

## Chapter II

### KEY ECONOMIC AND LEGAL DRIVERS TO THE MARKET DEFINITION PROCESS

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This Chapter is dedicated to explaining the key economic and legal principles of relevance to any regulator engaged in conducting a market definition exercise. Accordingly, this Chapter is organised along the following lines:

- an explanation of the “hypothetical monopolist” test that forms the basis of antitrust market definition, and a review of the complex considerations that need to be understood in employing this test, even if its application may, in practice, be relatively straightforward (Section I);
- an overview of established jurisprudence and administrative practice in the application of Community law concerning issues of market definition (Section II); and
- a discussion of the types of quantitative economic techniques which can be applied in controversial cases, with a view to informing a regulator’s interpretation and application of the economic and legal principles set forth in Sections 1 and 2 (Section III).

The key principles discussed in this Chapter will provide the basis of the approach of the Study Team in its market definition exercise to be conducted in Chapters V to VII of the Study.

## **I. KEY ECONOMIC ISSUES IN DEFINING MARKETS**

### **I.1 APPLYING THE HYPOTHETICAL MONOPOLIST TEST IN PRACTICE**

The widely accepted starting point for economists for delineating the boundaries of a product market is (*i.e.*, the process of market definition) is the application of what is known as the “hypothetical monopolist” test. In essence, the question that has to be answered under this test is: could a firm that was the only present and future seller of the relevant products or services in the geographic area where competitive economic conditions are similar impose at least a “small but significant and non-transitory” increase in price?<sup>1</sup> In other words, starting from a competitive price, would it be

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<sup>1</sup> See U.S. Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines (1992) (revised 1997); U.S. Department of Justice, Non-Horizontal, Merger Guidelines, ch. 4 (1984). The *U.S. Merger Guidelines* define a “market” as a product or group of products and a geographic area in which it is produced or sold such that a hypothetical profit-maximising firm, not subject to price regulation, that as the only present and future producer or seller of those products in that area likely would impose at least a “small but significant and nontransitory” increase in price, assuming the terms of sale of all other products are held constant. A relevant market is a group of products and a geographical area that is no bigger than necessary to satisfy this test. The Merger Guidelines first define the relevant product market with respect to each of the products of each of the merging firms. Starting with each product (narrowly defined) or each merging firm, the Justice Department and FTC continue to add the “next best substitute products” until reaching the point where a “hypothetical monopolist” could profitably impose the “small but significant and non-transitory” price increase without consumers switching to

profitable, over a period of about one year, to implement a hypothetical small (in the range of 5 to 10 %) increase in price? This will depend on the degree of consumer switching to other products (demand substitution) and additional supply (supply substitution).

The assumed hypothetical price increase is relevant only in the context of the economic exercise of assessing where market boundaries lie, rather than in the later process of appraising market power. In applying the test, care must be taken not to begin with a geographic scope that is too broad, nor with a group of reference products that is too broad. In principle, one's reference point is the end user product or service that appears to be at the core of the market power or the abuse of dominance concern, and then one applies the hypothetical monopolist test in relation to this product. In practice, starting the process with individual products is not always necessary, as there may be at least one (and perhaps several) unmistakably strong and effective substitutes for the product in question. Consequently, the test may need to be applied with respect to a range of substitutable products.

It is also important to bear in mind that the hypothetical monopolist test is concerned with the response of consumers at the margin and *not* the average or typical user. It is clear that there will always be consumers that would never switch from one product to another in response to a significant non-transitory price increase. However, these consumers are not the focus of the SSNIP test, but only those customers at the margin that would substitute under certain circumstances. It is whether these marginal customers are sufficient in number to make any attempt by a firm to increase prices for a product unprofitable, that is important for market definition purposes. This is an empirical matter, and one that cannot be addressed by simple factual analysis and assertions (which risk being arbitrary and capable of identifying very narrow markets).

The hypothetical monopolist test is normally a relatively straightforward exercise, although the approach needs to be finessed by an understanding of a number of complicating factors that can arise.

### **I.1.A. Quantitative Thresholds and the Hypothetical Monopolist Test**

In the EU, the small but significant and non-transitory price increase that is used as the benchmark for the hypothetical monopolist test is 5 to 10 percent, depending on the

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additional substitute products. A five percent price increase over a period of one year is given as a fair benchmark for most purposes, although higher or lower levels may be used depending upon the industry. In considering the likely reaction of buyers to a price increase, the US authorities consider all relevant evidence, including, but not limited to, the following:

- evidence that buyers have shifted or have considered shifting purchases between products in response to relative changes in price or other competitive variables;
- evidence that sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables;
- the influence of downstream competition faced by buyers in their output markets; and
- the timing and cost of switching products.

nature of the industry.<sup>2</sup> The time period over which the test requires supply substitution to occur, is approximately one year. There are a number of compelling reasons why some economists take the view that these quantitative thresholds might be relaxed, in certain circumstances. Some of these are relatively specific, reflecting certain characteristics of particular industries, but there are other concerns that apply more generally.

Market definition is not a mechanistic process, as it will, in principle, be specific to the facts of each case. To the extent that NRAs have to use their judgement in defining relevant markets, and where only quantitative thresholds serve as guidelines (and are adjusted when the circumstances demand it), regulatory authorities will have a margin of discretion. This level of discretion tends to create lobbying opportunities and an increased risk of regulatory capture, which may be countered in part by full public disclosure of the analysis employed in any decision or recommendation.<sup>3</sup> This will serve to maintain an acceptable level of transparency and to provide for review by interested parties and experts.

**a. *Limits to the “5 to 10 percent price rise” Test***

Care should be taken not to be over-reliant on the Hypothetical Monopolist test in defining markets. This is because the 5 to 10 percent profitable non-transitory price rise benchmark is prone to a margin of error, especially in complex markets where buyers are not homogeneous in the uses to which they put the good or service, and also where the widespread bundling of services that share costs takes place (thereby making pricing rather non-transparent).<sup>4</sup> In such situations, a hypothetical monopolist's most profitable price may be significantly greater or less than the price following a 5 to 10 percent increase, even though a 5 to 10 percent price rise may increase the monopolist's profit. For example, where some consumers have a substitute to which they can switch if there is a price rise by the hypothetical monopolist, but there are no suitable substitutes for the majority of customers, a small price increase can be unprofitable for a hypothetical monopolist, while a larger one may be profitable. Such a result tends to suggest that the monopolist may in fact be supplying to two separate economic markets, but an overly-simplistic application of the 5 to 10 percent price rise test would not uncover this information. This situation occurs where a proportion of customers are able to switch to alternatives, while another group of customers are effectively captive.

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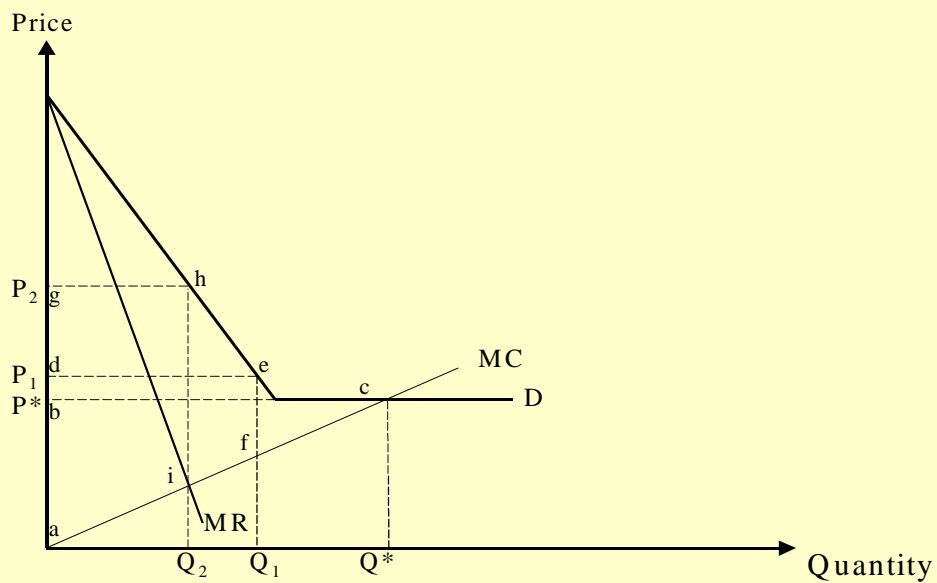
<sup>2</sup> In the *United States*, the Department of Justice uses a 5% level, but notes a series of conditions under which a larger or smaller hypothetical price increase would be applied. Arguably this improves predictability, and thus transparency. Unfortunately, these conditions do not constitute an exhaustive list. As with all regulatory decisions involving discretionary judgement, transparency is enhanced by the relevant authorities providing a complete analysis of their reasons for reaching a particular decision.

<sup>3</sup> An example would be where, in a contested case, the authorities adopted a longer than standard timeframe within which to assess supply substitution or possible future entry possibilities. Obviously, all regulatory authorities should be subject to an appeal process which, while not so frequent as to undermine the regulator's authority, nevertheless should be present in order to keep the regulator “disciplined” in its own deliberations, in much the same way as firms need competition to do likewise.

<sup>4</sup> In such cases, legitimate pricing can vary between stand-alone and incremental cost. By definition, there are no cross-subsidies where prices fall in this range.

We describe the situation in **Table II.1**, overleaf. Clearly, the application of the hypothetical monopolist test is not a simple exercise, with regulators being required to identify the most profitable price increase when applying the test.

This situation in the diagram below shows a kink in the demand curve, indicating a captured group of customers (the steep part of the demand curve) and a group who are very price-sensitive (*i.e.*, are able to switch away from the good or service being sold if prices rise by even a fair small amount). Initially, the industry is producing competitively, with output  $Q^*$  and price  $P^*$ . A small increase in price causes demand  $0Q^*-0Q_1$  to substitute away from the good or service  $Q$ , with a new price at  $P_1$  and a quantity of output at  $Q_1$ . Profits before the price rise were those indicated by the triangle  $a, b, c$ . After the price rise, profits are those indicated by the trapezoid  $a, d, e, f$ . Clearly, a large proportion of total sales has been lost with a small rise in price, such that the small increase in price will have resulted in a fairly significant drop in profits. However, in order to maximise profits, a hypothetical monopolist would equate marginal revenue with margin cost, producing at output  $Q_2$  and price  $P_2$ , with profits indicated by the trapezoid  $a, g, h, i$ . These profits would be greater than those that it would earn at either  $Q_1$  or  $Q^*$ .



Source: Werden (1983)

**Table II.1: Profit Maximisation and Captured Demand: a 5%-10% price rise compared to profit maximising price rise**

The percentage price increase chosen can determine the size of the relevant product market. If the price rise required for the hypothetical monopolist test is 20 percent, a larger proportion of buyers are likely to switch to alternatives that they consider to be not very satisfactory substitutes (at a lower price), than would switch following a 5 percent price increase. Similarly, producers who can switch existing capacity to supply in competition are more likely to do so when the price rise is 20 percent, rather than 5 percent. The Candidate Market would in many cases be significantly larger if the hypothetical percentage price rise is significantly larger. While care must be taken not to define markets too broadly, the Study Team nevertheless believes that the standard quantitative thresholds used in most *ex post* competition law analyses can identify markets that are too narrowly defined for *ex ante* regulation.

Uncertainty, coupled with transaction and information search costs, often result in buyers, be they intermediate producers or end users, not readily switching to alternatives when relatively small price rises occur. Accordingly, regulators might be expecting too much of ‘imperfectly’ competitive markets by setting quantitative thresholds that are too low to elicit much consumer and/or producer reaction given that, even where there is relatively strong competition between substitutes, low quantitative thresholds might not highlight a number of quite adequate substitutes, or might not highlight the capacity of alternative suppliers that could fairly easily switch to supply to the relevant product market.

There are a great many factors that can influence prices. These include, most obviously, demand and supply conditions for the end product, of which there are a considerable number of drivers.<sup>5</sup> Because there are transaction and information search costs involved in buyers switching to other suppliers, in the absence of knowledge of the cause of price movements, buyers may not be able to respond to quite small price increases (even though suitable alternatives exist), and firms with suitable capacity are also less likely to enter to supply the relevant product market. These types of analyses become more complex where economic arrangements are conducted by reference to non-price elements, which make the hypothetical monopolist test difficult to apply (*e.g.*, peering agreements which amount to little more than barter relationships).

Therefore, even after a full investigation, information gleaned may be incomplete. As such, regulators may be uncertain as to whether or not a hypothetical monopolist would be able to raise a price by a small amount for a non-transitory period. In these circumstances, errors will be made, *i.e.* markets may be incorrectly defined.

Arguably, quantitative thresholds for market definition should be partially determined by the range and severity of regulatory obligations that the NRA is committed to impose once SMP is designated. For example, high quantitative thresholds might be appropriate if all firms with SMP were to be required to provide access to their facilities to competitors. In practice, many situations in which there is market power are

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<sup>5</sup> These include: changes in taste; changes in technology; changes in resources; changes in regulations or laws; changes in income; patent expiry; changes in business strategies by firms in the market or those outside it; and changes in macroeconomic factors *e.g.*, exchange rates and interest rates.

not best addressed through the imposition of access obligations. Where less intrusive regulation applies, quantity thresholds could be lower.

Different quantitative thresholds used in market definition will result in different markets being identified and, consequently, different market shares being attributed to the entities competing in those markets. It is well recognised, however, that market shares provide only limited value in determining whether firms have market power. While there is increasing correlation between market share and market power above a certain market share, in particular instances firms with market share well over 50 percent may have relatively little market power.

The appropriate use for market share data is not in confirming which firms have market power, but in identifying those that are most likely not to have market power. A percentage of market share threshold can be set below which regulators could assume that a firm does not presumptively have SMP, and the investigation could be quickly dismissed. It is by no means clear where this level should be set. It should, for example, depend on the unit of market share measurement (*e.g.*, gross revenues; number of products traded), which can provide very different market share figures relative to the historical maturity of a market.<sup>6</sup> It might be considered that the principle task of the test is to set a floor for the percentage market shares below which there is little probability of enduring and significant market power being exercised. Unless firms' shares reach this threshold, they would be assumed not to have SMP. Indeed, the administrative costs involved in investigating and perhaps taking action against firms that do not have enduring SMP increases the cost of errors which might be made, and is suggestive of a broadening of the quantitative thresholds for market definition, *i.e.*, reducing the risk that firms without SMP are designated to have SMP and are regulated accordingly, and increasing the risk that firms that have market power are designated not to have SMP, and remain free to exercise market power free of regulation.<sup>7</sup>

We note, however, that cases in which the level of the hypothetical price rise makes a significant difference to market boundaries (and whether a firm has SMP) are unlikely to be common. In many cases, whether a 5 or a 10 percent benchmark is chosen will not significantly change the boundaries of the market.

