises that these guidelines were drawn up during a period of expansion for communications services and for the economy as a whole – a situation which has now changed significantly and is characterised by

- the low uptake of digital pay TV programmes by consumers
- the slow digital programme roll-out
- the difficulty for cable operators to raise capital for network upgrades (or to pay-back investments already made), particularly for additional services like broadband internet access and voice telephony



- the inability of programme and service providers to bear the additional costs of network investments, and
- the relatively cheap price that Dutch consumers pay for their cable TV programmes.

The review of existing guidelines was launched by OPTA in a new consultation document *Herbalancing van de Kabeltarieven*, (Rebalancing Cable Rates), published on 16<sup>th</sup> May 2002. In this document, OPTA moves away from the purely channel-based cost model to one where a standing charge would cover a portion of the costs of the shared infrastructure. Under this model, the costs of the final access network would be covered entirely from the subscription fees paid by the end user.

For his or her part, the end-user would receive a network connection plus a package of choices, possibly including digital services and access to the internet. The minimum package could be the current legally required basic package of must-carry programmes. An alternative could be to make the current standard package the minimum one.

The importance of cable for broadcast distribution in the Netherlands, however, raises another delicate question, which is that of the minimum package and its cost to the consumer. OPTA recognises that the rebalancing will mean that the cable subscriber will pay more for what he gets presently, and asks how much. For the consumer the choice is clear: pay more for what you get or get less for what you pay. The regulator refers to the tariff balancing of KPN's rates for fixed voice telephony in 1998 and the accompanying creation of a special social package, the so-called *Belbudget*, as a possible precedent for cable customers who could not afford the higher costs which resulted.

Although this approach could very well be appropriate in the Netherlands where cable largely dominates the market, is not necessarily applicable in other countries where competition between cable, satellite and terrestrial television is greater, and where consumers are likely to be very price sensitive. In these countries, modifications in end-user fee structures have to take account of competition between platforms at end-user level, with the risk that changes in the order of those envisaged in the Netherlands might lead to strong losses in market share for cable. Yet, in the low-cabled countries, growing market penetration to make the business viable is a prerequisite to any future expansion of the cable operators' service offering.

Another difference is in the number and in the statute of the cable companies. Whereas in some countries the cable market is supplied by a limited number of large players which are commercial organisations, in other countries there are hundreds of small cable operators, some of which are local monopolies and/or not-for-profit organisations. Their cost (infrastructure and operating) structure thus has little to do with that of the more integrated cable operators, and the ambitions or business plans of the small players are also likely to differ from those of other operators.

In its review of guidelines, OPTA also asks whether the cost-based principle as is currently implemented in the Netherlands is the best suited to dispute settlement, given the time taken to examine company accounts and documents during an investigation. OPTA suggests that an alternative would be to create a single bottom-up efficient cost model which would then apply nationally. This is in line with the recommendations made in this report. The model could be developed in conjunction with providers and users of the network infrastructure. Such a model would provide a simulation of a hypothetically efficient network as a means of determining what tariffs would be in a fully competitive market..



#### **5.3.4 Allocating costs by end-users**

Having defined how one can assess the cost of transporting a given channel on the cable and how to allocate this cost across channels, given the capacity used up by the transport of this channel, the next questions are:

- Whether one should impose cost-orientation of prices for all must-carry channels, or whether there are objective reasons why the level of remuneration to be paid by the broadcasters to the cable operators could vary based on certain characteristics or features of the broadcaster, for example by granting different conditions to broadcasters based on the nature or importance of obligations put upon them? And, if the answer to the second question is yes, how should the price to be paid by must-carry channels (if any) be defined?
- Whether regulators ought to set any guidelines for non must-carry channels, given the absence of a unique “business model” for payment flows between broadcasters and cable operators within the EU?

In other words, the third issue is to define whether there is any justification why different broadcasters would pay different prices for similar services. Indeed, does the granting of a must-carry status justify in any way a change in the allocation of costs across users of the services provided by the cable operator? Are there sound economic reasons why the transport of must-carry programmes should not be remunerated similarly to other programmes? What regulatory tools are necessary, if any?

In the 1999 guidelines, the Dutch regulator OPTA recommended the setting of a price per channel. The price level is determined through commercial negotiations between the broadcasters and the cable operators. Must-carry programmes are, however, carried free of charge for the broadcaster, the cost of transport being effectively paid by end-viewers, in the subscription fees.

With the advent of digital television, economic efficiency would recommend that the cost allocation process would result in a recommended price per capacity used on the network, as opposed to a single fee per channel.

Below, we start by reviewing whether any guidance should be defined for non-must-carry channels, and what guidance should be provided where remunerations are provided for in the case of must-carry channels.

Our recommendation is that the actual price to be paid by broadcasters (whether these benefit or not from a must-carry status) to the cable operator for the transport service be set as the result of commercial negotiations which would take into account the capacity used by the broadcaster along with market forces:

1. It is, in fact, essential that operators have the flexibility to negotiate prices that best reflect the needs and preferences of each party. This is the best way to ensure that the effective market price is such that both parties’ costs are “reasonably” covered and that a “reasonable” profit margin can be made. It is also more appropriate for markets like the EU, where national situations vary significantly across countries due the different market share of cable and the different degree of maturity of markets (in particular in terms of the penetration of digital and the potential growth of the customer base).
2. It is generally accepted that the outcome of commercial negotiations such as the ones at stake here will maximise the number of viewers, as this is in both parties’ interest.



3. Letting prices be set through commercial negotiations also means that the network operator has the flexibility to take into account and respond to changes in the market, and to preserve and enhance investments.
4. Commercial negotiations are less heavy and time consuming than setting prices based on the estimation of a complex, operator-specific, model that would detail each operator's cost structure and service offering; this is especially relevant in markets such as this one, where demand and technology conditions change rapidly and are best appreciated by the actors concerned.

When commercial negotiations fail, the regulator may have to be called upon to intervene. Similarly, in case of breach in competition law or suspicion thereof, the regulator will have to intervene. In those cases, the availability of a theoretical cost-based price calculated as defined above can provide factual elements to inform the regulator's decisions. In the second case, the regulator will, however, also need to identify and make clear the factors that it will consider acceptable to explain eventual divergences between effective market prices as observed in the market and the theoretical (strictly cost-based) market price.

A condition for commercial negotiations to lead to an equitable price is, however, that there be true competition in the market and no 'bias' in the negotiations. The imposition of must-carry obligations, however, creates a bias in that the broadcaster benefiting from must-carry status knows that, whatever the price outcome of the negotiation, it will be carried on the network. In some cases, this leads to a situation whereby the broadcaster pays no fee for the transport service. There are also cases when the outcome of the negotiation is that the broadcaster effectively *receives payment* for the carriage of its programmes on cable networks.

One could argue that the must-carry status given to certain broadcasters offsets other obligations implemented in line with the general interest, in particular positive programming obligations. Based on this line of thought, one would thus consider "normal" that must-carry channels would benefit from carriage free-of-charge, or without remuneration. Without prejudice to the way these broadcasters can finance these other obligations, however, there is no objective reason why the compensation which is granted to the broadcaster by giving it must-carry status to compensate for possible programming obligations should impose a cost on other operators in the market, such as cable network operators.