***b. Which Starting Price?***

There are also a range of possible prices to which the hypothetical monopolist test could be applied. If the product in question is upstream from a retail market and part of a complex supply chain, the relevant price might be the price of the total product at the particular stage of that chain. It could also be simply the value that is added at that stage. It is important to note, however, that any firm that is a monopolist at any point in the vertical supply chain, would be looking to the demand conditions in the end user market as the source of its monopoly profits. Monopoly pricing in the wholesale market will be designed to have an estimated impact on prices and quantities in the end user

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<sup>6</sup> In rare cases, there may be an issue of “joint dominance” or agreements which restrict competition, but it is beyond the scope of this study on market definition to expand upon these essentially competition law concepts.

<sup>7</sup> A reduced risk in the former type of errors and an increased risk in the latter type of errors.

market. Where end users have heterogeneous uses for the product, there may be complex multi-part pricing. Where there are significant common costs involved in the production process and several prices or price structures in the end user market, determining the end user price on which to rely can be complex. We address the problems of using price standards when there is a large proportion of joint or common costs, below at point I.4.

## I.2 TEMPORAL ASPECTS OF SUPPLY SUBSTITUTION ANALYSIS

Supply substitution, as opposed to new entry, refers to capacity that is very likely to be switched to provide additional output in the Candidate Market following a small but significant and non-transitory price rise above competitive levels, by a hypothetical monopolist. Supply substitution is an important element in the process of market definition. It should be contrasted with the assessment of whether entry in the short to medium term is likely to occur. This later consideration (*e.g.*, potential entry) is not included in the process of market definition, but must be considered once the market is identified and it appears that there may be a market power issue in that relevant market.

The time period over which all demand and supply responses will need to occur for them to be taken into account under European Commission practice in defining a market, is, typically, about one year. We are not the first observers to consider that this timeframe may be too short, and result in relevant markets being too narrowly defined. In many markets, customers do not switch easily, as they invariably face some switching costs; however, if significant numbers start switching to substitutes only after one year, it may be even more difficult to win them back. On the other hand, if a firm suspects that it would not be able to sustain a price rise for much more than one year, it is unlikely to raise price in the first place. Moreover, a timeframe of one year means that the consideration of most supply-side developments will only occur after the market has been defined. In dynamic markets characterised by factors such as evolving technology and technological applications, new innovative business models, and an evolving regulatory structure, this may mean that markets will tend to be too narrowly defined, with the result being that SMP may be more readily found and regulation imposed that undermines more cost-effective market-based solutions.

The Study Team considers that lengthening the timeframe which could be used to define markets from 18 months to two years is likely to lower the risk of inappropriate regulatory intervention (*i.e.*, intervention which causes net overall costs to the economy). The main reason for this is not to include new information *per se*, as such a timeframe will not add very much in terms of “new” information). Rather, it concerns the mindset of regulators who would be asked to look more to the future, which is entirely appropriate given the end purpose – proportionate and necessary *ex ante* regulation to address structural concerns or ending market failures for which *ex post* intervention is inappropriate or unsuitable.

The analysis of possible future entry would still take place, after the process of market definition. It is here that most of the analysis regarding future entry and competition effects would need to occur, including the consideration of competition between technologies, technological applications and business solutions, standards and so forth. Competition at this level may well take place over a timeframe greater than two to three

years.<sup>8</sup> Lengthening the timeframe within which the hypothetical monopolist test would be applied seems likely to lower the risk of inappropriate regulatory intervention.

### I.3 THE CELLOPHANE FALLACY

When assessing a hypothetical non-transitory price increase, care is needed to avoid making the mistake known as the *Cellophane Fallacy*. The name comes from a now infamous case in which the US Supreme Court<sup>9</sup> considered market definition in a case involving cellophane, and considered that a significant price rise would bring cellophane into competition with other products. This led the Supreme Court to conclude that other products served as sufficiently good substitutes to cellophane, so that cellophane could not be considered as being in a separate market.

It was later pointed out, in the economic and legal literature, that the Court had erred in judging the elasticity of substitution (the degree to which consumers would switch from cellophane to other products following a price rise) by considering this in relation to the then current prices, which were already far above the price that would prevail if the market was competitive.

Essentially, even where a product has no close substitutes, if the price is already high and a hypothetical price rise occurs, consumers would tend to switch to poorer substitutes more readily than they would if the price rise had occurred from a significantly lower level (such as would prevail if the market was already relatively competitive). It is a point well understood by economists that the cross price elasticity of demand (the sensitivity of buyers to switch purchases from *A* due to an increase in its price, to substitutes whose prices remain unchanged) gets greater as we move up the demand curve, *i.e.*, as the price of *A* gets higher. In short, in *Cellophane*, market dominance was already being exercised at prevailing prices, and a hypothetical additional price rise could fail to define a market in which there was a serious market power problem.

The rule, since *Cellophane*, is that the hypothetical monopolist test should be carried out using a price that would prevail if the market were competitive. However, there are several quite serious methodological problems that result from rejecting existing prices

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<sup>8</sup> Some of the considerations that the authorities might need to address can be found in Ordober, J. and Willig, R. (1985), "Antitrust for high-technology industries: Assessing research joint ventures and mergers", Discussion paper 87, Princeton University, New Jersey. In at least one case, the Commission has apparently quite drastically extended the timeframe over which expected future competitive effects have been analysed. The Commission noted that cases relating to *markets in transition* due to such things as the recent harmonisation of technical standards, certification procedures, or procurement policies, might need to be treated differently. See Case No. COMP/M.165 – *Alcatel/AEG Kabel*, December 18, 1991, on the extent to which certain communications markets are still in a process of transition. Even if, however, this issue is deemed not to be relevant at the level of market definition analysis, it will be relevant to the assessment of likely future entry and competitive effects and, perhaps at least as importantly, the design of an appropriate and proportionate regulatory response.

<sup>9</sup> *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377 (1956); 76 S.C.t. 994, L. Ed. 1264.

(especially where, as often occurs in the communications sector, many prices have been shaped by regulatory intervention):

- actual market evidence regarding consumer and/or supplier behaviour following on from a shock, such as a price rise, is much less relevant where prevailing prices are not considered to be directly relevant in assessing cross price elasticities of substitution; indeed, the behaviour of actual prices can be an important, and indeed, one of the only sources of “hard” data which shows how prices have moved following market shocks; a rejection of existing prices means that such data is of much less relevance;
- consumers are aware of existing prices and are thus more able to respond to survey questions without being required to make too many mental adjustments to meet hypothetical conditions;<sup>10</sup> and
- an investigation to determine a competitive price in multi-product industries with a high proportion of common or joint costs may not provide a single price at all.

We address the latter issue immediately below.

#### **I.4 PRICING THRESHOLDS AND COMMON AND JOINT COSTS**

A possibly serious hurdle to defining some markets in the communications industry is that the concept “competitive price” may have no useful meaning, because of the considerable common or joint costs which might be incurred in the production of a given service. A single competitive price may therefore not be able to be determined. Rather, economists talk about incremental price floors and stand-alone price ceilings.

The possible importance of this in relation to communications networks is highlighted by the fact that such a large proportion of their costs are common or joint among more than one service. Indeed, some services or service increments have ratios of long-run incremental (LRIC) to stand-alone costs (SAC) (LRIC plus all the common costs that are associated with the service are assigned to it) of more than 1 to 10. As such, only when the price is less than one will the service need to be cross-subsidised by revenues from other services, and only when the price is more than 10 is it manifestly excessive. When common and stand-alone costs are very different, the rationale for an operator’s decision as to how to allocate such costs is highly opaque. For regulators to be able to decide whether a price of 1, 10, or somewhere in between would prevail in a competitive environment in which there are multiple services with such cost characteristics, a number of assumptions are required, along with complex economic modelling to reduce the margin of error. The complexity of such a process implies a lack of transparency and may subject estimates of ‘competitive’ prices to an unquantifiable degree of error.

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<sup>10</sup> We note in Section 2, that obtaining consumer/buyer survey data that is of value to a market definition analysis is difficult even in ideal conditions. Survey data obtained using hypothetical starting prices are even less likely to be probative.

In most Member States, some communications services have been priced at less than 1, *i.e.*, at less than their LRIC, and some services have been priced at more than 10, *i.e.*, more than their stand-alone cost. The most obvious example of a cross-subsidised service has been residential access *i.e.*, the revenues obtained primarily from line rental. It is arguably still the case that some Member States continue to price residential access at less than the LRAIC of provision.

In a competitive environment, common costs would be recovered according to the “super elasticities” associated with the service. For incumbent operators in liberalised markets, these elasticities concern their expectations about the degree to which consumers would switch to substitute services as a result of a price rise, and the degree to which competitive operators would switch capacity and increase their supply of substitute products.<sup>11</sup> Super elasticities perceived by the incumbent will also account for its expectations as to possible future entry. If the market prices for communications services were determined in a competitive environment, these perceived elasticities would determine whether an individual service was priced at incremental or stand alone cost, or somewhere in between. As we have noted above, it is quite conceivable that, for some services, prices determined could vary hugely within this range, arguably with no completely non-arbitrary means for NRAs to decide which price to apply in a hypothetical monopolist test.<sup>12</sup>

With these issues in mind, it is relevant to note that prices for some services will still reflect prices prior to liberalisation (whether liberalisation occurred in 1998 or several years earlier). The factors linking prices over time are price caps, and the socio/political nature of telecommunications services. Liberalisation does not mean that incumbent operators were or are free to rebalance their prices to ‘competitive’ rates. In some cases, prices are controlled by price cap regulations, and whether or not these apply, some prices, most notably for residential access, were and are still influenced by political considerations. Prior to liberalisation, such prices were typically determined according to socio/political issues (*e.g.*, the genesis of access deficit charges), and may have borne little relationship to prices that would have existed had they been competitively determined, or determined free of political influence according to the corporate goal of maximising long-run profits. As a result, residential access was normally cross-subsidised, so that many of an operator’s prices, not just those relating to residential service, were the outcome of a political bargain and not of a competitive process or some requirement for “cost orientation”.<sup>13</sup>

<sup>11</sup> In some cases where products or services are complementary, it is possible for freely chosen individual prices to be priced at less than incremental cost. This would not necessarily imply predatory pricing.

<sup>12</sup> These considerations underline the fallacy that cost-oriented prices for individual services exist with regard to services for which there is a high proportion of common cost. Rather, the concept should be applied to the group of services that share costs.

<sup>13</sup> Indeed, it is widely recognised that utility pricing (including that of telecoms) tends to be explained by “public choice”, and typically results in pricing that shifts costs away from voters and onto other entities. In the absence of political considerations, models that optimise call and access prices suggest increases in average residential line rental tariff to about 25 Euro per month, and of course much lower long-distance and international call prices. Present line rental

In some oligopolistic or near monopolistic markets with high sunk costs and operator-specific products (information services can frequently fit this description) the expected rates of return before investment occurs can be several times higher than the operator's cost of capital. Such operators tend to have some market power, and some may not be well protected by intellectual property or patent law. In such cases, the competitive price may bear no relationship to incremental or marginal cost, and such companies may be making very high returns. As we have noted above, in such cases regulatory intervention may not be warranted.

In practice, the difficulties concerning the hypothetical 5 to 10 percent price rise test and the need to adopt a competitive base price (which may not be the existing price) will rarely arise. One reason for this is because, in practice, the boundaries of a defined market should not be greatly altered by significant variations in the price of a service or group of services. This appears to be the case in several communications markets. In addition, an operator will not infrequently be dominant in a broader market and, if the relevant market is a subset of that broader market, it may be that the operator is also dominant in such a market segment.<sup>14</sup>

## **I.5 KEY ECONOMIC FEATURES CHARACTERISING NETWORK INDUSTRIES**

### **I.5.A. Economies of Scale and Scope**

One of the characteristics which distinguishes network industries is the presence of substantial economies of scale and scope. Economies of scale alone have more of an impact on market structure (and hence market power) than on market definition – *i.e.*, in the case of a single-product natural monopoly, there will normally be a single producer. However, that product may fall within a broader product market. For example, end user access might be provided on a fixed network, parts of which might, hypothetically, be a natural monopoly (indeed, until the last decade or so, it was widely assumed to be a natural monopoly). However, in certain circumstances sufficient substitution in consumption might exist between fixed and mobile end user network access. In this case, the existence of economies of scale in a single production process would not, itself, be determinative of market structure.

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prices in the Member States range from between about 10 and 16 Euro per month. The LRAIC cost of access in any Member State should fall somewhere between these two figures.

<sup>14</sup>

Where existing prices have not been marked up to near a monopoly price, elasticities at prevailing prices may overstate the elasticity of demand (*i.e.*, understate cross price elasticities of demand). *Froeb and Werden* have shown that where markets are defined according to prevailing demand elasticities, and prevailing prices are not close to monopoly prices, those markets are likely to be too narrowly defined, and thus market power is likely to be overstated. The authors referred to this as the *reverse Cellophane fallacy*. Thus, the bias identified by Froeb and Werden does not apply in cases where the *Cellophane fallacy* applies, *i.e.*, in case where prevailing prices are already at or near the monopoly price: *see* Froeb, L. and Werden, G. (1992), “The reverse cellophane fallacy in market definition”, *Review of Industrial Organisation* 7: 241-247.

Economies of scope have a potentially more direct impact on market definition. To take a forced example, it might be argued that there is an economy of scope between the provision of telecom services in the morning and in the afternoon. However, the complementarities in production between these two “services” make this an analytically unhelpful proposition. The natural response is to say that they fall within the same product market. A similar argument has been made by some in relation to call origination and call termination. On a call-by-call basis, the two services may be complements, although they use essentially the same productive input. For this reason, several analysts have treated them as falling within a single product market. The Study Team investigates this approach more fully in Chapters V and VI below, both in relation to the retail and wholesale levels of trade.

At the same time, economies of scope may exist in the communications industry across products which are unlikely to be considered as falling within the same product market. An electronically integrated cable network will provide broadcast services, voice telephony and Internet access. Although there is an economy of scope, there may be limited complementarity in production. Moreover, the lack of demand substitution makes it highly unlikely that these services would fall within the same market at present, although technological developments may drive these products closer together.

In summary, economies of scale and scope are key features of network industries, and while such economies have an impact on market definition, they are not critical defining elements.

### **I.5.B. Compatibility and Standards**

Many communications services exhibit complementarity. Classic examples taken from a broader range of industries are hardware and software, and music players and music cassettes. These issues particularly arise in the communications industry where markets are more narrowly construed in the delivery of content. Entertainment programmes encrypted in a particular way have to be consumed via their complement, a set-top box with the appropriate decryption material. Mobile services and handsets are complements, as are access and call services. The existence of these complementarities opens up a variety of strategies for suppliers. Obvious examples are hand-set subsidies in mobile telephony or set-top box subsidies in pay-TV, which are intended to attract customers and give them the option to, respectively, make calls and buy pay-TV services. (These strategies are also explicable in terms of network externalities – *see* below). One of the negative effects of complementarity can be to increase consumer switching costs. A mobile phone manufacturer which utilises one frequency may have to be replaced if the subscriber is to benefit from a calling plan on another frequency. As in other cases, the impact of switching costs is to narrow the outer boundaries of relevant markets.

Problems of complementarity are often mitigated by the adoption of standards which permit interoperability. The existence of a common standard widens the market, but at the same time may increase the market power of the owner of the standard, if it is proprietary. Equally, diverse standards may hamper the development of competition. For example, the necessity to author digital television programmes differently,

depending on whether they are to be broadcast on cable, satellite or digital terrestrial, may create a barrier to entry.

### **I.5.C. Network Externalities**

A third key feature of network industries is that the value of the network depends critically on the number of adherents to it. This applies both to cases of direct network externalities, such as a telephone system, which directly connects its subscriber, and to customers who are indirectly related, such as those who jointly, but independently purchase software designed for a particular operating system. Many regulatory interventions, such as the mandatory interconnection of telephone networks, are designed to profit from network externalities. Where there are high levels of concentration (especially where one firm has most network subscribers) and interconnection is not mandated, networks with externalities may “tip”, a phenomenon where the largest network, which is the most desirable, progressively eliminates its competitors.

As in the other cases, the externality characteristic of networks has a major effect on the competitive structure of the industry, rather than presenting problems of market definition.

## **II. LEGAL DRIVERS IN DEFINING MARKETS**

Many of the key economic elements which needs to conduct a thorough relevant market analysis are incorporated into the one wealth of administrative practice and Community jurisprudence which has developed over the years with respect to the scope of relevant product and geographic markets.

### **II.1 PRODUCT MARKET ANALYSIS**

Relevant markets have two dimensions under EC competition rules, namely:

- (i) product; and
- (ii) geographic.

The definition of the relevant product and geographic market is a tool to identify and define the boundaries of competition between firms. Indeed, for our present purposes, it is the first step in the analysis of effective competition and SMP, and is therefore only a means to an end.

All communications firms are subject to three main sources of competitive constraint, namely: (i) demand-side substitutability; (ii) supply-side substitutability; and (iii) potential competition.

### II.1.A. Demand-side Substitutability

Under the jurisprudence of the European Court of Justice and the administrative practice of the Commission, the traditional view has been that demand substitution constitutes the most immediate and effective disciplinary force on suppliers of a given product or service. In particular, the demand substitutability test seeks to determine the range of products which may be viewed as reasonable substitutes for one another by the users of those products. Demand substitutability is at the core of the Commission's market definition practice. Its Form A/B and Form CO define the relevant product market in terms of :

*“[A]ll those products and/or services which are regarded as interchangeable or substitutable by the consumers, by reason of the products’ characteristics, their price, or their intended use”*.<sup>15</sup>

The European Court of Justice has provided additional guidance on the concept of “interchangeability”. In *Hoffman-La Roche*, the Court considered that:

*“[T]he concept of the relevant market in fact implies that there can be effective competition between the products which forms part of it and this presupposes that there is a sufficient degree of interchangeability between all the products forming part of the same market insofar as a specific use of such products is concerned”* (emphasis added).<sup>16</sup>

The Court expanded on the meaning of the term “a sufficient degree of interchangeability” in *L’Oreal v. DeNieuwe AMCK*,<sup>17</sup> where it stated that:

*“[T]he possibilities of competition must be judged in the context of the market comprising the totality of the products which, with respect to their characteristics, are particularly suitable for satisfying constant needs and are only to a limited extent interchangeable with other products”* (emphasis added).

Accordingly, the relevant product market should exclude those products which are only interchangeable with other products to a limited extent. Economists might argue that such an approach risks neglecting an analysis of the competitive impact of marginal customers, whose behaviour/response should be the first object of the market definition exercise in the first instance.<sup>18</sup> Such concerns are somewhat addressed by the comments of the Court in *Ahmed Saeed*, where the Court related the concept of interchangeability to the degree of competition that the products at hand might encounter. In particular, the Court stated that:

<sup>15</sup> This reflects the case-law of the Court in, for example, Case 27/76, *United Brands v. E.C. Commission*, [1978] ECR 3461 and Case No COMP/M.53, *Aerospatiale-Alenia/de Havilland*, OJ 1991 L334/42.

<sup>16</sup> Case 85/76, *Hoffmann-La Roche & Co. AG v. E.C. Commission*, [1979] ECR 461.

<sup>17</sup> Case 31/80, *L’Oreal v. DeNieuwe AMCK*, [1980] ECR 3775.

<sup>18</sup> See, for example, economists’ critiques of such Commission Decisions and Court judgments as in Case 322/81, *Michelin v. E.C. Commission*, [1993] ECR 3461 and *Hoffmann-La Roche*, *op.cit.* These views are discussed in greater detail below.

“[T]he test to be employed is whether the scheduled flight on a particular route can be distinguished from the possible alternatives by virtue of specific characteristics as a result of which it is not interchangeable with those alternatives and is affected only to an insignificant degree by competition with them” (emphasis added).<sup>19</sup>

In order to assess demand-side substitutability, the Commission encourages that use be made of any previous evidence of consumers’ behaviour, historical price fluctuations in potentially competing products, price movements and relevant tariff information. In addition to price elements, the Commission suggests that other factors be taken into account, such as considerable switching costs which may hinder consumers to substitute a product or service for another. These costs might be represented, in the communications sector, by important investments in technology, prohibitively high costs of switching terminals or long-term contracts.<sup>20</sup>

Finally, it is important to bear in mind that the communications sector is characterised by underlying network infrastructure over which it is possible to provide a series of services. This enables such services to be transferred at the communications requirements of individual and groups of customers, by means of separate or bundled offerings. As a consequence, many of these bundles represent such a significant saving in terms of, for example, cost and time that users’ purchasing behaviour is in relation to bundles of services and not individual services within the bundle. In other words, users recognise the advantages of aggregating the consumption of a number of services into one package and the significant disadvantages in purchasing unbundled services. This behaviour might give rise to “cluster markets” under competition and economic theory, especially where competitors match these bundled offerings. (This concept is described in great detail in relation to mobile retail services at Section III.3.C of Chapter VI).

The key issue for market definition purposes is whether such aggregated or bundled services constitute relevant product markets, or whether specific elements of the several package are subject to their own patterns of supply and demand.

The Commission supplements these product characteristics/price/intended use criteria with an analysis of whether consumers of a particular product or service would be likely to switch to readily available substitutes in the short term and at a negligible cost in response to a hypothetical small (in the range of 5 to 10%) but permanent relative price increase in the products under consideration. (It is important that the price applicable to this test is the prevailing market price which has not been determined in the absence of competition).<sup>21</sup>

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<sup>19</sup> Case 66/86, *Ahmed Saeed Flugreisen v. Zentrale zur Bekämpfung unlauteren Wettbewerbs*, [1989] ECR 803.

<sup>20</sup> See the *Relevant Market Notice*, para.41.

<sup>21</sup> See the earlier economic discussions on the hypothetical monopolist test and on the *Cellophane Fallacy*.

### II.1.B. Supply-side Substitutability

The Commission has historically given due weight to the competitive constraints arising from supply-side substitutability in only a limited range of market definition exercises. This has led in the past to the definition of very narrow product markets. Supply-side substitutability arises when suppliers are able to switch production or other resources to the relevant products and market in the short term without incurring significant additional costs or risks in response to a small but permanent increase in the relative price of a product. In particular, supply-side substitutability is seen as an important element for market definition “in those situations in which its effects are equivalent to those of demand substitution in terms of effectiveness and immediacy”.<sup>22</sup> On the other hand, supply-side substitutability would not be taken into account for the definition of a relevant market each time it would “*entail the need to adjust significantly existing tangible and intangible assets, additional investments, strategic decisions or time delays...*”.<sup>23</sup> According to the Commission, supply-side substitutability must be assessed in light of elements such as the overall costs of switching production to the product in question as well as any legal, statutory or other regulatory requirements which could defeat a time-efficient entry into the relevant market. In the communications sector, such barriers could be represented, for example, by delays and obstacles in concluding agreements for collocation, interconnection or access, or rights of way.<sup>24</sup>

The Commission’s lack of enthusiasm for a supply-side substitutability analysis in its market definition exercise results in narrower market definitions in many cases. This should be of no concern in an ideal world, if the supply-side competitive constraints are taken into account at the later stage of the competitive assessment (of effective competition and/or SMP), particularly when considering the relative importance of market shares. However, there is a risk that such a process will not be followed in practice in the context of an *ex ante* market definition exercise, where regulators might calculate market shares on the basis of artificially narrow markets. Thus, the Study Team considers that supply-side substitutability should form part of the market definition analysis from the outset in order to avoid such a risk.

### II.1.C. Chain Substitutability

Chain substitutability has been recognised by the Commission as another element for assessing a relevant market in both the *Notice on Market Definition* and in the *Relevant Market Notice*. Chain substitutability “occurs where it can be demonstrated that although products A and C are not directly substitutable, product B is a substitute for both product A and product C and therefore products A and C may be in the same product market since their pricing might be constrained by the substitutability of product B”.<sup>25</sup> The Commission has, however, recommended that the chain

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<sup>22</sup> See the *Relevant Market Notice*, para.20.

<sup>23</sup> See the *Relevant Market Notice*, para.23.

<sup>24</sup> See the *Relevant Market Notice*, paras. 43-45.

<sup>25</sup> See the *Relevant Market Notice*, para. 53.

substitutability test be used only where there is a clear price interdependence at the extremes of the chain and the degree of substitutability is sufficiently strong.

#### II.1.D. The Role of Price Discrimination in Market Definition

Communications services are consumed across the entire spectrum of society. Consequently, it is often common to come across such references as “residential users”, “business users”, “pre-pay customers” and “contract customers”. These particular customer segmentations need not, however, necessarily result in the conclusion that these segments reflect separate relevant product markets. For that to be the case, it is generally accepted that it must be possible to price discriminate between the relevant groups. For example, the *Relevant Market Definition Notice* provides that:

*“[T]he extent of the product market might be narrowed in the presence of distinct groups of customers. A distinct group of customers for the relevant product may constitute a narrower, distinct market when such a group could be subject to price discrimination”.*

Thus, it will usually be possible to price discriminate when two conditions are met:

- a) it is possible to identify clearly to which group an individual customer belongs at the time of sale; and
- b) trade among customers or arbitrage by third parties should not be feasible.

A review of Commission administrative practice indicates that the Commission will determine the ability to clearly identify specific groups of customers on the basis of a variety of factors, including the specific characteristics and preferences of the customer group itself, the circumstances (place) of the sale and/or the trade channels used.

#### Case Examples

The criteria set out in the Notice were applied with particular clarity by the Commission in the *Coca-Cola/Amalgamated Beverages GB Decision*,<sup>26</sup> where the Commission narrowed the market for colas according to sales channels, namely (i) grocery or large multiple food retailers serving the take-home sector; (ii) impulse independent grocers, newsagents, convenience stores, garage forecourts, independent or multiple owned off-licences primarily serving the impulse/immediate consumption/convenience market; and (iii) on-premises (pubs, hotels, restaurants, night clubs, workplaces, schools, health centers, hospitals) providing soft drinks for consumption on location.

The Commission motivated its findings by the following considerations:

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<sup>26</sup> Case No COMP/M.794 - *Coca-Cola/Amalgamated Beverages GB*, OJ 1997 L218/15.

- In the multiple grocery sector, the terms and conditions negotiated with retailers for the supply of colas are not likely to be influenced by the possibility of arbitrage from products distributed through other networks.
- The impulse sector is characterised by a reduced price sensitivity with the main driver of sales being the availability of the product and cold storage. The Commission noted further that *“the fact that consumers are purchasing at specific, well identified selling points would in principle make it possible to apply different pricing policies in the impulse and multiple grocery channels with pricing being subject to a different set of constraints, thereby allowing price discrimination in the absence of any possibility of effective arbitrage”*.
- Customers selling on premises can be readily identified as such and a different pricing policy can be followed in this sector to a certain extent. In particular, the selling of colas in larger, bulkier packages and the supply of dispensing equipment necessary to serve colas would allow products to be priced differently in the on-premises channels as compared to other channels.<sup>27</sup>

An example of a narrowing of a market definition by the Commission due to the fact that it was possible to price discriminate between customer groups, in view of their specific characteristics, is provided in *Price Waterhouse/Coopers & Lybrand*.<sup>28</sup> In that case, the Commission distinguished a narrow market for the provision of audit and accounting services to quoted and large companies, whether national or multinational, and which are provided predominantly by the “Big Six” firms, from the provision of such services generally. The reasons relied upon by the Commission in distinguishing this customer group included: the need by these firms to have their audit and accounting services provided by a firm with the necessary reputation in the financial markets; the geographic scope to cover these companies’ needs worldwide; the depth of expertise, and significant resources. The Commission noted *“the relatively low degree of importance of price as a factor in determining the client’s decision with regard to either choosing or retaining its auditor”*.<sup>29</sup>

Reliance on price discrimination factors to identify narrower product markets sometimes interacts with considerations related to a product’s characteristics. For example, in *Orkla/Volvo*, the Commission, having noted that the net prices for beer

<sup>27</sup> In Case Nos IV/34.073, IV/34.395 and IV/35.436 - *Van den Bergh Foods Limited*, OJ 1998 L246/1, the Commission examined whether the market for impulse ice cream should be narrowed, notably by separating the non-retail channels, such as schools, company canteens, sports and leisure venues, where often the products are not being sold to the general public but rather to a captive pool of consumers. The Commission also noted that in such venues price levels can also vary. It did not find it necessary, however, to determine whether it was necessary to identify such venues as a separate relevant market due to the relative insignificant sales. See also Case No COMP/M.938 – *Guinness/Grand Metropolitan*, OJ 1998 L288/24.

<sup>28</sup> Case No COMP/M.1016 – *Price Waterhouse/Coopers & Lybrand*, OJ 1999 L50/27.