The proportionality principle demands that the must-carry obligation be imposed with as little hindrance to the proper functioning of the internal market as possible. Trade and competition in the single European market should only be restricted where this is objectively justified for the achievement of certain general interest objectives.



The duty to carry certain broadcast channels and related services imposes a burden on the transmission operators. Having to do so without remuneration imposes an additional burden on them. Acknowledging this, in the NRF, Article 31(2) of the Universal Service Directive specifies that Member States **have the ability to determine appropriate remuneration in respect of must-carry** while ensuring that, in similar circumstances, there is no discrimination in the treatment of undertakings providing electronic communications networks. Where remuneration is provided for, Member States shall ensure that it applied in a proportionate and transparent manner.

Within the framework of a national policy to protect or promote culture, the national or local language or pluralism, it is justifiable to keep costs low for those to whom this policy is aimed (the end-viewers). However, making the transmission operators carry the burden of this State

policy cannot be justified on the basis of general interest. The carriage without remuneration of the signal is, in fact, not *necessary* to achieve the general interest objective. Other distribution modes exist, among which satellite and terrestrial, which are not subject to the obligation of must-carry hence do not support costs as a result of this obligation. In fact, as indicated in Section 4.1, terrestrial operators presently receive rights of use of radio frequencies without payment in order to carry their signals to end-users.

To the extent that customers cannot pay the full costs attached to the fulfilment of the general interest objective, and given the existence of competition across platforms, either the broadcasters or the State have to pay a price for a transmission service under a must-carry obligation.

The price to be paid can be assessed based on the methodology proposed above, which allows to estimate a *cost-oriented price* equal to that which would be observed in a totally competitive market (as calculated from the bottom-up LRIC model which takes into account the best available technologies). Recommending cost-orientation of prices for all channels while letting the latter be set through commercial negotiations, will effectively create incentives for improvements in economic efficiency, as it would lead to a more efficient use of all factors of production.

This is equivalent to applying a principle of “revealed costs”, in that the price that would be identified for the transport service would correspond to the part of the cost of supplying that service that is not directly paid back by end-users. Given that the benchmark price (or production cost) that would thus be ‘revealed’ would be based on those incurred by a network using best technologies, and not based on historical costs, negotiations between players still ought to take place on a commercial basis. Many factors other than costs also have to be taken into consideration to define the actual price that a given broadcaster should pay another for the service. Indeed, within the EU the channels which benefit from effective or virtual must-carry status constitute a very heterogeneous ensemble of operators who get their revenue from different sources, and who draw very different benefits from their status of must-carry. The pricing efficiency principle would call for a pricing system that would take into account in some way the differential benefits posted by the different players from the provision of the service.

For example, it may be in the cable operator’s interest to carry a given channel free of charge, because the attractiveness of the programme is such that it will increase the cable operator’s customer base, hence raise revenue from individual subscriptions. On the contrary, a channel less likely to have many viewers but which is still (voluntarily) put on offer because it increases programme variety on the bouquet should logically pay a fee for carriage somewhere between zero and the “full infrastructure cost-based price”. Finally, a channel that would not have been carried in the absence of a “must-carry” obligation should logically pay a fee close to the cost-based price, where this is calculated as the marginal cost associated with the expansion of the capacity for offering a new service. Indeed, if the channel was not offered, the cable operator would have supplied another service – which would have brought additional revenue – whereas now the cable operator has to invest to supply this “other” service in order to expand its capacity by the amount used up by the must carry channel to receive this same “extra” revenue from the new service.

As mentioned earlier, the Ramsey-Boiteux method which would have allowed to set a guideline price for the transport service by internalising the above factors is not appropriate for a number of reasons, among which data availability problems and the difficult in estimating reliable demand elasticities to define the allocation keys. One can, however, define a second best solution, which would consist in defining the bottom-up LRIC price as indicated above, but not forcing the remuneration of must-carry for the cable operator to be exactly identical to this cost-



based price, but rather defining a set of objective factors that could explain divergences between the price paid for a similar transport service by two different must-carry channels. These factors would be chosen to reflect the different benefits that the two channels may reap from the must-carry status, independently of the general interest considerations. Such factors can include advertising revenue, or number of viewers where access to a large client basis thanks to the must-carry status has such an impact on “image” and the development of a faithful client basis that the broadcaster is more easily able to rapidly increase revenue from the development of new services such as value added digital services, than a commercial operator starting this operation from scratch.

In summary, the regulator’s role would be:

- To define the “guideline” cost-oriented price for the use of a given capacity on the network;
- To solve possible conflicts arising from failures in commercial negotiations, or from breaches in competition;
- To ensure that the price charged to end-users is not in excess of the cost of the obligation;
- To ensure that the part of the cost of the must-carry obligation that cannot be paid directly by the end-users (for commercial considerations) is effectively paid by the (must-carry) broadcasters, and is not charged by the cable operator to the other broadcasters.

There is a precedent to this. Indeed, in the electricity, gas, postal and telecommunications sectors, the liberalisation directives impose a duty on the national regulatory authorities to introduce published tariffs for third party access which are applied objectively and without discrimination between system users. The directives for the postal and electricity sector specify that the tariffs must be cost-oriented. In the telecommunication sector, the tariffs must be oriented toward long run costs.

To fulfil this role, in addition to an estimate of the cost-oriented price in a truly competitive market, the regulator needs a set of rules or a process to enable it to assess whether a given dispersion from the ‘guideline’ price level is acceptable in economic terms, i.e. is not likely to reflect market distortions, discrimination between players or an uncompetitive environment<sup>25</sup>.

This requires the development of guidelines to clarify what the regulatory authority will consider as a “normal” (or abnormal) and “reasonable” (or unreasonable) price. The guidelines will define a set of principles (or objectives) that the regulator considers have to be met. For example, a price can be considered **not** to meet the principle of proportionality if market distortions result from the application of this price in normal business activities.

The regulator can also choose to identify or list those situations which it considers to be “acceptable reasons” for the effective market price to deviate from the theoretical cost-oriented price.

For example, in the case of must-carry channels, among the factors that the regulator may list as those that it would take into consideration to assess whether a given difference between the market price and the cost-based price is reasonable are:

<sup>25</sup> It is on those conditions that the implementation of remuneration to compensate the costs incurred by cable network operators as a result of the must-carry obligation will effectively be done in a way that is proportionate and non-discriminatory.



- Revenue from advertising received by the broadcaster
- Number of viewers, as compared with number of passed homes
- Indirect revenue received from that customer base, possibly based on audience rate or frequency of use
- Price sensitivity of the customer base, which can be higher or lower based on market conditions, such as ease of access to alternative platforms.

Clearly, everything else being equal, one would expect a must-carry broadcaster receiving a lot of revenue from advertising thanks to an increase in its viewer base through the distribution of its programmes on cable, to pay more for the carriage service than a must-carry broadcaster receiving very little, if any, commercial revenue from its services.

## 5.4 Access to CAS

As per the NRF, access to CAS services has to be provided on fair, reasonable and non-discriminatory (FRND) terms. This implies that the operators which manage CAS systems must provide access to their services to all broadcasters which require these on FRND terms, and that the price charged by the CAS operators for the service has to be an FRND price.

The question can, however, be asked of *what* an FRND price is, *how* the FRND condition should be assessed in practice in the EU, and whether *guidelines* should be developed that would define how prices should be set.