<sup>29</sup> In Case No COMP/M.1307 – *Marsh & McLennan/Sedgwick*, 23 October 1998, para. 36, third parties had argued that the market for commercial brokers should be further segmented by client size, which was disputed by the parties, who considered, *inter alia*, that the skills needed to meet the developing needs of a client did not change fundamentally as a function of client size. Although the Commission found that there was some evidence that large corporations could constitute a separate market, it left the question open.

were generally lower for the hotel and catering industry than for the retail trade, observed that the ultimate customer in the hotel and catering industry was purchasing “a product that differs from the retail industry in so far as the customer is buying a degree of services and atmosphere not present in the retail industry where the beer is consumed at home.” It completed its analysis by noting that it was unlikely that the hotel and catering industry would purchase bottled beers from retail outlets for sale in bars *etc.*, as it would find it impractical to handle and transport the bottled volumes required between the two types of sales outlets, thereby excluding the possibility of trade between customers.

In the telecoms sector, the Commission has identified specific customer groups that constitute specific relevant markets, such as in *BT/AT&T*, where the Commission defined a relevant market for the provision of global telecoms services to multinational corporate users (MNCs).<sup>30</sup> However, the possibility of price discrimination does not seem to have been the determining factor in identifying such a market. Rather, it was the fact that MNCs require the provision of specific services, namely “*packages of customized enhanced and value-added global corporate telecommunications services*”. Similarly, the definition of a market for seamless pan-European services to internationally mobile customers, in particular corporate customers in *Vodafone AirTouch/Mannesmann*,<sup>31</sup> was motivated by specific demand-side concerns of corporate customers rather than by the possibility of price discrimination occurring.

Price discrimination has also been used by the Commission to determine whether two products could be considered to be substitutable. In *TKS/ITW Signode/Titan*, the Commission noted that certain end users of steel strapping had indicated that they could switch to plastic strapping, to a degree which was considered to be sufficient to prevent producers of steel strapping from raising prices permanently by a small but significant amount. The Commission’s view that there was one relevant product market which included both steel and plastic strapping was reinforced by the fact that its investigations had not shown “*that steel strapping producers could price discriminate between the various end users applications.*” It should be pointed out that, had the Commission and the Court followed this reasoning in *United Brands*, they would not have been able to identify a relevant market for bananas on the ground that only bananas could satisfy the needs of an important section of the population consisting of the very young, the old and the sick.<sup>32</sup>

### II.1.E. Gateways and Bottlenecks

Communications networks are increasingly providing a broader range of services beyond traditional telecoms services. As customers seek access to content, rather than to other subscribers, the role of parties providing access to that content tends to display certain characteristics of “gateways” or “bottlenecks” to content, particularly when this access is channelled through a physical gateway (*e.g.*, a Conditional Access System) or a virtual gateway (*e.g.*, a portal to Internet-based content, which can be

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<sup>30</sup> Case No IV/JV.15 – *BT/AT&T*, 30 March 1999.

<sup>31</sup> Case No COMP/M.1795 - *Vodafone Airtouch/Mannesmann*, 12 April 2000.

<sup>32</sup> Case 27/76, *United Brands v. E.C. Commission*, *op.cit.*

operated by either a communications network operator or a service provider). The key question which arises is whether such gateways constitute or form part of a particular product market, or whether they are a particular manifestation of market power, largely depending on one's relationship to the content (*e.g.*, extent of vertical integration) and the customer (*e.g.*, extent of their capture). It is arguable that certain types of gateways might even meet the criteria of being an “essential facility”, as that concept was explained in the *Oscar Bronner Case*.<sup>33</sup> To the extent that a gateway function is characterisable as an “essential facility”, it will bring together elements of market definition and market power.

In the context of Conditional Access Systems, Article 4(c) of the *TV Standards Directive* deals with the gateway function by imposing a “fair, reasonable and non-discriminatory” access obligation on all broadcasters, although the new regulatory framework for electronic communications networks allows some flexibility regarding the scope of the access obligations imposed (Article 6(2) and Part 1 of Annex I of the *Access Directive*). The scope of that relevant market will no doubt be conditioned in large measure by the dynamics of the commercial relationships in the purchase and sale of broadcast transmission (refer to discussion in Chapter VII).

A most recent illustration of the interface between market power and market definition issues is found in the treatment of portals under competition rules. Most of the competitive assessments of portals to date have involved portals which are accessed over mobile networks. However, the principles espoused relating to market definition and competitive concerns are also instructive for portals accessed using other platforms. In a series of early cases, the Commission took the view that portals were gateway or intermediation services, and were not “markets” in themselves.<sup>34</sup> It subsequently revised that view, stating that it had identified distinct patterns of demand for portals (further differentiating between mass-market “horizontal” portals and more specialised “vertical” portals), which warranted the identification of distinct markets for horizontal and vertical portals.<sup>35</sup> The Commission has stated that it considers that competition between such portals is based on their attractiveness and functionality (*e.g.*, context, content, commerce, communication, connectivity and community).

The Commission has, in a number of cases, characterised portals as a combination of access and content services. The Commission has also described a horizontal portal as aggregating a large number of recurring Internet users and/or subscribers around specific types of services.<sup>36</sup> It has shown particular concern in relation to the ability of platform operators providing Internet access (especially where access to the platform itself is not “open” to competing Internet access providers – *e.g.*, cable networks and mobile networks with SIM- or WAP-locking) to leverage their position in relation to access to the platform into a portal market. However, it is interesting to note that

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<sup>33</sup> See Case C-7/97, *Oscar Bronner v. Mediaprint Zeitungs und Zeitschriftenverlag*, [1998] ECR I-7791.

<sup>34</sup> See Case No COMP/M.1439 - *Telia/Telenor*, OJ 2001 L40/1; Case No IV/JV.5 - *Cegetel/Canal+/AOL/Bertelsman*, 4 August 1998 and Case No IV/JV.11 - *@Home Benelux* – 15 September 1998.

<sup>35</sup> See Case No COMP/JV.48 - *Vodafone/Canal+/Vivendi*, 20 July 2000.

<sup>36</sup> *Ibid.*

“portals markets” have not been identified in subsequent cases which did not involve platform operators (*e.g.*, *AOL/TimeWarner*).

The characterisation of portals as providing a combination of access and content, and the maintenance of different technology-specific means of obtaining Internet access, has raised questions as to whether there are separate product markets for portals which are accessible over different platforms (especially in light of the fact that the Commission has maintained that Internet access using a mobile telephone, a PC and a digital TV constitute separate relevant product markets). The Commission has acknowledged an inherent tension in its approach, and has declined to take a position as to whether there are separate markets for portals accessible over each of these three technologies.<sup>37</sup> In addition, it has expressed concerns about the advantages that might accrue to a portal provider if its customers were able to use a single address across multiple platforms.<sup>38</sup>

In the view of the Study Team, it appears that the Commission has been prompted by concerns about the risk that platform operators (particularly those operating “closed” platforms) could leverage their customer base and control of the platform vertically upward into content markets. Portals are the line where access and content meet. In the view of the Study Team, access should be regulated under the *Framework Directive*, while content remains outside the scope of the new electronic communications regulatory regime. As such, portals cannot be a Candidate Market for the purposes of the new regulatory regime. Moreover, the range of competition issues likely to arise from the potential abuse of portals is, in the view of the Study Team, capable of being addressed adequately by *ex post* competition rules.

#### II.1.F. “Level of Trade” Analysis

The functional level at which products and services are traded is an important element to be taken into account in a market definition exercise.

In *Michelin*,<sup>39</sup> the Court determined the functional level to be “*the level at which the objective conditions of competition are alike for traders*”. In particular, the Commission examined the relevant market for replacement tyres for trucks, buses and similar vehicles at the level of the retailer on the open market in proceedings under Article 82 EC. NBIM, the tyre manufacturer, argued that several sub-markets should be distinguished within the truck and bus category. The Commission rejected that proposition, pointing out that the relationship which needed to be considered was not the relationship between NBIM and the final consumer of the product. Rather, it was the relationship between the manufacturer and dealers which was considered to be of importance in assessing the effects on competition on the relevant tyre market. Accordingly, specific tyre types and sizes were held to be of no importance to an

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<sup>37</sup> See Case No COMP/M.2050 - *Vivendi/Canal+/Seagram*, 13 October 2000.

<sup>38</sup> *Vodafone/Canal+/Vivendi*, *op. cit.*

<sup>39</sup> Case No IV/29.491–*Bandengroothandel Freischebrug BV/NV Nederlandsche Banden-Industrie Michelin*, OJ 1981 L353/33; on appeal Case 322/81, *Nederlandse Banden-Industrie Michelin NV v. Commission*, *op.cit.*

analysis of the possibility of obtaining substitute products at the dealer level or in the relationship between NBIM and dealers. A breakdown of the market into further sub-markets was deemed to be irrelevant at that level of trade and, consequently, no further sub-markets were distinguished.

The Commission adopted similar reasoning in *Scholler-Langnese Icecream*,<sup>40</sup> where it pointed out that in defining the relevant market, the market must be viewed not just from the perspective of the consumer but also from the level of manufacturer, distributor and retailer. The Commission outlined how it was necessary in this case to subdivide the market owing to the different competitive conditions existing at the various stages of distribution, despite the fact that, from the consumer's point of view, the two products (bulk buying ice-cream and craft trade ice-cream) were identical. Supply agreements concluded between the manufacturer and retailers were directed at competition between manufacturers and/or wholesalers for access to the retail trade. The Commission was therefore concerned with the supply and demand for ice cream at the level of distribution.

The Commission's reasoning in *Michelin* and *Scholler-Langnese Icecream* is equally applicable to the communications industry, which is characterised by several layers in the value chain. Many operators and service providers seek to build a presence on each of these layers, while others concentrate their activities on one or more (but not all) of the levels. Nevertheless, each of these participants requires access to several upstream and/or downstream layers in order to provide its services. For example, a national mobile operator requires access to the network of a foreign mobile operator in order to provide roaming services to its customers, while many alternative operators require access to the fixed incumbent's local loops in order to provide their retail services.

These requirements have led the Commission, in particular in its *Access Notice*, to distinguish correctly between a market for the provision of communications services to end users (*i.e.*, the retail market) and an upstream market for the provision of access to facilities which are currently necessary to provide such communications services (*i.e.*, a wholesale market). Indeed, the Commission and many other regulatory authorities have focused on demand-side substitutability to support the distinction between wholesale and resale services. For example, the conditions and price at which local access is purchased by local access seekers are generally distinct from the local services provided by the incumbent to end users (where a price-squeeze situation does not arise). It is also clear that the current ONP regulatory framework has facilitated the distinction between wholesale and retail services, as this distinction is at its very core. For example, the *ONP Leased Lines Directive* concerns the harmonisation of conditions for open and efficient access to, and use of the leased lines provided to, users on the public telecoms networks, and the availability of a minimum set of leased lines throughout the EU. Within the wholesale layer of competition, strong differences in competitive dynamics exist between the "access" function and the "transport" function provided to other competitors. At the retail level, it is arguable that the end user both receives and perceives the retail service which he or she receives as a bundled service. The Study Team outlines, in **Tables II.2 – II.4** below, the various wholesale and retail distinctions which are found in the current communications environment and

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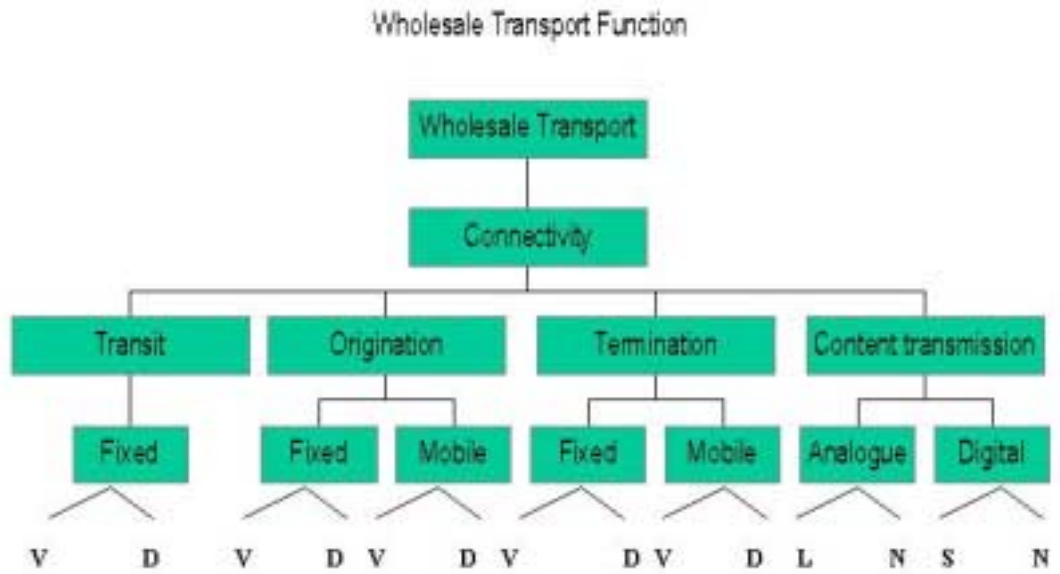
<sup>40</sup> Case Nos IV/31.533 and IV/34.072 – *Scholler Lebensmittel GmbH & Co.KG*, OJ 1993 L183/1.

which have formed the basis of the Study Team's subsequent market analyses in Chapters V – VII.

While it is critical to distinguish wholesale and retail markets on the basis of the functional level at which products and services are traded, it is also important to take into account the possibility that it may be possible for these markets to interact and to competitively constrain each other, *i.e.*, to be “associated” with each other. This is especially the case in network industries where several externalities are apparent. It is possible to support this position by reference to the case-law of the European Courts and the 1991 Telecoms Guidelines, where the Commission provides that “[A]n examination limited to the objective characteristics only of the relevant products cannot be sufficient; the **competitive conditions** and the structure of supply and demand on the market must also be taken into consideration” (emphasis added).

The most obvious causal connection usually exists between the wholesale competitive layer (which provides competitors' inputs) and the retail services provided downstream, except where there is some form of disconnect between the wholesale layer and the retail layer (often because of the historical development of certain services or because of existing regulation) or where the wholesale inputs are far too general in nature to materially affect the competitiveness of providing substitutable specific services, will this causal relationship not exist. One can therefore presume for regulatory purposes that an effectively competitive wholesale market should mean, as a general rule, that regulatory intervention at the retail level is not required.

The reverse situation – namely, a competitive retail market affecting the level of competitiveness at the wholesale level – is less obvious. Nevertheless, there may exist clear instances where a competitive retail environment prompts price sensitivity which has an affect on upstream wholesale inputs. Thus, for example, the issue arises as to whether the calling party pays externality in the mobile sector is such that it should lead to an assessment of the competitive constraints arising on the wholesale segment as a result of particular market dynamics affecting the retail level. For example, in defining mobile termination markets, one should investigate whether alternative means of communicating between a fixed caller and a mobile user are sufficient to constrain mobile termination charges at the wholesale level. Indeed, competitive constraints in the retail sector might in theory even result from competitive pressures from sectors other than mobile. A market definition exercise which neglects to analyse such competitive constraints might arguably be said not to reflect accurately the full range of competitive constraints that the undertakings involved face (which is the overriding aim outlined by the Commission in its 1997 *Market Definition Notice*). This is also an important exercise to undertake with respect to the nature of any remedies designed to address competitive concerns in any given Candidate Market.



**Table II.2: Wholesale Transport Function**

**Key Notes**

Variations used are:

V = voice

D = data fixed/mobile

L = local voice/data

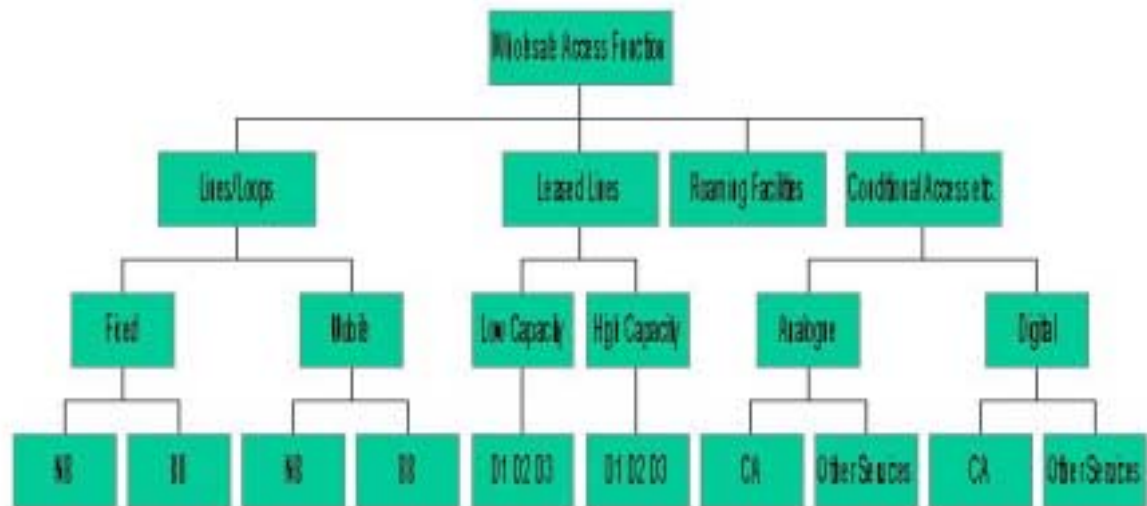
R = regional analogue/digital

N = national low/high capacity (leased lines)

G = global distance (leased lines)

SN = supranational geographical markets (local, national, etc.)

\* For reasons of space, not all factors are illustrated.



**Table II.3: Wholesale Access Function**

**Key Notes:**

Variations used are:

V = voice

D = data fixed/mobile

L = local voice/data

R = regional analogue/digital

N = national low/high capacity (leased lines)

G = global distance (leased lines)

SN = supranational geographical markets (local, national,

D<sub>1</sub> = distance 1 international)

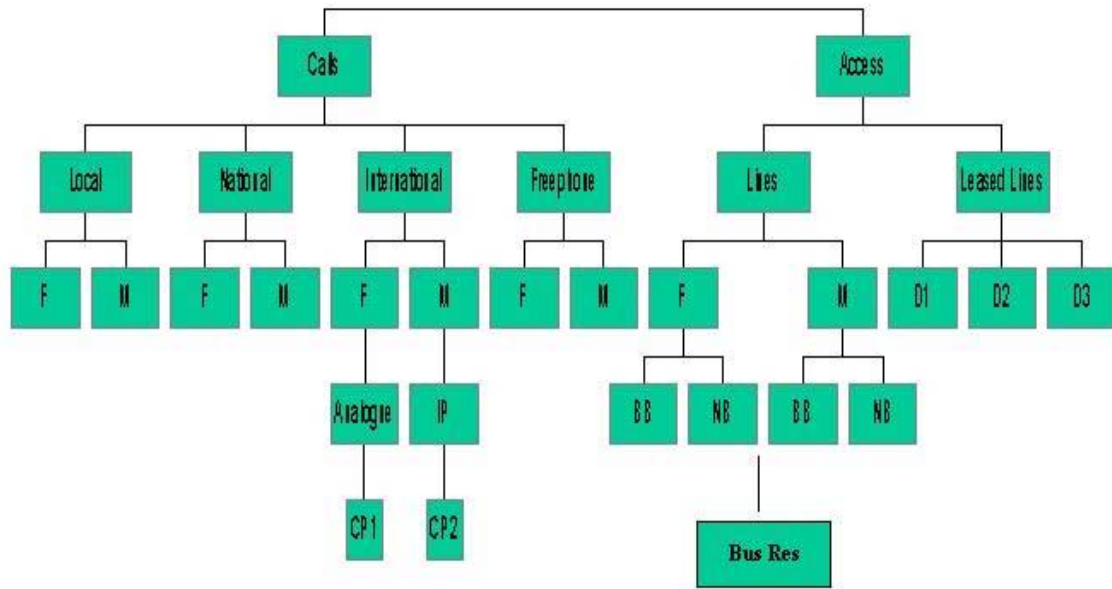
D<sub>2</sub> = distance 2

D<sub>3</sub> = distance 3

NB = narrowband

BB = broadband

\* For reasons of space, not all factors are illustrated.



**Table II.4: Retail Communications & Access Functions**

**Key Notes:**

Variations are:

F = fixed

M = mobile

IP = Internet protocol fixed mobile

D1 = distance 1 voice/data

D2 = distance 2 distance (lease lines)

D3 = distance 3 broadband/narrowband

BB = broadband analogue/IP

NB = narrowband business/residential

CP<sub>1</sub> = Country/City pair 1

CP<sub>2</sub> = Country/City pair 2

\* For reasons of space, not all variants are shown.

### II.1.G. The Effects of Regulation

The administrative practice of the Commission in its application of the competition rules to the communications sector has, by and large, not considered the effects of existing regulatory measures on the issue of market definition. Rather, the Commission has tended to focus on the impact of regulatory measures as regards the issue of market power (more specifically, whether the existence of regulatory measures is sufficient to prevent the abuse of market power).<sup>41</sup> However, as described earlier in this Chapter, regulatory measures can have a significant impact on market definition, as they tend either to create or to reinforce new or emerging markets (*e.g.*, through the introduction of mandated unbundling to local loops or indirect access obligations) or to shape the dynamics of particular markets by lowering or indirectly raising barriers to entry (*e.g.*, number portability facilitates new entry but might have the indirect effect of masking the identity of networks, thereby making customers less price-sensitive; cost-orientation obligations for access might have the effect of dissuading new infrastructure investors to invest in markets in which service providers can obtain entry without the sunk costs of network deployment). In addition, the imposition of regulatory obligations on a particular segment of the communications sector at a different point in time to its imposition to another part of the sector (*e.g.*, the fixed and the mobile sectors) may create situations which, over time, generate an apparent situation of "discrimination" as between commercial relationships between the two market segments. In other words, competition authorities examining instances of allegedly abusive behaviour are inevitably examining a competitive environment which is "imperfect" by reason of regulatory intervention, among other reasons.

The Study Team is therefore mindful of the impact of regulation on the shape of the "markets" which they will be examining in the course of this Study. It is especially important to be cautious in defining markets so that these effects created by regulation are taken into account, because a future regulatory environment which removes certain types of regulation might, of itself, create market conditions with fundamentally new dynamics. The individual market analyses conducted in Chapters V–VII of this Study seek to take these matters into account. It may be the case that the transition from the current ONP regulatory environment to a competition-based environment will need to focus increasingly on the impact of proportionate remedies in order to ensure that market conditions are not skewed unnecessarily.

## II.2 GEOGRAPHIC MARKET ANALYSIS

Under competition rules, the relevant geographic market is "*the area in which the objective conditions of competition applying to service providers are similar, and competitors are able to offer their services*".<sup>42</sup> In the communications sector, geographic market definition is often interdependent with the particular range of services being affected, which means that the identity of the particular customer base

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<sup>41</sup> See *Telia/Telenor*, Case No. COMP/M.1439, OJ 2001, L40/1.

<sup>42</sup> See Commission's Notice on the application of the competition rules to access agreements in the telecommunications sector – framework, relevant markets and principles, OJ 1998 C265/2 (the "Access Notice"), at point 55.

(e.g., multinational clients) may in fact be a key driver for both the product and the geographic dimensions of the market. By the same token, the need to enquire into the “objective conditions of competition” highlights the fact that despite the geographic scope of particular services (e.g., international calls, international roaming), their competitive provision might be very localised. Moreover, even to the extent that technology might be able to provide bypass or rerouting alternatives (e.g., tromboning, call-back, least-cost routing), the existence of “significant switching costs in procuring supplies from companies located in other countries” (*Relevant Market Notice*) can constitute barriers which isolate a given geographic area from the competitive pressure of companies located outside that area.

In its decisional practice, the Commission has often reiterated that the scope of the geographic market in the communications sector is determined by:

- the extent and coverage of the network and the customers that can economically be reached and whose demands may be met; and
- the legal and regulatory system which governs the operations of competitors and their right to provide a service or services.<sup>43</sup>

Outlined below is an analysis of the main characteristics that have influenced the administrative practice of the European Commission as regards geographic market definition.

### II.2.A. Regulatory Conditions

Regulatory conditions are traditionally considered by the Commission to be important barriers which tend to isolate different geographic markets. In its *Access Notice*, the Commission underlined that “*regulatory conditions, such as the terms of licences, and any special or exclusive rights owned by competing local access providers are particularly relevant*”.<sup>44</sup>

In the *Olivetti/Mannesmann/Infostrada* Decision,<sup>45</sup> the Commission reiterated that one of the key elements for the definition of the relevant geographic market is “*the legal and regulatory system and the right to provide a service*”. Regulatory constraints were also the fundamental driver of geographic market definition in another two cases, namely, *Cable & Wireless Communications*<sup>46</sup> and *MetroHoldings Limited*.<sup>47</sup>

However, in *Cégétel+4*, the Commission underlined that, although the legal and regulatory framework applicable to the provision of a service is one of the two key

<sup>43</sup> See, *inter alia*, Case No COMP/M.1536 – *Wind/Enel STC*, 29 June 1999.

<sup>44</sup> See also Commission’s Notice on the definition of the relevant market for the purposes of Community competition law, (the “*Relevant Market Notice*”), OJ 1997 C372/5, at point 50.

<sup>45</sup> Case No COMP/M.1025 - *Olivetti/Mannesmann/Infostrada*, 15 January 1998.

<sup>46</sup> Cases No COMP/M.853 and No COMP/M.865 - *Bell CableMedia/Cable & Wireless/Videotron* and *Cable & Wireless/Nynex/Bell Canada*, 11 December 1996.

<sup>47</sup> Article 19(3) Notice of 23 January 1999, *MetroHoldings Limited*, OJ 1999 C19/18.

elements to be taken into account in geographical definition of communications markets, such constraints play a fundamental role only insofar as basic fixed telecoms services are concerned. In contrast, regulatory restrictions lose their impact in the case of customised packages of corporate telecoms services.<sup>48</sup> Particular elements of a regulatory framework which may be relevant to geographic market definition are:

**Licensing Requirements:** Numerous precedents confirm the importance of licensing regimes for market definition purposes. For example, in *Cable & Wireless Communications*,<sup>49</sup> the Commission considered that the market for cable TV networks was local in light of the fact that the regulatory framework provided for local franchises.<sup>50</sup> However, there are already signs in the decisional practice of the Commission that challenge the relative importance of licensing constraints for the geographic definition of certain markets.<sup>51</sup> Indeed, it is arguable that different licensing conditions should not, *per se*, be considered to be sufficient to identify different geographic markets.<sup>52</sup>

**Pricing Obligations:** Price regulations and tariffs are recognised by the Commission as being capable of erecting important regulatory barriers. In fact, tariff obligations have been considered to be key drivers for the limitation of the geographic scope of communications markets to national boundaries.<sup>53</sup>

**Service Requirements:** As in the case of licensing requirements, different regulatory constraints concerning elements such as the scope, technical or quality requirements of service offerings can lead to a definition of different national geographic markets.

## II.2.B. Price Discrimination

The relevance of pricing in the determination of the scope of relevant product markets (*see* Section II.1.D, above) is also reflected in the process of identifying relevant geographic markets.

### a. Telecoms Cases

Price was considered fundamental in order to restrict the market for mobile services to the national level in *Vodafone/Airtouch*. In its Decision, the Commission considered that the substantially higher costs of a call made or received while roaming (*i.e.*, in a

<sup>48</sup> Case No IV/36.592 - *Cégétel+4*, OJ 1999 L218/14.

<sup>49</sup> *Bell CableMedia/Cable & Wireless/Videotron and Cable & Wireless/Nynex/Bell Canada*, op.cit.

<sup>50</sup> *See, inter alia*, Case No COMP/M.1536 - *WIND/ENEL STC*, 29 June 1999; Case No COMP/36.581 - *Télécom Développement*, OJ 1999 L218/24; Case No COMP/M.975 - *Albacom/BT/ENI*, 13 November 1997.

<sup>51</sup> *See above*.

<sup>52</sup> *See* European Commission DG XIII (1999) document entitled “Determination of Organisations with Significant Market Power (SMP) for Implementation of the ONP Directives”, p. 11.

<sup>53</sup> *See* under point 2. below.

visited network) constituted a considerable barrier to the definition of the geographic market at the supra-national level.<sup>54</sup>

Similarly, in *Reuters/Equant-Project Proton*, although not needing to take a position on the geographic scope of the considered market, the Commission pointed out that “*while the provision of IP based extranet services certainly has strong international characteristics, the cost barriers or practical considerations might prevent a user in Europe from procuring extranet services from a provider in, e.g., the USA*”.<sup>55</sup>

Accordingly, evidence on changes in prices and consequent reactions by customers might be conducive to identifying separate and distinct geographic markets. The Commission has, however, warned that the international comparison of prices must also take into account additional factors such as exchange rate movements, taxation and product differentiation.<sup>56</sup>

**b. Non-telecoms Cases**

In *Volvo/Scania*,<sup>57</sup> Volvo had argued that the decisive factor for defining the relevant geographic market was whether suppliers actually price discriminated across markets. The Commission did not clearly disagree with that point of view, but stated that it will in any event assess non-price factors, as they constitute useful elements in the overall market definition assessment. Consequently, the Commission still closely examined price discrimination evidence and concluded that Volvo and the other suppliers of heavy trucks had applied significantly different prices for comparable products in different Member States. It considered that the mere fact that price lists differed significantly from country to country was indeed an indication that the conditions for competition differ and will have the effect of making price comparisons more difficult for purchasers of heavy trucks. The Commission refused to conclude that variations within a 5 to 15% band between Member States were indicative of a Community-wide market. On the contrary, the Commission found that the existence of price differences within a 5% band could not be disregarded for the purposes of market definition, as this would otherwise suggest that a hypothetical monopolist in one geographic area could impose a price increase in some cases as large as 10% without being restricted from doing so by conditions of competition in neighbouring areas.