As indicated in Chapter 3, the NRF has rolled out the requirement as per Directive 95/47/CE that FRND conditions apply to access to CAS. The requirement applies to all (commercial) providers of CAS, irrespective of whether or not they have a dominant market position. It has to be met specifically by all service suppliers who *market* conditional access services to broadcasters. There is, however, scope for rolling back FRND and replacing it with SMP, as per the Framework Directive of the NRF.

As for interconnection fees in telecoms, it is generally accepted throughout the EU that the price to be paid for access to CAS must be set primarily through commercial negotiations. The European legislation which sets in place the conditional access regime, however, does not make any reference to *how* prices are to be arrived at, either in general or for individual categories of broadcasters such as public service broadcasters. Yet, when commercial negotiations do not succeed, or when the regulator believes (or receives a complaint) that there has been a non-FRND treatment, the regulator must to intervene in the market.

This section discusses the opportunity of setting guidelines for conditional access service' pricing, in order to help regulators to define whether negotiated access conditions meet the FRND requirement, and possibly help settle disputes where these arise.



CAS operators provide encryption services, authorisation services, subscriber management services and certain other technical services in order to allow consumers who are entitled to certain programmes or services to receive these. Broadcasting programmes requiring the use of CAS are all digital programmes, i.e. both FTV and Pay-TV, and analogue Pay-TV programmes. A distinction is made here between Free-to-Air (FTA) and Free-to-View (FTV) channels, where FTV channels are FTA channels which have to be encrypted for reasons of territoriality of authors' rights in order to be broadcast on satellite. Although FTV channels are free to view for the consumer, they nevertheless require the use of a decoder as the signal is encrypted.



At present, within the EU, except in the UK, public channels transmitted on digital networks are only available to consumers as part of commercial packages. Hence, all broadcasters – i.e. both Pay-TV and FTA – must rely on CAS' operators for the management of the services.

As for any product or service, the pricing of conditional access services ought to be done in such way as to recover the total costs of the producer (the CAS operator) over a reasonable period, making a reasonable allowance for the cost of capital. Most of the costs involved in setting up and running conditional access systems represent the development costs of the system, and the costs of set-top box (STB) subsidies, where these are subsidised by CAS operators. Costs of running CAS therefore do not vary with the number of channels provided. The bulk of costs are fixed (common) costs, part of which vary based on the number of viewers. The presence of economies of scale and of economies of scope means that the incremental cost to the CAS operator of supplying conditional access to one particular channel is low.

The issues of relevance here are threefold:

- how should the costs of operating CAS be allocated amongst the various beneficiaries of the service, i.e. consumers and broadcasters;
- what pricing system meets the FRND condition;
- is there any reason for charging different prices to broadcasters based on whether they offer commercial services or not.

In theory, the price of operating CAS can be charged directly to consumers as part of the commercial package. In practice, however, there is competition between platforms and distribution mode – analogue and digital – at consumer level. There is, therefore, a need for distributors to avoid setting a price that would deter consumers from buying these packages. Moreover, if the price of digital TV packages is too high, this will slow the penetration of digital television hence lengthen the necessary simulcast period, which has a cost to society. Finally, if beyond the simulcast period the price of commercial digital packages is considered by consumers to be 'too' high, these may be overly selective in the packages they choose, which may make some programmes deemed to be in the general interest commercially un-viable.

The requirement to make individual customers or households pay for all the costs of operating CAS would therefore go against certain general interest objectives such as universal access for certain programmes, plurality of the media, cultural diversity, freedom of opinion, or freedom to receive and disseminate information and ideas.

Given market conditions, distributors may therefore find that it makes economic sense for them to recover at least part, and possibly all, the costs linked to the operation of the conditional access services through charges to the broadcasters rather than directly from end-users. This reflects the fact that broadcasters on a digital platform– whether commercial or FTA - directly benefit from increased take-up of digital services by end-users, through the potential increase in subscription and advertising revenue. They are thus in a position (or have an economic interest) to participate to the financing of the costs associated to the end-users.

The broadcasters' willingness (or ability) to pay, however, varies based on their particular economic circumstances, in particular the types of services that they offer, the types of revenues that they get from end-users and the potential revenue that they can generate from an increased viewer base.

This raises two questions:

- Is the ability to pay of broadcasters a relevant factor? In other words, is the level of the cost of operating CAS really likely to be an issue if these are fully



allocated upstream, onto the broadcasters? The answer to this question clearly depends on how high the costs to be offset are.

- How should one allocate costs between the different users of the service, i.e. between broadcasters?

This second point has to be viewed within the context of the NRF, which calls for FRND pricing of access to CAS.

On the first point, the ability to pay of the different players' depends on the overall magnitude of the costs incurred by the CAS provider. This varies depending on whether set-top-boxes are subsidised by CAS operators or not.

In the UK, the option has been made to provide set-top-boxes free of charge in order to speed up the penetration of digital television services. Costs of set-top-boxes thus have to be "charged" to the other (upstream) users of the system, such as the broadcasters and others who directly benefit from an extended viewer base (the advertisers).

In other EU countries, however, different business models have been adopted, in that the set-top-boxes are either ***purchased directly*** by the consumers or ***rented*** from the supplier. In both cases, however (rental or purchase), it is the customer who pays for the cost of the set-top-box, in addition to paying for the broadcast content.

Given the relatively low price of STBs in comparison with subscription fees<sup>26</sup>, the perception in those countries is that the price of the STB is not a significant barrier to the development of digital television in comparison with other factors such as the lack of an attractive offer on digital (i.e. the lack of a truly diversified higher value offer, compared with existing packages on analogue) or the slow development of interactive services.

Where STBs are (directly or indirectly) paid for by end-users, the costs to be allocated to broadcasters in order to allow CAS operators to recover all their costs over a reasonable period and make a reasonable margin, are limited in comparison with the other costs incurred by broadcasters. Hence, where this is the case, the price to be paid by broadcasters to CAS suppliers can easily be integrated in the broadcasters' business model. To our knowledge, other than in the UK there have been no complaints to date in the EU with respect to the pricing of CAS services, nor has there been evidence of market distortions or problems in reaching commercial agreements.

This is not the case in the UK, however, where costs of STB have been subsidised by CAS operators. In this country, given the importance of costs to be allocated between the different broadcasters, Oftel<sup>27</sup> defined some guidelines back in April 1999<sup>28</sup>. These have recently been the subject of a broad consultation aimed at assessing whether the guidelines should be reviewed, and if so how. The questions asked in the consultation were whether prices should be

<sup>26</sup> It is important to stress that the cost to consumers of buying a STB is not very large: in fact, it is about €4 per month, which represents approximately 15 percent of the monthly cost of a subscription, if one considers that the STB, which costs approximately €150, can be amortised over five years. Yet, although this cost appears small for an individual consumer, it does create a psychological barrier for the consumers to overcome, especially in countries where they have become accustomed to a rich offer of FTA programmes.

<sup>27</sup> 'The pricing of conditional access services and related issues', A consultation Document issued by the Director General of Telecommunications, 30 October 2001, and 'The pricing of conditional access services and related issues', A statement by the Director General of Telecommunications, 8 May 2002.