Volvo further argued that a comparison between price lists was not necessarily meaningful and that “*price discrimination should be defined as earning different margins on the sale of the same good to different customers.*” While the Commission did not reject the argument, the evidence available to it, however, demonstrate that such price discrimination had taken place. The Commission pointed out that if the markets were wider than national, it would be reasonable to assume that buyers of heavy trucks would take advantage of the existing price differences and buy their vehicle in a neighbouring country and/or that arbitrageurs would take advantage of the

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<sup>54</sup> Case No COMP/M.1430 - *Vodafone/Airtouch*, 21 May 1999. See also Case No COMP/M.1439 - *Telia/Telenor*, OJ 2001 L40/1.

<sup>55</sup> Case No COMP/M.1875 – *Reuters/Equant Project Proton*, 17 April 2000.

<sup>56</sup> See the *Relevant Market Notice*, at point 45.

<sup>57</sup> Case No COMP/M.1672 – *Volvo/Scania*, 15 March 2000, para. 35.

opportunities created by these differences and buy vehicles from Volvo in the countries where its margins were the lowest and sell them to customers in the countries where the margins are high. No such behaviour or arbitrage occurred. The Commission found a number of reasons for the absence of such customer behaviour and arbitrage, including: (i) customer preferences; (ii) variations in technical requirements variation between Member States; (iii) purchasing on a national basis; (iv) distribution and service network; and (v) market share variations.<sup>58</sup>

The use of price discrimination factors by the Commission to complement its assessment of the geographic scope of the market is also illustrated in the *Mannesmann/Vallourec/Ilva* Decision,<sup>59</sup> where the parties had argued that correlations between prices charged in Western Europe and the United States were close to correlations between prices charged between the various western European countries. The Commission concluded that this implied that producers were unable to price discriminate in different parts of the world. It rejected the argument and pointed out that “*while the absence of price correlation between two geographical areas is a strong indicator of different geographical markets, the existence of price correlations does not necessarily indicate a single market in the absence of other elements such as mutual interpenetration and similar structures of supply and demand in the different areas.*”

In *Nestlé/Perrier*,<sup>60</sup> Nestlé submitted that price discrimination between France and other areas, including at least Belgium and certain German Länder was not possible; the parties argued in particular that if excessive pricing were to be applied in the French market, parallel imports into France would develop. The Commission rejected the argument and considered that the growth of parallel imports into France was practically impossible. The Commission’s findings were based on the fact that; (i) bottled source water is a relatively inexpensive and bulky merchandise with a high impact on transport costs; (ii) exports are carried out through subsidiaries of the main suppliers, which allows for a certain degree of control of the water exported; (iii) prices in Belgium and Germany are significantly higher than in France – moreover, the exporter would incur additional costs related to transport, repackaging and its own profit margin.

### **c. Market Definition and Abusive Behaviour**

The use of the price discrimination factor in Article 82 EC cases to define geographic markets has often proved to be problematic, especially where price discrimination has itself been a specific abuse alleged against the undertaking in question. In the *Tetra Pak II* Case,<sup>61</sup> Tetra Pak argued before the Court of First Instance that the various Member States constituted separate geographic markets for the products in question, because the objective conditions of competition were not the same for all traders throughout the EU. In particular, Tetra Pak submitted that in each Member State there were local markets on which autonomous subsidiaries of both Tetra Pak and other manufacturers operate. In the view of Tetra Pak, the variations in prices between the

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<sup>58</sup> See also Case No COMP/M.1578 – *Sanitec/Sphinx*, OJ 2000 L294/1.

<sup>59</sup> Case No COMP/M.315 - *Mannesmann/Vallourec/Ilva*, OJ 1994 L102/15.

<sup>60</sup> Case No COMP/M.190 – *Nestlé/Perrier*, OJ 1992 L356/1.

<sup>61</sup> Case T-83/91, *Tetra Pak International v. E.C. Commission*, [1994] ECR II-755.

Member States demonstrated that the EU did not constitute the relevant geographic market. The Court upheld the Commission's position that the geographic market was the EU and that the variations in price could not be explained by economic terms but, instead, reflected Tetra Pak's success in imposing a compartmentalisation of national markets for its products within the EU which allowed it to practice a discriminatory pricing policy.

The Court distinguished *Tetra Pak* from the *Michelin Case*,<sup>62</sup> where the Court of Justice held that the adoption by the subsidiaries of groups operating worldwide of autonomous commercial policies tailored to the specific conditions of each national market was evidence of the existence of a national market, and justified the difference in the approach in the two cases by identifying differences in terms and demand and supply conditions in the two cases.

### II.2.C. Functionality

The intrinsic functional characteristics of certain services (aside from their relevance to the identification of relevant product markets) can also inherently limit the scope of the relevant geographic market to the national level. For example, in *Viag-Interkom/Telenor Media*,<sup>63</sup> the relevant market was identified as the market for the provision of national directory assistance services in Germany that were invoiced to the customer through its telephone bill. The geographic dimension of the market was considered to be national in scope, given that it was “*technically impossible to use the [concerned]... telephone numbers from abroad, as there is no mechanism to invoice customers calling from abroad.*”

Another example of limited functionalities available beyond national borders is provided by pre-paid cards used in the mobile market as an alternative to ordinary subscription services. Most of these cards can be used only on the home network. Some of them allow only basic services to be provided over visited networks, but do not ensure that additional features such as display features or voice-mail are available.

### II.2.D. Ancillary Features

Limits on the functionality of services beyond national boundaries, when supplemented by other ‘intangible’ elements such as display features, may further increase switching costs for customers and reinforce the existence of national markets. For example:

**Language Availability:** According to the *Relevant Market Notice*, basic demand characteristics, such as national preferences, language, culture and lifestyle have a strong potential to limit the geographic scope of competition. Language has been particularly important, for example, in limiting geographic markets in the broadcasting sector. In *Bertelsmann/Kirch/Première*,<sup>64</sup> the Commission recognised that the whole

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<sup>62</sup> Case 322/81, *Nederlandsche Banden Industrie Michelin v E.C. Commission*, *op.cit.*

<sup>63</sup> Case No COMP/M.1957 – *Viag/Interkom/Telenor Media*, 14 June 2000.

<sup>64</sup> Case No COMP/M.993 - *Bertelsmann/Kirch/Premiere*, OJ 1999 L53/1.

German-speaking area of Europe was the relevant geographic market for the provision of technical services for Pay-TV. Also, in *RTL/Veronica/Endemol*, the Commission considered that, although the Flemish region of Belgium and the Netherlands are both Dutch-speaking, the “differences in the *verbal expressions*” (emphasis added), together with other factors, resulted in the two regions being considered to be separate geographic markets.<sup>65</sup>

**Availability of After-sales Service:** The national limitation of telecoms markets has been influenced, on occasions, by the distribution channels required for the marketing of such products. For example, in *British Telecom/MCI (II)*,<sup>66</sup> the market for audioconferencing was considered to be national in scope in light of the fact that it requires a dedicated sales force in the country where the service is supplied. After-sales, help-desk and similar customer assistance services can also play an important role in configuring national markets.

### II.2.E. Commercial Practices Favouring Supranational Markets

In 1991, the Commission considered that the national territory of each Member State “seems to be a distinct geographic market”, where (i) the customer’s needs cannot be satisfied by using a non-domestic service; (ii) there are different regulatory conditions of access to services; and (iii) there are no Community-wide standards concerning equipment and networks.<sup>67</sup> Moreover, even as early as 1991 the Commission underlined the fact that “*it is expected that the geographic market will progressively extend to the EEC territory at the pace of progressive realization of a single EEC market*”.

In a number of decisions, the Commission has taken the view that the relevant geographic market extends beyond the boundaries of the national borders of a Member State. Outlined below are many of the key drivers for such a definitional trend.

**Scope of Customers’ Businesses:** In various decisions, the Commission has recognised that the identification of a supra-national geographic market is justified in light of the “global needs” of customers for certain products or services. For example, in *BT/MCI*,<sup>68</sup> the Commission pointed out that the needs of multinational businesses to obtain enhanced communications services are *per se* global in their scope, and that therefore the relevant geographic market should be defined accordingly.<sup>69</sup> Also, in *Vodafone Airtouch/Mannesmann*,<sup>70</sup> the Commission identified emerging new product market for “*seamless pan-European mobile telecommunication services to internationally mobile customers*” recognising that “*there is a distinct demand for advanced seamless pan-European [mobile] services from internationally mobile customers, particular MNCs and large corporations, which is distinct from the demand*”

<sup>65</sup> See, for example in Case No COMP/M.553 - *RTL/Veronica/Endemol*, OJ 1996 L134/21.

<sup>66</sup> Case No COMP/M.856 - *British Telecom/MCI (II)*, OJ 1997 L336/1.

<sup>67</sup> See Commission’s Guidelines on the application of EEC competition rules in the telecommunications sector, OJ 1991 C233/2.

<sup>68</sup> Case No COMP/M.353 – *British Telecom/MCI*, 13 September 1993.

<sup>69</sup> *Op. cit.*

<sup>70</sup> Case No COMP/M.1795 – *Vodafone Airtouch/Mannesmann*, 12 April 2000

for national mobile telecommunications services for smaller companies and private users due to the international scope of the large corporations businesses (cross-border international) and their international customer base". According to the Commission, such a market could be viewed at least as being pan-European.<sup>71</sup>

**Demand-driven "one-stop-shop" Elements:** The possibility of end users having recourse to a single provider for a bundle of different telecoms services is another element that broadens the scope of geographic markets for communications services and/or networks. For example, in *Unisource*,<sup>72</sup> the Commission recognised the existence of demand by travellers for services "which include a single bill and which integrate functions such as voice messaging, voice response and information systems appears to be increasingly global".<sup>73</sup>

Also, in *BT/MCI*,<sup>74</sup> the Commission clearly stated that the demand of customers with large international needs is oriented towards a seamless and one-stop provision of global services. Likewise, in *BT/MCI*,<sup>75</sup> the international scope of the market for value-added and enhanced services to large multinationals was identified in light of customers' requirements of, *inter alia*:

- a single point of contact accountable for assuring service levels;
- seamless, uniform, flexible features/functionality across geography;
- end-to-end provisioning, installation, fault management and service support;
- reliable service; and
- customised billing, reporting with language and currency flexibility.<sup>76</sup>

**Volume Discounts Across Geographic Regions:** Global operators are capable of offering volume discounts which encompass different geographic regions. This was shown to be the case in the mobile sector where Vodafone, thanks to its presence in most Western European countries, was recently able to launch a basic flat rate roaming product called Eurocall in the countries where it was present.<sup>77</sup> The capacity of trans-national operators to offer volume discounts has been recognised in various decisions of the Commission,<sup>78</sup> and can clearly lead to a customer-driven supranational definition of the geographic scope for communications markets.

**Connectivity Relationships (and regional, national trans-national decisions):** The importance of interconnection and other types of connectivity relationships between carriers for the purpose of geographic market definition has been highlighted in various Commission Decisions. For example, in *Unisource*, the Commission recognised that "By their very nature, both supply of and demand for carrier services are at least

<sup>71</sup> *Op. cit.*

<sup>72</sup> Case No IV/35.830 - *Unisource*, OJ1997 L318/1.

<sup>73</sup> *Op. cit.*; see point 31 of the Decision.

<sup>74</sup> Case No COMP/M.353, *British Telecom/MCI*, *op.cit.*

<sup>75</sup> Case No IV/34.857 – *BT-MCI (I)*, OJ 1994 L223/36.

<sup>76</sup> *Op. cit.*; see at point 7.

<sup>77</sup> Case No COMP/M.2305 – *Vodafone Group PLC/Eircell*. 2 March 2001.

<sup>78</sup> Case No IV/35.830 – *Unisource*, OJ 1997 L318/1; see also Case No COMP/M.1069 - *WorldCom/MCI*, OJ 1999 L116/1.

*cross-border regional. Geographic proximity between purchaser and supplier of switched transit capacity is hardly relevant for switched transit which carriers use either as a substitute for operating own international lines or to deal with peak traffic on such lines. Likewise, dedicated transit services offer cable- or satellite-based routing capacity across third countries”.*<sup>79</sup>

The geographic scope of connectivity markets was also analysed in *WorldCom/MCI*.<sup>80</sup> In that Decision, the Commission considered whether all ISPs compete against one another to provide the same connectivity services or whether there are any distinct and narrower geographic markets within the sector. The geographic scope of the market for connectivity was found by the Commission to be different according to the level of the hierarchy in which each provider of connectivity was situated. Thus, the market of so-called “Top level ISPs”, namely, the providers of the Internet backbone connectivity infrastructure, was considered to be global,<sup>81</sup> in light of the fact that such providers could provide transit to all parts of the Internet global network “*entirely on their own account*”. On the other hand, the geographic market for the connectivity provided by ISPs situated at lower levels of the Internet hierarchy was considered to be national or sub-national.<sup>82</sup>

***Effect of “Prepaid” Relationships and Roaming:*** Both calling cards and roaming agreements are perceived as being powerful means by which to overcome both licensing and network barriers to the provision of cross-border services.<sup>83</sup> As such, they contribute to eliminating the impact of two of the classic constraints which traditionally lead to a national definition of geographic markets, namely, network reach and regulatory requirements. In fact, while the deployment of a network is subject to national licensing requirements, recourse to a roaming agreement or a calling card achieves a virtual extension of the network reach without the cumbersome licensing and economic implications associated with the deployment of a network.<sup>84</sup>

The supra-national effect of roaming services on geographic market definition was highlighted by the Commission on several occasions. For example, in *Omnitel* in 1995, the Commission considered that the market for GSM services was EU-wide in light of the fact that, thanks to roaming, the market for digital mobile communications was Europe-wide. In particular, the Commission stated that “*based as it is on a Community standard, GSM can become a pan-European service. Under ‘roaming’ agreements between network operators, the system permits any user to make calls from his phone outside the national territory of the operator with which he has taken out a subscription. This facility is available throughout the territory of the parties to the*

<sup>79</sup> *Op. cit.*; see point 32 of the *Unisource* Decision. See also Case No COMP/M.1069 - *WorldCom/MCI*, *op.cit.*

<sup>80</sup> Case No COMP/M.1069 – *WorldCom/MCI*, *op.cit.*

<sup>81</sup> Although, in effect, the “global market” was limited to connectivity relationships only with US-based providers of Internet “backbones”.