<sup>28</sup> See The Digital Television and Interactive Services (statement) and The Pricing of Conditional Access and Access Control Services (guidelines), April 1999.



set ex ante, whether guidelines should be defined as to how the prices should be set, and whether there were reasons for differential treatment of some operators such as public service broadcasters.

Below, we summarise the regulator's conclusions. These are that:

- There is no need to change the present Ofcom regulatory approach by shifting from ex post enforcement mechanisms to ex ante regulation;
- There are many different pricing mechanisms susceptible to achieve FRND pricing; the operators are best placed to define the pricing mechanism that best meets their specific conditions;
- Fair and reasonable access charges for conditional access should take account of the "willingness to pay" of the access seeker; Ofcom expects to see a close linkage between willingness to pay for conditional access services and expected retail revenues from selling subscription services;
- Public service broadcasters should pay a commercial rate for conditional access services, even though this should not necessarily imply paying the same price as a non-public service broadcaster. Differences in prices paid by (or the granting of discounts to) public service broadcasters as opposed to other broadcasters can be justified either by the savings achieved, or for other reasons related to the specific features of the channels as long as this does not lead to material distortions of competition.

In the recommendations published at the end of the consultation process, in May 2002, Ofcom also notes that commercial negotiations had until then succeeded in arriving at prices for conditional access services that were acceptable to both parties involved in the negotiations. In fact, since the launch of digital services in the UK, a number of free-to-air broadcasters, pay per view broadcasters and subscription broadcasters have negotiated conditional access deals on the digital satellite platform.

Recently, however, ITV has challenged that statement by filing a complaint to Ofcom concerning the price it has to pay for BSkyB's conditional access services. The problem was in the process of being resolved at the time of writing this report. During the course of the discussions, however, as ITV was asking for must-carry on CAS, another concept made its way into the discussions in reply, in the form of a must-offer condition to be imposed on certain broadcasters to ensure that they make themselves available for carriage on all platforms. With respect to the possible definition of a must-carry on CAS to meet certain general interest obligations, one should, however, note that this would only be a solution if this was accompanied by a requirement that must-carry channels do not pay for the services, or pay a lower fee than that paid by other broadcasters. The analogy with must-carry on cable would indeed *not* have any interest if the channels benefiting from must-carry on cable also paid for the services (hence did not benefit from a special treatment), as is in fact the recommendation made earlier in this Chapter.

Irrespective of the relative importance of the costs' to be allocated between broadcasters, i.e. irrespective of the business model adopted by CAS operators for STB pricing, the question remains of how to define a pricing mechanism that meets the FRND condition, as required by the NRF. In order to answer this point one must define more precisely what is meant by an FRND price.

Based on the report by Ofcom, FRND pricing can be defined as a price which would meet the following conditions or objectives:

- ✓ The overall pricing framework should be reflective of prices that would prevail in a competitive market;



- ✓ Prices for particular categories of services (or groups of services) should fall between the incremental cost of providing that service (or group of services) and the stand-alone cost of providing the service (or groups of services) on its own;
- ✓ Comparable service providers are charged comparable prices for comparable services purchased at broadly similar times of negotiation for access; (this is the principle of non-discrimination);
- ✓ Vertically integrated CAS suppliers must not offer services in a way which restricts downstream competition. In particular, they must not supply to their own downstream businesses on terms which are more favourable than those offered to third parties (again, this refers to the non-discrimination principle);
- ✓ The terms of supply of CAS should be consistent with the achievement of public policy objectives relating to universal access to public services and other general interest obligations; and,
- ✓ The terms of supply of conditional access services should maximise benefit to consumers in the long term, in particular by not creating unjustified barriers to entry of competitors.

Based on the above, different price mechanisms exist that meet the FRND criteria:

- One example of a possible FRND pricing mechanism consists in charging a price to broadcasters which varies with the ***number of channels*** carried in the retail package. This pricing mechanism reflects reasonably well the benefits of equipment subsidy, where there is such subsidy, and has the advantage of reducing the barrier to entry for individual channels relative to packages of channels. Even in the absence of equipment subsidy, this price mechanism is fair and non-discriminatory, in that all broadcasters benefiting from the services pay some part of the total costs, and the allocation rule is transparent. It is also reasonable provided that the allocated costs are indeed those related to the operation of CAS, which requires separability of accounts. However, although it meets the FRND criteria such pricing mechanism is not optimal from a welfare point of view as it may create a disincentive for adding channels to a package, hence reduce the possibility of additional channels' being offered to customers. This limits on consumer choice – hence reduces welfare.
- Another possible price mechanism consists in charging a price that varies with ***the retail price of the package of channels***<sup>29</sup>. This pricing mechanism links the cost of conditional access more directly to the value of the channel to the consumer, since the retail price paid by consumers in a competitive market reflects his willingness to pay for the channel or the bouquet of services. This option also reflects reasonably well the benefits of subscriber equipment subsidy, where such subsidy exists: indeed, all other things being equal, a service able to command a premium price would benefit more from equipment subsidy than one with a lower price. The problem, however, is the difficulty in using this approach for digital FTA channels. Similarly to Pay-TV broadcasters, FTA channels also derive benefit from being broadcast on a platform with rising numbers of viewers, since this gives them the chance to increase advertising revenue and attract consumers to other (pay) content. For FTA channels, methods would then have to be developed to arrive at the value for the customer of that channel' being carried, and thus to assess the contribution that the channel should make to the subsidisation of the set top box. One way of doing this could be to price CAS services not based on the retail price of the channel package, but rather based on ***revenue***

<sup>29</sup> This is similar to saying that the value of spectrum should be based on advertising revenue.



*perceived by the broadcasters.* Again, such mechanism would meet the FRND criteria, provided there is separability and transparency of accounts.

- A third possible pricing mechanism consists in setting the price as a ***fixed charge per package of channels***, as opposed to based on the number of channels in the package or based on the cost of the package to end-users. Such a price structure would, however, deter stand-alone channels from obtaining entry onto digital platforms.
- Yet another option would consist in defining a detailed cost allocation model which would help assess how the costs of CAS ought to be allocated to the different users. Having investigated this option as part of the consultation process, Oftel, however, concludes that, given the nature of this activity and the technology involved, it would be very difficult to design a model that would estimate the costs of providing conditional access services and define an appropriate pricing structure. To be appropriate, such model would indeed have to be operator-specific and rely on a vast number of parameters that are difficult to calculate in practice.

From the above discussion, there are, thus, many price mechanisms that would meet the FRND criteria, even if these have different implications on welfare or on the level of competition in the market.

Indeed, the first of the above pricing mechanisms carries a potential to limit consumer choice by creating a disincentive to add a channel to a package. The third tends to encourage the development of bouquets, but creates a disadvantage to individual channels. Both approaches thus carry a potential to reduce consumer welfare by limiting consumer choice, although the system privileging bouquets is, from the consumer's point of view, preferable.

The second pricing option is attractive from a consumer welfare point of view, as the price charged to the broadcasters would be set based on willingness to pay by consumers. This option, however, has the drawback that for FTA channels – which still dominate the audiovisual panorama – the system implies no payment by consumers for the CAS. This is equivalent to putting the entire burden of CAS financing onto the Pay-TV channels, which would be discriminatory, or spreading costs among broadcasters through administrative pricing, whereby prices would be set based on the number of customers, for example, where all customers would be “valued” identically. An alternative is to adopt pricing of CAS based on (commercial) revenue generated by the broadcasters, be they Pay-TV or FTA. This option meets the FRND criteria without creating a disincentive for broadcasters to diversify their offer or market new services.