<sup>82</sup> See also Christopher Vajda Q.C. and Anders Gahnström, “*E.C. Competition law and the Internet*”, [2000] E.C.L.R., Issue 2.

<sup>83</sup> However, see discussion in Chapter VI.

<sup>84</sup> See for example Case No COMP/M.544 - *Unisource/Teléfonoica*, 6 November 1995, where the Commission clearly draws a parallel between roaming and card services.

*GSM Memorandum of Understanding in Europe and other parts of the world.*<sup>85</sup> The Commission has deviated from this position since the *Vodafone/Airtouch* Case, and seems more recently to have consolidated its administrative practice by consistently considering that markets for basic mobile telephony services are national in scope, principally because of pricing considerations.<sup>86</sup>

***Economies of Scale/Scope:*** An analysis of the Commission’s market power assessments suggests that the profitability of communications services, and therefore the market strength of communications operators, is often seem to be the result of the scale of their related operations, both in quantitative and in geographic terms. This is shown, for example, by the recognised ability of transnational or global operators to offer volume discounts. The concentration tendency in communications markets is a clear demonstration of the economies of scale that characterise many of those markets. As a result of economies of scale, the geographic definition of communications markets may tend to go beyond national boundaries and become increasingly “global”.

## II.2.F. Geographic Criteria for End User Selection

In the communications sector, it might be justified to distinguish between distinct geographic markets with respect to *urban* and *rural* areas, especially where this coincides with a particular targeted customer category. Indeed, the deployment of a particular type of network infrastructure might be justified only in areas with a sufficient density of population. This view was confirmed in the recent *France Télécom/Equant* Decision,<sup>87</sup> where the Commission stated that “*it may even be possible to divide ... customers into those that are situated mainly in the largest cities and business areas*” in a given Member State. Typical examples of the types of key customers found in the latter type of geographic market would be banks and insurance companies.<sup>88</sup>

It has also been observed that the geographic dimension of the relevant market for various communications services may differ as between *residential* and *business* customers. In fact, while residential customers generally require uniform coverage irrespective of their location, business users are more likely to have specific needs in particular geographic areas. For example, a pan-European bank is likely to require high speed dedicated communications services between the main capitals of Europe.<sup>89</sup> Several Commission decisions confirm this view. For example, in *BT/MCI(II)*,<sup>90</sup> the

<sup>85</sup> Case No COMP/M.538 - *Omnitel*, 27 March 1995.

<sup>86</sup> Case No COMP/M.1430 - *Vodafone/Airtouch*, 21 May 1999, points 13 to 17. See also Case No COMP/M.2305 - *Vodafone Group PLC/Eircell*, 2 March 2001 and Case No COMP/M.2053 - *Telenor/BellSouth/Sonofon*, 4 August 2000. See, however, the considerations above in connection with the different market for seamless pan-European mobile telecommunications services to internationally mobile customers, as identified in the *Vodafone Airtouch/Mannesman* Decision.

<sup>87</sup> Case No COMP/M.2257 - *France Télécom/Equant*, 21 March 2001.

<sup>88</sup> *Ibid.*, at para.45.

<sup>89</sup> See Larouche, P. (2000), “*Competition law and Regulation in European Telecommunications*”. Oxford and Portland Oregon.

<sup>90</sup> Case No COMP/M.856 – *British Telecom/MCI (II)*, OJ 1997,L336/1.

geographic market was clearly identified on the basis of the needs of large multinationals. In fact, depending on the particular product market under examination, it was said that the category of business users might be further divided into two sub-categories of large corporate groups: *i.e.*, such as multinationals, and small and medium enterprises (SMEs).

These types of geographic segmentation are arguably most relevant in an *ex ante* context as examples of regulatory forbearance for particular segments of a broader relevant product market. However, as is more likely to be the case, because any such relevant product markets affected by such segmentation lie at the retail level, they are more likely not to be considered to be Candidate Markets under the new regulatory framework (which should, in principle, focus on the *ex ante* regulation of wholesale inputs to competitors). As such, focus on this level of geographic segmentation may be more appropriate in an *ex post* context.<sup>91</sup>

### **III. EMPIRICAL ISSUES RELEVANT TO MARKET DEFINITION**

As noted in Section I.1 above, there are a number of reasons why the uncritical application of the Hypothetical Monopolist test is likely, in practice, to lead to markets being too narrowly defined, especially with regard to the choice of quantitative thresholds. However, these doubts concern matters of threshold, not essential methodology.<sup>92</sup>

As we have noted above, one should start the market definition process with end user products, roughly grouping together those products which can be used for the same end use. Where there are several products that quite obviously are very close substitutes for each other, it may make little sense to apply the Hypothetical Monopolist test to each of them. This is a matter of judgement in each case, but where regulators choose to make such a grouping of products, it should be a product grouping with which economists cannot sensibly disagree.

In order to limit disagreement on the manner in which the legal principles discussed in Section II. are to be applied in practice, recourse will need to be made to a variety of economic principles and certain quantitative economic tools which should yield the type of market data which will inform a market analysis.

#### **III.1 MARKET DEFINITION AND PRICE DISCRIMINATION**

A hypothetical monopolist will be able to discriminate as to price. Price discrimination occurs when the same good or service is sold to different groups of buyers at different

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<sup>91</sup> A key departure from this general observation may be found in the context of key wholesale inputs such as high speed transmission links offered to competitors on a per route or a point-to-point basis.

<sup>92</sup> Putting doubts about the appropriate thresholds to one side, the failure to delineate the market narrowly can also have the appropriate effect by resulting in markets with market failure, as a result of market power, being overlooked.

prices. Significant levels of price discrimination can usually only be sustained where the price discriminating entity has market power. An entity is able to discriminate profitably because it is able to identify a group of buyers who are significantly less able (*e.g.*, because of price insensitivity) or willing (*e.g.*, because of relatively high switching costs) to switch to other suppliers.

Differential pricing, however, will not always turn out to be actual price discrimination. Transport costs can result in price differences, as occurs with petrol prices, especially in regard to rural as compared to urban prices, and this need not imply any competition problem. It is common for variations in price to be explained by differences in cost, or differences in regulation that cause differences in costs.<sup>93</sup>

Airlines will typically price travel at much higher prices if you buy your ticket at the last moment, compared to a ticket purchased two or three weeks beforehand. In being able to do this, individual airlines might be said to have market power, especially where that situation is aided by restrictions on competition due either to a lack of suitable landing slots, and/or because the numbers of competitors on a particular route are limited by regulation (*e.g.*, foreign airlines are commonly not permitted to compete on routes that do not involve take-off or landing in their own country). If single airlines can practice this policy, then the application of the 5 to 10 percent test to a hypothetical monopolist airline for bookings made, say one day before flying, would suggest that on some routes there was a separate market for “last minute” travel on aeroplanes. Thus, it is possible for pricing that is close in time to an event, or time-of-day pricing, to be the basis of a finding of separate relevant product markets. However, where the market investigation is to determine appropriate targets of *ex ante* regulation, such an approach risks regulating markets that are too narrowly defined. For price discrimination to be sustainable, buyers must be prevented from reselling the product to the group being asked to pay more. If travel agents can buy airline seats a month or two before the flight at price  $X$  and sell them one or two days before the flight at  $X*1.8$ , below the airline’s price of  $X*2$ , the airlines would lose a significant amount of revenue, *i.e.*, their attempt to price discriminate would fail.

Geographic price discrimination can also occur where, net of supply cost differences, customers in different locations are charged significantly different prices. If a hypothetical price increase in an area would not be profitable, it is important to confirm that this is because of substitution from outside the area, rather than because of substitution from within the area. If the latter is the case, this would indicate that the product market has been too narrowly defined, rather than it being necessary to define the geographic market more broadly. As with price discrimination which is related to time, it must not be practical for arbitrage to occur by people buying the product outside the region, where it is cheaper, and reselling it in the geographic area for profit.

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<sup>93</sup> Sometimes regulations or law can give rise to very different market conditions, and can result in market boundaries that are unexpected. For example, laws regarding the attachment of satellite dishes to buildings often enable building owners to prohibit all such attachments. In some cases, this has led building owners to enter into agreements with CATV providers, which include a condition that no satellite dishes will be permitted.

This would defeat the producer's attempt to price discriminate, and would require that the Candidate Market be defined much more broadly.<sup>94</sup>

### III.2 ACCOUNTING FOR CHAINS OF SUBSTITUTION

Two different products, *W* and *Z*, may be within the same market, even when they are clearly very poor substitutes for each other. This can occur because there are a number of products between *W* and *Z* which provide a sufficiently strong *chain of substitution* between *W* and *Z* such that *X* is a relatively good substitute for *W* (*i.e.*, they are in the same product market), and *Y* is a relatively good substitute for *Z* (*i.e.*, they are in the same product market), and *X* and *Y* are substitutes for each other (*i.e.*, they are in the same product market). One potential error which often occurs when relying on chains of substitution to delineate markets is that, while *X* may be a good substitute for *Y*, it cannot be assumed that *Y* will be as good a substitute for *X*. In extreme cases, this would amount to one-way substitutability.

Chains of substitution not only apply to products but also apply to the geographic scope of markets. An ice-cream seller at one end of a long beach at a holiday resort is not competing with the ice-cream seller at the other end of the beach. However, if there is an ice-cream seller every hundred metres, then the chain of substitution will put the seller at either end of the beach in the same product market. The pricing / service provided by these two ice-cream sellers will constrain each other through the constraint each one in the chain imposes on other nearby ice-cream sellers. This is an example of a geographic chain of substitution.

Chains of geographic substitutes can be broken if there is a significant break in the geographic distribution of buyers or sellers, or because of transport costs. Data about plant locations and per unit kilometre transport costs, together with sales figures,<sup>95</sup> will assist in deciding where the chain of substitution is broken by transport costs.

It tends to be more difficult to determine whether chains of substitutes in products put them in the same product market, or whether the chain has a sufficient gap somewhere to delineate one of the market boundaries. The factors that link or potentially break the chain of substitution between products can be abstract, and it may be very difficult to get the quality of information needed in order to arrive at a well-informed judgement about whether a “chain” is broken or otherwise. In some cases, both substitutes and complements will need to be studied. This can be difficult where multiple components are involved and there is more than one supplier, especially where compatibility is a variable. A substitute product may in actuality be made up of several products that combine to make a relatively good composite product that substitutes, in terms of price and quality, for a single product.

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<sup>94</sup> It is worth noting that many forms of price discrimination actually improve overall economic welfare. Tirole provides a discussion: *see* Tirole, J. (1988), *The theory of industrial organization*, Cambridge, Massachusetts: MIT Press.

<sup>95</sup> We discuss this further in the discussion on empirical testing.

There may also be complex strategic factors that typically arise where there are network effects, as is often the case with composite products where the producers of the component products are not part of the same company. In this case, a theoretical composite which is apparently substitutable with the single product of interest, may become less of a substitute if one or more of the producers of one of the elements that make up the complement decides that it is in its interests to provide less than a fully compatible element, if a market for the composite began to develop.<sup>96</sup>

Transaction costs can also be an important element in this category. One of the things that may need to be analysed in order to determine whether substitution is realistic, would be the transaction costs involved in obtaining the composite product.

The concept of chains of substitutes lies at the core of the approach to market definition. In other than straightforward cases where there is no disagreement on market definition, without a rigorous analysis of where the gaps in such chains appear to be, market definition must be tentative.

Doubts have been expressed about the use of chains of substitution as a central feature in market definition analysis, with essentially two categories of problem having been identified:

1. Market boundaries tend to be somewhat arbitrary and create a false impression about the scope of competition. As they are biased in favour of competition in existence as of today, rather than future competition, they might not properly reflect the market environment in which decisions are to be made.<sup>97</sup>
2. What constitutes a break in the chain of substitutes must be decided on a case-by-case basis, as there is no accepted formula for deciding what level of gap constitutes a break in the chain of substitutes. There is clearly scope here for discretion on the part of regulators. This level of discretion provides the opportunity for a degree of arbitrariness, which might lend itself to (what may appear to be) arbitrary results.

In the first instance, analysing chains of substitutes helps provide analysts with a broader and more sophisticated picture than when one-on-one substitution is the only approach used. Markets for *ex ante* regulation (as in the case with merger analysis), are meant to be defined on a forward-looking basis. In dynamic industries, this probably cannot be adequately accomplished using a traditional approach to market definition and will sometimes be less than convincing. In dynamic industries involving large sunk costs and network effects, the traditional approach to market definition addresses likely

<sup>96</sup> See for example, Matutes, C. and Regibeau, P. (1992), "Compatibility and bundling of complimentary goods in a duopoly", *Journal of Industrial Economics*, 40(1): 37-54; Economides, N. and Flyer, F. (1995), "Technical standards coalitions for network goods", Discussion paper EC 95-12, Stern School of Business, NYU.

<sup>97</sup> See Fisher, F. (1987), "Horizontal merger: Triage and treatment", *Economic Perspectives*, Fall: 23-40; cf. the introductory chapter to Tirole, J. (1988), *op.cit.*; and Werden, G. (1993), "Market delineation under the merger guidelines: a tenth anniversary retrospective", *The Antitrust Bulletin*, Fall: 515-555.

changes in the next year or two, but is unlikely to take account of the possibility, given the network effects involved, that the main focus of competitors might be “for the market” rather than “in the market”. This is, however, less of a problem where a type of ‘error adjustment’ process can be performed, in which possible future entry is accounted for in the analysis and dynamic factors are considered under the analysis of competitive effects. The danger is, however, that this will be inadequate and once locked into the market definition process addressing competition ‘in the market’, markets where the most significant competition occurs ‘for the market’ will be regulated. Fortunately, markets for which competition is ‘for the market’ are much less common than where competition occurs ‘in the market’.

Under the second category of concerns, the problems include uncertainty in the law, and a lack of complete transparency in the decisionmaking process. Publication of the details of analysis undertaken would assist in reducing the latter criticism. Complete transparency, however, will not be possible, as there must inevitably be a degree of reliance on value judgements. This is likely to be a problem that cannot be fully resolved, only reduced.