Given the existence of many pricing mechanisms susceptible to deliver FRND pricing, our recommendation is to let prices be set through commercial negotiations as opposed to moving to some form of ex ante pricing.

This is also Oftel's recommendation in the case of the UK, where the magnitude of costs of CAS operators that needs to be allocated is even larger than in other countries, given the existence of the equipment subsidy: the UK regulator believes that excessive interventionism early in the process of commercial negotiations on the pricing of CAS, for example in the form of guidelines, would have the effect of slowing further the developments of the digital market, as opposed to achieving the desired objective of fostering the emergence of a rapidly growing, efficient digital television market.



If this applies to a market like the UK where a significant customer base has already switched to digital, it is even more true of countries where digital television still only accounts for a very small share of the market.

Another question worth clarifying is whether, with FRND pricing, FTA broadcasters should be entitled to a preferential treatment in their access to CAS than a Pay-TV operator. In other words, if one accepts the principle that price that broadcasters ought to pay for CAS ought to reflect the value of the services to them, does this mean that public broadcasters should pay less - and eventually even nothing - for the service?

This aspect has also been discussed during the Oftel' consultation. The regulator's conclusion for the UK was that commercial negotiations between market players remain the best way to determine price schemes that meet the business objectives of all parties in the negotiation, with the regulator intervening only when negotiations fail or when the agreed price structure does not meet the FRND condition. Oftel therefore confirmed the view already expressed in the April 1999 guidelines, whereby its *"general presumption would be that discrimination by suppliers of conditional access services in favour of public service broadcasters or channels simply by virtue of their public service remit, or in favour of a licence-fee funded service as compared with advertising funded, would not be consistent with the non-discrimination requirement. However, this should not be taken as preventing the conditional access operator offering discounts where it could demonstrate that these reflected savings to it in the costs of providing those services"*<sup>30</sup>.

In other EU countries, set-top-boxes are paid for by users, either directly or indirectly, through purchase or renting. Hence, the share of the costs associated with the provision of CAS services that is not directly offset by revenue from end-users is much lower (there is no equipment subsidy). The "cost" that has to be allocated or passed on to the broadcasters is thus lower than where there is equipment subsidy, and the unit cost per broadcaster will decrease in line with the increase in the number of broadcasters contributing to the financing of the CAS.

Given the FRND requirement, and the fact that all broadcasters – i.e., including FTA broadcasters – benefit from the increased take-up of digital services, there seems to be no case to argue that FTA broadcasters should benefit from a different treatment than Pay-TV broadcasters.



<sup>30</sup> OFTEL, Digital television and interactive services (statement) and The pricing of conditional access and access control services (guidelines), April 1999.



## 6 Assessing the acceptability of measures

Below, we recall the conditions that are set in the NRF to define the acceptability of measures and conditions bearing on the providers of electronic communications' networks and services within the context of this study. In the following section, we draw on the analysis in Chapter 5 to describe how the regulators could assess whether the obligations imposed on operators in the Member States meet the conditions set in the NRF.

The table below links what we call the acceptability criteria to the different types of obligations covered in this study.

**Table 6.1**  
**Acceptability criteria for various types of measures, as per the NRF**

Acceptability criteria as per the NRF	Obligation		
	Must-carry	Access to CAS	Conditions attached to Authorisation & ROURF (*)
Fair		*	
Reasonable	*	*	
Non-discriminatory		*	*
Proportionate	*		*
Objective			*
Transparent	*		*

(\*) In the above, authorisation is to be taken as all measures/conditions attached to "authorisations and rights of use of radio frequencies".

There are also conditions applying to remuneration for must-carry: Article 31.2 states that "where remuneration is provided for, Member States shall ensure that it is applied in a *proportionate and transparent* manner".

### 6.1 Definition of the different criteria

This section clarifies the interpretation to be given to the criteria listed in Table 6.1 within the context of the NRF.



#### 6.1.1 Clearly defined and transparent rules

The requirement that measures and obligations be clearly defined means that the rules should explicitly and unambiguously set out the relevant general interest objective. The transparency condition implies that the body of rules should facilitate testing the necessity and proportionality of the obligation, as is required under EC law and in accordance with the principle of legal certainty.

#### 6.1.2 Proportionality principle

Proportionate rules are rules that are:

- Appropriate to achieve the specified general interest objective,
- Limited to the minimum of what is necessary to achieve the specified general interest objective, and

- Strike a balance between the negative effects for the proper functioning of the single market and the benefits of achieving the specified relevant general interest objective(s).

Where the principle of appropriateness requires that it must be *at least possible* to achieve the general interest objective concerned. In other words, there should be a causal link between the must-carry obligation and the attainment of the objective.

The principle of necessity complements the first bullet above by demanding that the obligation imposed should be limited to the minimum level at which the relevant general interest objective can still be attained.

The third point means that Member States cannot set the level of protection at a (too) high level where this would make the free movement of services exceedingly difficult or illusory, i.e. at levels that would limit or reduce competition in the market.

### **6.1.3 Non-discrimination principle**

The non-discrimination principle is to be interpreted as an obligation for operators to apply equivalent conditions in equivalent circumstances to other undertakings providing equivalent services, and provides services & information to others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners.

### **6.1.4 Objectivity principle**

Measures are deemed to be “objective” when they are justified with respect to the objective that is pursued, i.e. there is a causal link between the measure and the objective pursued.

### **6.1.5 Fair and reasonable**

By reasonable it is meant that the obligation should not be in excess of what is required to achieve the relevant objective. This is thus similar to saying that the measure must be appropriate and limited to the minimum of what is necessary to achieve the specified (general interest) objective.

## **6.2 Conditions attached to the general authorisation and to the rights of use for radio frequencies**

As indicated in Table 6.1, the conditions that can be attached to the general authorisation and to the rights of use for radio frequencies must be objectively justified in relation to the service concerned, non-discriminatory, proportionate and transparent (Article 6 (1) of the Authorisation Directive). Part A of the annex to the Authorisation Directive lists the conditions which may be attached to a general authorisation. These include, in particular :

- must-carry obligations
- access obligations.

Part B of the annex lists conditions which may be attached to right of use for radio frequencies, including in particular:

- designation of service or type of network or technology for which the rights of use for the frequency have been granted, including, where applicable, the exclusive use of a frequency for the transmission of specific content or specific audiovisual services (conditions requiring for instance specified TV programmes to be transmitted over a given digital multiplex would be permitted) (point 1);



- effective and efficient use of frequencies in conformity with the framework Directive, including where appropriate coverage requirement (point 2)

The implementation of coverage and must-carry conditions must thus be proportionate, objective, transparent and non-discriminatory.

### **6.2.1 The coverage condition**

With respect to coverage, the coverage requirement presently met in those EU countries where such obligations exist, and is unlikely to be expanded further from present levels.

The coverage requirement is equivalent to the ubiquity objective of the universal service obligation in telecoms, i.e. it is aimed at providing broadcasting services of a given quality to a very large number of users independently of their geographic location (or in locations meeting certain criteria).

The ‘objectivity’ of the condition within the context of the NRF is justified by the direct link between the condition (coverage) and the general interest pursued (ubiquity of coverage).

The requirement that coverage conditions as defined by the Member States be transparent means that the measure must be clearly formulated, in such way that testing implementation is possible.

The two other criteria, proportionality and non discrimination, mean that the coverage obligation as specified by the Member States must be appropriate to achieve the specified general interest objective, limited to the minimum of what is necessary to achieve the objective and strike a balance between the negative effects for the proper functioning of the single market and the benefits of achieving the ubiquity objective.

To the extent that operators are free to choose how the obligation is met technically speaking, i.e. can choose whether to expand their own network or supplementing coverage via another network or from another platform, as is typically done, these operators are able to minimise the costs of supplying the service.

Formulated as such, the obligation is thus both proportionate and non-discriminatory. This assumes that the obligation does not apply to one or to selected operators that are competing against each other on the same platform. It is proportionate in that the way the obligation is formulated is the minimum necessary to ensure that the general objective is met; it is non-discriminatory if it does not create distortions between operators on the same platform. In practice, the criteria to assess the way the measures are implemented ought to be the same as those taken into consideration when assessing the universal coverage obligation in telecoms.

### **6.2.2 Spectrum pricing**

The other point reviewed in Chapter 4 dealt with the granting of spectrum to broadcasters without remuneration yet in some cases subject to certain conditions, notably positive programming obligations. The granting of spectrum to operators in broadcasting without remuneration obviously does not entail costs for these players or for the network operators. Furthermore, the fact that spectrum is granted without remuneration to the broadcasters is, *in itself*, not a condition imposed on providers of electronic network communications and services *with a view to ensuring* that certain general interest obligations are met. It reflects more



historical factors. Hence, this practice need not be assessed against the same criteria as those outlined in Article 6 (1) of the Authorisation Directive.

Yet, some argue that the fact that broadcasters may receive spectrum without payment while other potential users of the spectrum have had to pay for it is discriminatory. In Chapter 5, we therefore discussed pricing of spectrum in view of the possible discriminations it entails vis à vis other operators in broadcasting (in particular cable operators) or in telecoms. The summary is that if spectrum pricing could lead to increased economic efficiency, the main difficulty is to define a methodology for valuing spectrum in a market context characterised by a temporarily high level of demand for spectrum during the simulcast period in the transition to digital, and in which commercial and non-commercial operators co-exist. Another difficulty is to go from valuation of spectrum to effective pricing, given that the underlying “fee” for spectrum can be paid for indirectly by the users through the cost of other obligations imposed on them such as coverage or positive programming. Among the possible pricing approaches are administrative pricing, auctions and pricing based on (advertising) revenue.

The three methods provide different incentives and have different potential impacts, as indicated in Chapter 4. The main criteria on the basis of which these methods ought to be compared is economic efficiency, i.e. the extent to which each maximises welfare and contributes to an optimal allocation of resources in the economy. Achieving economic efficiency in the case of spectrum use means providing incentives such that spectrum will be economised in those areas where it makes most economic sense to do so from the point of view of welfare.

When applied to broadcasting, the valuation methodology which consists in pricing spectrum based on revenues generated by the users of the resource is not the most appropriate from an economic efficiency point of view if the “revenue” that is used in the calculation is solely the revenue from advertising or other commercial revenue. Indeed, the broadcasting market is one in which operators potentially receive revenue from different sources, and in which advertising revenue is, for many operators presently using a lot of spectrum<sup>31</sup>, only a supplement to the licence fee or other public funding. For these “spectrum intensive” operators, the price calculated on a revenue basis would provide less incentive to economise spectrum than for purely commercial operators. In that sense, it is thus not the most economically efficient method.

With respect to auctions, a difficulty arises from the fact that, with spectrum demand expected to fall at the end of the transition period (after switchover is completed), prices should also come down. The valuation of spectrum thus has to be done on a prospective basis – which introduces an element of uncertainty. The experience of telecoms, where operators have clearly had difficulties in correctly assessing the true underlying value of spectrum to them, sends a warning.

In terms of economic efficiency, administrative pricing would be an appropriate way of sending the right signals to the market provided that prices were set correctly. Setting the right price, however, supposes: (1) revealing the underlying value of spectrum to users, *and* (2) being able to assess precisely the “costs” - in particular those associated with the coverage and content obligations - that ought to be taken into consideration as these are indirect ways of paying for the resource. Once assessed, the cost linked to the positive programming and coverage obligations would also have to be allocated correctly to the different users in order to set a price for spectrum for these users equal to the value of spectrum minus these costs (which are a shadow price, or an indirect way for these to pay for spectrum). Another difficulty with administrative pricing is to assess the underlying value of spectrum. An objective way of

<sup>31</sup> Notably public service broadcasters



revealing this value would be to assess the maximum cost that each operator would be willing to pay before switching onto another platform. This approach, however, is not appropriate in economic terms. Indeed, there is no economic reason why the price of a public good should be defined in such way as to equalise production costs across different technologies. Using administrative pricing in this way therefore may send appropriate signals to markets, but the level of price chosen is a form of “discrimination” against other platforms: indeed, if the price of spectrum is set such that the cost of distributing broadcast programmes through the terrestrial mode remains lower than, say, via cable, this eliminates incentives for terrestrial operators to keep costs down to remain competitive versus cable.

Setting the spectrum price at a level such that the cost of distributing in terrestrial mode would be higher than that of diffusing via satellite or cable would eventually mean the disappearance of that distribution mode. This would lead to a whole set of other costs, in particular in relation to the need to meet the ubiquity constraint.

The debate on the methodology to be preferred and the effective value of spectrum is ongoing.

With respect to the criteria against which the conditions attached to the rights of use of radio frequencies are to be assessed as per the NRF, i.e. coverage (since must-carry is dealt with below) one can say that, as long as the granting of the frequencies is done based on clearly defined procedures, with precise selection criteria being laid down in the case of beauty contests, and as long as there are no restrictions to the types of operators which can compete for these frequencies, the conditions of transparency and objectivity with respect to the underlying general interest objective can be deemed to be met. Proportionality vis-à-vis operators of other platforms would, however, not be guaranteed.

## 6.3 Must-carry

Based on Article 31 of the Universal Service Directive, Member States may impose must-carry obligations for the transmission of specified radio and television broadcast channels and services. The obligations must be reasonable, only be imposed where they are necessary to meet clearly defined general interest objectives, proportionate and transparent. They have to be subject to a periodical review.

The Directive also indicates that Member States may determine appropriate remuneration, while ensuring that there is no discrimination in the treatment of undertakings providing electronic communications networks. Where remuneration is provided for, Member States shall ensure that it is applied in a proportionate and transparent manner.



### 6.3.1 *The remuneration condition*

Below, we start with the second set of requirements, namely the proportionality and transparency conditions for remuneration.

The methodological framework proposed in Chapter 5 to assess the economic effects of must-carry provisions makes it possible to assess the requirements with respect to the remuneration. Without prejudice to the remuneration of other services provided by the cable operator to the broadcasters, or by the broadcasters to the cable operators, our first recommendation is that all channels ought to pay a fee to the cable operators for the transport of the programmes, the level of which should be determined through commercial negotiations between the two players.