In practice, issues concerning chains of substitution lie at the heart of most antitrust cases where it appears that markets have been incorrectly defined. The reasons for this may relate to the abstract nature of the exercise, failure to publish a sufficiently detailed analysis, and less than ideal institutional structures and institution endowments.

### III.3 ESTIMATING SWITCHING AND SEARCH COSTS

A situation where buyers of service *X* face high costs to switch to another possibly adequate substitute *Y*, or face high search costs in finding substitute *Y* or finding information that it is an adequate substitute for *X*, tends to confer market power on the firm selling *X*. The same situation may or may not apply for buyers of *Y*. In such circumstances, it may appear at first glance that the services provide much the same benefits to the buyer and are therefore in the same product market. However, data / econometric analysis may provide results that suggest that *X* is not an adequate substitute for *Y* (or, perhaps, *visa versa*). The problem may be not that the services do not provide users with similar functions, but that customers face switching or search costs which make it difficult for customers to switch to a substitute. This effect can result from factors such as:

- the information needed for customers to switch to *Y* is not available or requires time and effort on the part of buyers to find or purchase *Y* or confirm that it is an adequate substitute for *X*;
- contractual terms may impose costs on customers who switch to substitutes; or
- there are up-front expenses involved in obtaining service that cannot be recovered when switching to a competitor, and the competitor imposes a similar up-front expense on its customers.

All three factors impose switching costs: the first factor involves time and effort, while the second and third involve monetary costs. All three raise the cost of switching to substitutes. The end result may be that high switching costs can drive a wedge between two services that at first glance appear to be substitutes, and may require that a separate

market be defined around each product. A first mover may actually foreclose market entry by others, and even though another provider may offer similar or identical service at a slightly reduced price, no existing subscribers of the first mover would switch to the cheaper provider. In some cases, antitrust market definitions may actually configure around each of the providers.

The above analysis focusses on existing subscribers, but competition for customers not yet subscribing to any of the substitute services may still occur in the market made up of the two or more substitutes, rather than around any or each of them.

### III.4 QUANTITATIVE TOOLS FOR MARKET MEASUREMENT (DATA-BASED EVIDENCE)

Due to the relative lack of experience and information in relation to many areas in the communications sector (especially with respect to the introduction of new or innovative products), recourse to traditional legal standards of market definition may yield results that are inconclusive. In these circumstances, the traditional approach to market definition might need to be complemented by a detailed empirical analysis of the market in question, taking into account a number of factors discussed below.

#### III.4.A. Price Elasticities and Residual Demand Estimates

There are several types of price elasticity that are relevant for market definition. The two most important of these are "own price elasticity of demand" (often described as price elasticity of demand) and cross-price elasticity of demand.

Own price elasticity of demand ( $\epsilon_x$ ) measures the proportionate change in demand for good  $x$  as a result of a proportionate change in its price. A high price elasticity of demand<sup>98</sup> (a steep area on the demand curve) indicates that a small change in price will result in a proportionately much larger change in quantity demanded; *i.e.*, it is price elastic. Where this is the case, firms will not be able to increase profits by raising price, since consumers would respond to such an increase by decreasing their demand by too great a level for this to be profitable. This would be the case even for a hypothetical monopolist. The approach is complex and its results are subject to misinterpretation.<sup>99</sup>

Cross-price elasticity of demand ( $\epsilon_{xy}$ ) measures the proportionate change in demand for service  $y$  following the proportionate change in price of service  $x$ . A high cross-price elasticity of demand suggests that the two goods or services are good substitutes for each other; *i.e.*, if the price of  $x$  increases, the demand for  $y$  increases, suggesting that the goods or services are in the same product market.

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<sup>98</sup> In other words, a larger absolute number as price elasticity of demand is normally negative (*i.e.*, downward-sloping).

<sup>99</sup> See Werden, G. (1998), "Demand elasticities in antitrust analysis", *Antitrust Law Review*, 66: 363-414; and Froeb, L. and Werden, G. (1992), "Residual demand estimation for market delineation: Complications and limitations", *Review of Industrial Organisation* 6: 33-48, for a discussion of some of the problems that can arise.

In many cases where there are market power problems, cross-price elasticity for demand may well provide misleading information, as prices are likely to have been raised to a level where demand is relatively price sensitive (*i.e.*, at or near monopoly levels at the limit of what people are willing to pay), making other services appear to be adequate substitutes when this may not be the case but for the price of *x* having already been raised. (This phenomenon is known as the ‘*Cellophane Fallacy*’, discussed in Section I.3).

Another potential pitfall with cross price elasticities results from one-way substitutability, or where when cross price elasticity is different when comparing *x* to *y* than when comparing *y* to *x*. In such cases, a different market definition may be appropriate, depending on the order in which cross elasticity is measured.

### III.4.B. Price – Concentration Analysis

There is usually a high correlation between firms having a high market share and firms having market power. High market shares are, nevertheless, not sufficient of themselves to confer market power. However, where market power appears to be absent (*i.e.*, a firm has little control over price), but an entity has very high market share, it places an additional onus on the parties to define correctly the relevant product market. Where concentration is very high<sup>100</sup> and prices are not statistically different to those in other areas where concentration is low, this can suggest that:

- The market has been drawn too narrowly. For example, if a firm had 100% of a market in location *X*, and 20% of the market in location *Y*, and prices were not statistically different between *X* and *Y*, it may be that either the product or the geographic market definition is too narrow.
- The market is subject to 'hit and run' entry (unusual), or firms in nearby markets are able to switch capacity fairly easily, so that the apparently dominant firm has no market power as a result of the ease of supply-side substitution.

Where prices in *X* and *Y* diverge, *X* and *Y* may not be in the same geographic market.

### III.4.C. Price Correlation and Speed of Adjustment

As a general rule, the comparison of absolute prices of two (or more) services will not be a valid means of determining whether those service are in the same product market. One of the main problems with communications service comparisons is that they are rarely directly comparable. The underlying elements are frequently not the same, and from an end user’s perspective, they might not be perceived as perfect substitutes (even if the underlying physical elements are the same). In this regard, customer perceptions are important.

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<sup>100</sup> Concentration is typically measured by the Herfindahl-Hirschman index (equal to the sum of the squares of the market shares), with a figure over 1,800 being typically judged to be very high.

A more useful tool is to look at the correlation of prices over time (*i.e.*, to analyse the relative price changes over time rather than to look at absolute prices). If prices are highly correlated, the services may fall within the same market. However, correlation does not tell us much (if anything) about causation, and a high correlation coefficient may be explained by the similar underlying factors pushing the changes of both prices while there could be little real competition between the two services. Correlation between prices may diverge or get closer over time, due to such things as changes in underlying costs, or changes in service quality, or a different level of common influence imposed by some other factor. In the absence of being able to explain the price movement, it can be dangerous to draw inferences about market definition from price correlation data. A high correlation between price series is not a sufficient condition for two services to fall within the same product market. Similarly, a divergence in correlation between two price series over time does not necessarily point to services not being in the same product market.

The speed of adjustment of a product price or geographic area to a price change of another product or geographic area, has also been suggested by a number of authors as a test for market definition. The test suffers from much the same problems as the price correlation analysis discussed immediately above, particularly autocorrelation.

There are more sophisticated econometric techniques for aiding in the delineation of antitrust markets, namely, ‘Granger causality’ tests and a test for cointegration. The Granger causality test is a test for feedback effects between two price series, and can be used to determine whether determinants of prices for  $x$  include previous prices for  $y$ ; namely, it can be used as a test for exogeneity (whether disturbances in  $y$  are also influential in causing changes in  $x$ ). Cointegration is a test of whether or not two series are bound together or, in the long run, will drift further apart. Two series are cointegrated if each “*first achieves stationarity after first differencing, but a linear combination ... is already stationary*”.<sup>101</sup>

Both Granger causality and cointegration tests suffer from problems similar to those affecting tests for correlation.<sup>102</sup>

#### III.4.D. Event Studies

Events that have implications for the expected future profitability or valuation of firms typically result in share price movements. For financial markets, such events appear as information released onto the market.<sup>103</sup> Where information is released which indicates

<sup>101</sup> Werden, G. and Froeb, L. (1993), “Correlation, causality, and all the jazz: the inherent shortcomings of price tests for antitrust market definition”, *Review of Industrial Organisation*, 8: 329-353, p. 344.

<sup>102</sup> *Idem*, for a discussion of some of the problems encountered through the use of price correlation, Granger causality and cointegration tests to aid in market definition,.

<sup>103</sup> Event studies offer a superior alternative to interpreting company accounting data. There are problems with interpreting such data, such as profitability and efficiency ratios of firms involved in, or near, markets in which important events occur. The data are assembled some

a change in a company's competitive position, the information will result in a more or less immediate change in the company's share price.<sup>104</sup> Equity markets have been shown to be extremely good at interpreting information with implications about a firm's future profitability. Indeed, the response of equity markets to specific pieces of information can provide valuable empirical evidence regarding the real effect on a firm of a specific event. The theoretical basis for this conclusion is found in a moderate version of the *Efficient Markets Hypothesis*.<sup>105</sup> The hypothesis states that all publicly available information is incorporated into the stock price, such that no one can systematically bet against the market and win on the basis of information about which the market knows. There is much empirical evidence supporting this hypothesis.

Events that move stock prices can provide information that assist in defining markets. These events may include: earlier merger / acquisition (M&A) activity, announcements about new products or services, technological developments, announcements about changes in regulation, sharp exchange rate changes when they occur within or near the Candidate Market and change the potential profitability of a good or service in comparison to other (substitute or complementary) goods or services. For market definition purposes, relative share price movements of firms competing within, or offering potential substitutes for, services in the Candidate Market, can provide information about the market's view of the degree of competition between firms or products.

The causes of share price movements can be complex, and the link between events and share price changes needs to be understood to avoid conclusions being drawn about causation that are not consistent with the underlying facts. Indeed, empirical attempts to translate the effects of events (external to the firm or strategic corporate decisions) face methodological difficulties that cannot be overcome easily. However, event studies can provide a valuable source of information relevant to market definition when undertaken objectively, rather than to support an *a priori* position.<sup>106</sup>

#### III.4.E. Client Studies

Where firms provide goods or services on the basis of longer term contracts or large volume contracts, the closer the firms will compete with each other. In these circumstances, it would be expected that they for work with the same clients. Such studies do not typically involve econometric tests, and thus provide rather more general evidence than much of what is discussed above.

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time after the event, and after other "contaminating events" have occurred, making it difficult to disentangle the net effect of a single decision from balance sheet data.

<sup>104</sup> Within minutes of such market sensitive information being announced, it is typically relayed across the world through information services, such as those provided by Reuters.

<sup>105</sup> See, for example, Fama, E. (1970), "Efficient capital markets: A review of theory and empirical work", *Journal of Finance*: 383-417.

<sup>106</sup> As is also recognised by the Commission in its "*Relevant Market Notice*, where it comments that this sort of information will normally be fundamental for market definition", especially where the object is to measure the reaction of firms in terms of qualities demanded and on the consequences of launches of new products (when it is possible to analyse with precision "which products lost sales to the new products")

### III.4.F. Consumer Surveys

Obtaining accurate consumer information through surveys about future (hypothetical) economic behaviour is much more difficult than is frequently recognised.<sup>107</sup> Surveys that seek to discover from consumers their hypothetical response to a change in an existing set of conditions (such as occurs when the provider of a service raises its price(s) by 5%), may provide unreliable data. The main problem to be overcome with such surveys is that when it comes to asking people about what their economic behaviour would be if certain events occurred, such as the conditions under which they would no longer purchase *X* but would switch to *Y*, their responses may not match their actual behaviour when faced with the same situation. Without making the hypothetical situation real, it is not possible to know whether answers are an accurate reflection of likely future behaviour. Consumers' stated preferences (what they say) often do not correspond with their revealed preferences (what they do). Evidence that this discrepancy occurs has been established under controlled experiments.<sup>108</sup> It seems that survey design alone cannot remove this problem. Moreover, it is not possible to identify where *stated* economic behaviour will diverge from *actual* economic behaviour, nor to predict the scale of any such divergence.

Such survey anomalies take many forms, and many explanations of anomalies have been suggested. Importantly for the present Study, questions which respondents think could be related to public policy are likely to appeal to respondents' ideological and political beliefs. Researchers may obtain answers which do not reflect respondents' economic preferences, but answers that reflect their attitudes to such questions.<sup>109</sup>

Information that is obtained by questionnaire about what consumers say they would do when faced with a particular set of economic choices, must therefore be treated with great caution. Careful question and survey design and interviewing will help alleviate, but cannot completely overcome, such problems.

### III.4.G. Conclusions About Data-based Evidence

In conclusion, the process of market definition is ultimately an empirical matter, although in many cases it can be determined sufficiently accurately without the need to adopt empirically-based techniques. Where markets need to be defined by reference to empirical methods, however, it should be done by experts; even apparently simple econometrics can turn out to be very complex. The complexity of many econometric

<sup>107</sup> In the last thirty years, there has been relatively frequent use of surveys of what consumers say they would do when faced with a particular set of economic choices. Values derived in such surveys have actually been used by U.S. authorities.

<sup>108</sup> Cummings, R., Harrison, G. & Rutström, E. (1995), "Home Grown Values and Hypothetical Surveys: Is the Dichotomous Choice Approach Incentive Compatible?", *American Economic Review*, 85 (1): 260-266.

<sup>109</sup> For evidence and a discussion of the various anomalies found in survey results based on hypothetical economic scenarios, see the collection of papers in Hausman, J. (1993), *Contingent Valuation: A Critical Assessment, Contributions to economic analysis*, North Holland.

techniques means that the courts may be left to balance the evidence presented by both (interested) sides, but are unlikely to be able to assess the merits of the econometrics employed without seeking expert assistance. This may be considered to raise the risk that, at the margins, there is a greater risk that errors of judgement will occur.<sup>110</sup>

Moreover, applied econometric techniques are based on historical data – they are backward-looking, and thus define markets as they were yesterday or typically several months ago. In the case of market definition for the purposes of *ex ante* regulation, these definitions may not hold into even the near future and, thus, may not be the correct market definitions for the purposes of *ex ante* regulation.

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In this regard, Werden and Froeb write: “...use of correlation coefficients, estimated speeds of adjustment, and econometric tests for Granger causality, exogeneity, and cointegration ... are not the same [forces] as those that give rise to market power, and therefore these price tests are likely to reach erroneous conclusion if used to delineate antitrust relevant markets. Therefore such test should be used in merger cases only with great care...”. *Op.cit.*,p. 347.