The “fee” or remuneration that we refer to in the above paragraph is strictly meant as the carriage fee as illustrated in Figure 3.1 in Chapter 3, excluding all other financial transfers between players and in particular authors’ and performers’ rights, and the payments of other services.

Commercial negotiations indeed have the advantage that:

- operators have the flexibility to negotiate prices that best reflect the needs and preferences of each party;
- the outcome of commercial negotiations such as the ones at stake here will maximise the number of viewers, since this is in both parties’ interest;
- letting prices be set through commercial negotiations also means that the network operator has the flexibility to take into account and respond to changes in the market, and to preserve and enhance investments;
- commercial negotiations are less heavy and time consuming than setting prices based on the estimation of an operator specific model.

Yet, commercial negotiations alone are unlikely to lead to an market efficient price (i.e. to the price that would be observed in a competitive market) in the case of must-carry channels, since the existence of must-carry obligations may distort negotiations between the cable operator and the broadcasters benefiting from must-carry status. To help define a level of remuneration that would be proportionate, we recommend developing a bottom-up LRIC model to assess total costs linked to transporting television signals on the network and allocating the costs across users based on the capacity used by each service on the network. The model would be used to provide a *guideline cost-based price* that can be used as a reference point or benchmark for the negotiations between the cable operator and the broadcasters that benefit from must-carry status. In addition, we recommend that, based on the specific national conditions, the regulators also clarify the factors that they would consider acceptable to explain deviations of a particular operator’s commercial negotiated fee from the guideline price. These factors can be related to demand factors such as the number of viewers, audience rate, revenue from advertising or the degree of price sensitivity of consumers.

Setting the remuneration of must-carry at exactly the LRIC estimated cost-based price level would in fact not be proportionate, and would also not necessarily guarantee that the level of the remuneration does not lead to market distortions, in a market where must-carry operators form a heterogeneous set of channels and compete against other channels that do not benefit from must-carry and for which the transport price is defined based on commercial negotiations that taken into account willingness to pay and demand factors. Indeed, the imposition of a level for the remuneration that is exactly equal to the calculated cost of using the capacity on the network goes beyond what is strictly necessary given the objective pursued (to offset the net costs associated with the obligation and avoid discrimination between electronic network providers), since the cable operator may derive direct benefits from transporting certain must-carry channels that consumers effectively “expect” to have in the bouquet. These benefits should be offset against the costs associated with transporting the channel, something not provided for by the LRIC approach.

The setting of a remuneration exactly equal to the calculated cost-based price – hence exclusively based on the extent of capacity used up on the network - also does not provide a guarantee against market distortions, given the heterogeneity of must-carry channels, some of which are not very different from other, non-must carry, channels. (The definition of a single price per capacity used on the network, however, does not create market distortion per se, but





simply does not protect against market distortion, hence does not automatically meet the non-discrimination criteria).

In practice, the effective market price paid by the broadcasters that benefit from must-carry status to the cable operator for the carriage of the signal is likely to be anywhere between zero and a figure close to the cost-oriented transport price, where the latter is calculated based on the model of an efficient network built with the best available technologies. The price ought not to be higher than the cost-oriented transport, since this would not provide incentives for cable operators to become more efficient. It should also not be less than zero, as the price that we assess here is the price paid by broadcasters to cover costs not paid back by end-users, hence excluding authors' and performers' rights, which are incorporated in the end-user subscription fee. Disparities between the market price and the cost-oriented price ought to be assessed not in absolute terms, but in comparison with the effective market prices paid by the other broadcasters, in particular the channels not benefiting from must-carry (or – in some countries - virtual must-carry) status.

Applying this framework to the assessment of the proportionality and transparency of remuneration for must-carry requires separation of accounts on the part of cable operators, and a requirement to report to the regulator the effective outcome of commercial negotiations of transport charges with all broadcasters carried by the network operator.

### 6.3.2 *The must-carry condition*

On the must-carry measure itself, the NRF states that it should be reasonable, clearly defined and in conformity with Community law.

Clearly defined means that the Member States' legislation must indicate clearly the criteria which they use to specify the relevant channels and services which are brought under the must-carry obligation. According to a note made by Clifford Chance for ECCA<sup>32</sup>, these criteria must be so clear as to allow a court to (marginally) test the decision of the national authority. Relevant case law of the European Court of Justice has made clear that economic considerations would not be considered as general interest objectives which could justify exceptions to the freedom to provide services<sup>33</sup>. On the contrary, objectives like for instance pluralism, linguistic or cultural diversity have been accepted by the European Court of Justice<sup>34</sup>. The measures must also directly relate to the general interest objectives which it claims to protect and promote and not go beyond what is strictly necessary to achieve those objectives.

Reasonable means that the criteria on the basis of which the channels that benefit from must-carry status will be defined should be non-discriminatory in terms of nationality. Member States should limit themselves to the general interest objective that has been set and not take upon them to promote the general interests of other Member States.

In conformity with Community law means that the measure should not provide the channels which are granted must-carry status with an undue level of protection, for example by providing them a greater degree of certainty with respect to revenue flows than is the case for their competitors.

<sup>32</sup> Must-carry and General Interest, an opinion by Clifford Chance Pünder for the European Cable Communications' Association, October 2002.

<sup>33</sup> See for instance the judgement of the Court in Case C-211/91, Commission v. Belgium, ECR I, 6757

<sup>34</sup> See for instance the judgement of the Court in Case C-288/89, Mediawet

In summary, the must-carry measures as specified in the Member States must be clear and transparent, directly relate to clearly specified general interest objectives, not have a primarily economic objective nor set an unrealistic level of protection or promotion and not be in excess of what is strictly required to meet the general objective. Furthermore, the measures have to be periodically reassessed to take into account changing market conditions.

## 6.4 Access obligations for conditional access systems and other associated facilities

As regards conditional access, distributors managing conditional access services are required to provide services to other broadcasters on “fair, reasonable and non-discriminatory” terms, and to license their intellectual property rights to manufacturers on the same basis (Article 6.1 and Annex I part I. B of the Access Directive). Notwithstanding the above-mentioned provisions, Member States may permit their national regulatory authority to roll back these obligations following a market analysis. The regulatory authority may determine whether to maintain, amend or withdraw the conditions applied on non-SMP operators if there would be no adverse effects of such amendment or withdrawal on accessibility for end-users to radio and television broadcast and broadcasting channels and services which benefit from a must-carry obligation.

Concerning access to other associated facilities, notwithstanding the fact that it may be sufficient in many cases to impose access rules only on SMP providers of the associated facilities, Article 5.1. b and Annex I part II of the Access Directive, also provides that NRAs shall be able to impose - to the extent that is necessary to ensure accessibility for end-users to digital radio and television broadcasting services specified by the Member States - obligations on operators to provide access to application program interfaces (APIs) and to electronic programme guides (EPGs) on fair, reasonable and non-discriminatory terms. All obligations and conditions imposed shall be objective, transparent, proportionate and non-discriminatory (Article 5(3) of the Access Directive).

With respect to interoperability of CAS, discussions in the Member States prior to the adoption of Directive 95/47/EC, the provisions of which have been rolled back into the NRF, have led to a consensus that operators should be able to jointly agree on the technological solution that makes most sense to them given market conditions. Technologies and markets are evolving rapidly and it was felt that it was premature to set an EU-wide standard, even if the industry is spontaneously moving towards such a single standard.

On the pricing by the distributor of the conditional access services that it provides to the broadcasters (channels), the NRF states that the pricing of these services ought to be fair, reasonable and non-discriminatory.

As explained in Chapter 5, there are many price mechanisms that could deliver an outcome that would be fair, reasonable and non-discriminatory, however the outcome would not necessarily be the same in terms of economic efficiency or in terms of its impact on market structures, given the different incentives created.

As for must-carry, we recommend that the prices to be paid by broadcasters for conditional access services be set through commercial negotiations between the players. One can say that the FRND condition will be met if :

- ✓ The overall pricing framework should reflect prices that would prevail in a competitive market;



- ✓ Prices for particular categories of services (or groups of services) fall between the incremental cost of providing the service (or group of services) and the stand-alone cost of providing the service (or groups of services) on its own;
- ✓ Comparable service providers are charged comparable prices for comparable services purchased at broadly similar times of negotiation for access; (this is the principle of non-discrimination)
- ✓ Vertically integrated suppliers of CAS do not offer services in a way which restricts downstream competition. In particular, they must not supply to their own downstream businesses on terms which are more favourable than those offered to third parties (again, this refers to the non-discrimination principle);
- ✓ The terms of supply of CAS should be consistent with the achievement of public policy objectives relating to universal access to public services; and,
- ✓ The terms of supply of conditional access services should maximise benefit to consumers in the long term, in particular by not creating unjustified barriers to entry of competitors.

There is no reason to make a distinction between FTA and Pay-TV digital broadcasters in terms of the fee they would pay for CAS.

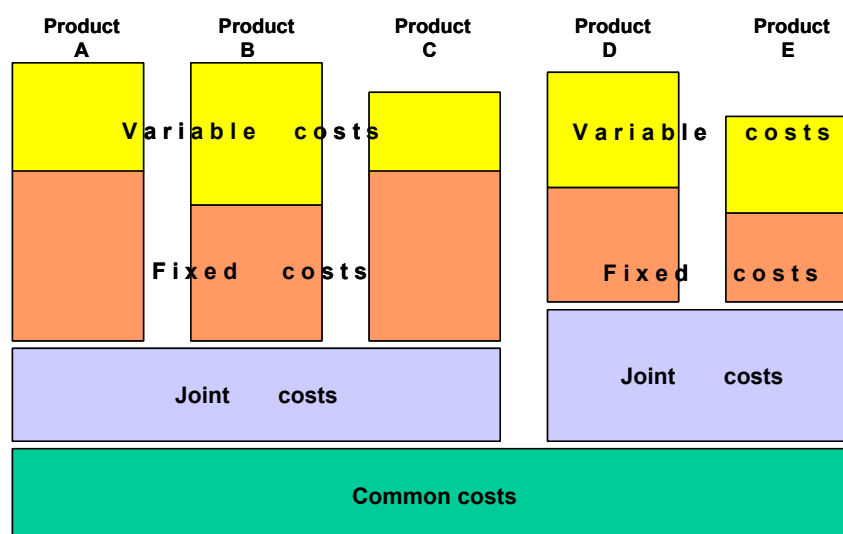
The discussion above applies, *mutatis mutandis*, to access conditions to associated facilities such as APIs. Hence, should NRAs decide to extend the FRND regime to associated facilities in order to ensure accessibility for end-users to digital radio and television broadcasting services specified by the Member States this could be done by extending the regime defined for CAS.



## Annex 1 – Key cost concepts

The figure below illustrates the various types of costs incurred by a multiproduct firm.

**The costs of a multi-product firm: an example for five products**



**The common costs** are costs that are shared by all the services in the company (e.g. the fixed costs of licences in telecoms, as well as network costs). In their economic treatment, these are the costs of inputs producing several different outputs with the possibility of varying the proportions of the services produced. Among the common costs can be certain fixed costs, linked to the infrastructure, and variable costs, linked to the maintenance of the infrastructure which is used for the provision of all the services (or products).

**Joint costs** are costs shared by a family of services (e.g., the cost of buildings in the telephone network, in the case of telecoms, or the cost of developing the back channels for 2-way communications in broadcasting). In their economic treatment, these are the costs of inputs which necessarily produce more than one product in fixed proportions<sup>35</sup>.

**Direct costs or directly attributable costs** are expenses or inputs which are needed solely to produce a specific service or a series of services, and which have their own identity for accounting reasons i.e. their own account or sub-account. Thus, this concept designates all of the expenses which can be directly charged to a determined product (for example, interactive multimedia services, or high-speed internet access in the case of broadcasting), whether these expenses are fixed or variable. From an economic point of view, these are costs which are directly and unambiguously linked to a product or service (all the costs created by the service(s) in question and not by other services). They are saved if this service is not produced.

The sum of the joint costs and the common costs composes the **shared costs**. These costs can be attributed to various services in accordance with more or less arbitrary distribution keys

<sup>35</sup> Strict economic definition.



established on the basis of causal relations. When this attribution can be undertaken using a non-arbitrary base reflecting the relationship of the costs with the directly attributable costs, this is referred to as indirectly attributable costs. When this distribution can only be undertaken on an arbitrary basis, this is referred to as non-attributable costs.

Within the directly attributable costs, a distinction can also be made between fixed costs and variable costs:

**Fixed costs:** Occasionally called fixed expenses in accounting terms, they represent the share of the company's expenses linked to its existence and the establishment of its industrial and commercial system. Fixed costs generally make up a production capacity which evolves by thresholds. Among other, they comprise equipment which has formed the object of prior investment. These costs are only relatively fixed as they are not totally independent of the company's level of activity: in the event of a major change in the company's size, the fixed costs will vary due to the change in the structure. However, these modifications are not necessary below certain thresholds, nor proportional. Thus, for the purposes of economic treatment, they are considered as independent of the volume of production and are borne by the company, under all hypotheses, even if it is not operating. Within fixed costs, sunk costs which are lost if the activity is stopped can be isolated (Entry costs into market, fixed cost not recoverable on exit).

**Variable costs:** Variable expenses or operating expenses are closely linked to the level and development of the company's production and marketing operations. When some operations are halted, the corresponding variable expenses disappear, whereas when these operations develop, variable costs move in the same direction. The variable costs are notably made up of costs for raw materials, labour employed in production, energy (also used for production) as well as variable marketing costs (delivery expenses, brokerage, commissions, allowances, marketing drives, etc.). Although they are proportional costs, they are not necessarily strictly proportional to the development of the activity. This is due to the modifications which may be recorded in the yield from business factors according to the level at which activity is at, according to the development of the techniques employed and the rate adopted for production operations. Thus, they depend on the volume of production in their economic treatment. They can vary directly proportionately with production (raw materials) or in a way which is not directly proportional (salary expenditure).

**The sum of fixed costs, variable costs, joint costs and common costs composes what is commonly called the total cost or global cost.** The latter is unchanging in its relationship to output (the more produced, the more the total cost increases).

This typology of costs, albeit done with a view to simplification, has the advantage of illustrating the difficulties that are likely to be associated with the allocation of costs of a company selling multiple products or services.

