

STUDY FOR EC DG INFORMATION SOCIETY

Consumer Demand for Telecommunications Services and the
Implications of the Convergence of Fixed and Mobile Networks
for the Regulatory Framework for a Liberalised EU Market



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**Study on Consumer Demand for Telecommunications Services and
the Implications of the Convergence of Fixed and Mobile Networks
for the Regulatory Framework for a Liberalised EU Market**

Executive Report

Squire, Sanders & Dempsey
L.L.P.

Analysys

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EXECUTIVE REPORT

I. COMMERCIAL AND TECHNICAL DEVELOPMENTS

Over the course of the last two years, the number of mobile telephone subscribers has increased dramatically. Indeed, the penetration levels now seen in Scandinavia suggest that the use of mobile telephones in the European Union (“EU”) is becoming all-pervasive. Fixed communications, however, will continue to be important, particularly for data communications such as Internet access. In the future, most private individuals will use both fixed and mobile communications. This will create a demand for converged or integrated services from a single supplier.

The emergence of converged fixed/mobile services has important implications for the telecoms industry. Not the least of these is the need for a regulatory framework to govern these new service offerings. At the moment, the fixed and mobile communications markets of the Member States are regulated differently, with significantly more regulation of fixed telecoms operators – particularly incumbent telecoms operators – than mobile operators.

A. *Drivers of Mobile Penetration*

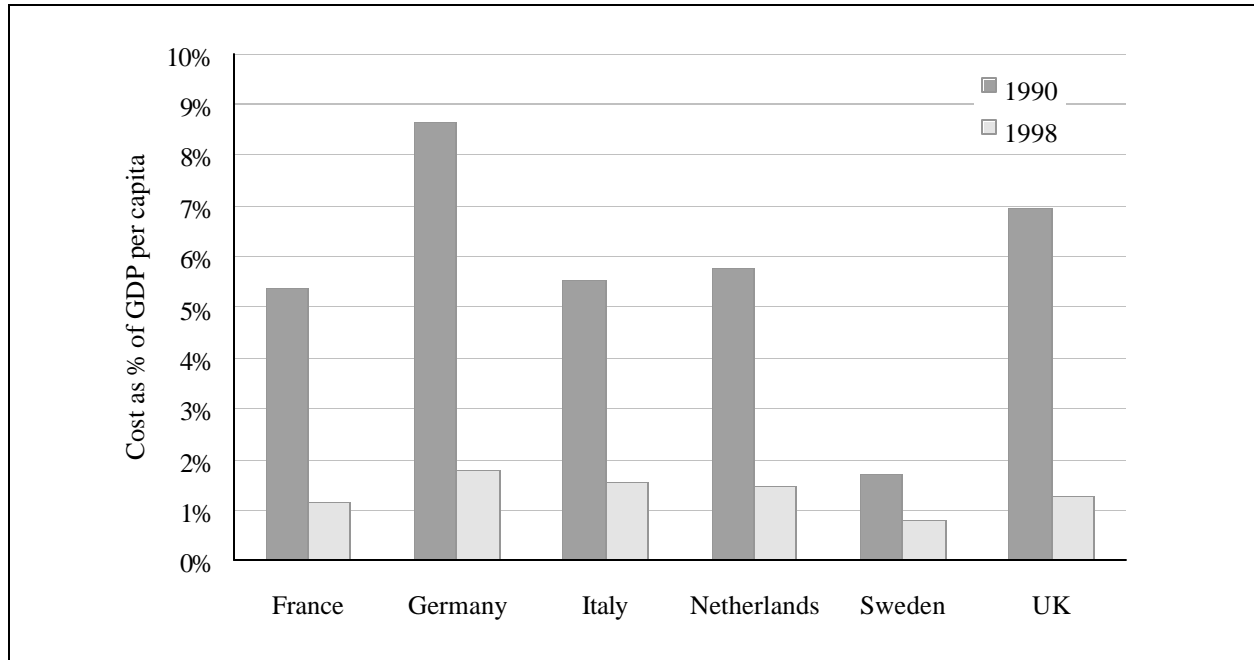
The take-up of mobile services has been driven by the following factors:

- the falling cost of mobile services
- improvements in network performance and the introduction of new services
- demand for mobile data communications.

(i) The falling cost of mobile services

The falling cost of mobile services is leading to the greater acceptance of the mobile phone as a primary communications tool used by consumers on a frequent basis. Exhibit 1 shows how mobile services became more affordable between 1990 and 1998.

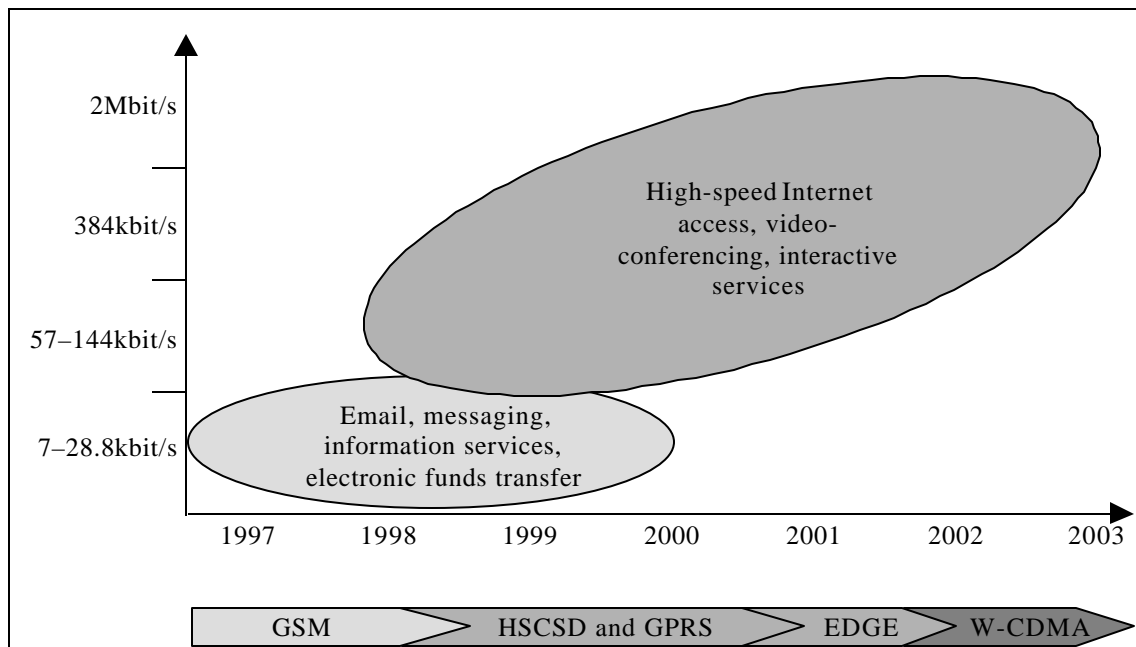
Exhibit 1: The cost of a mobile phone for a residential user as a proportion of GDP per capita between 1990 and 1998



(ii) Improvements in network performance and the introduction of new services

As illustrated in Exhibit 2, the performance of mobile networks and terminals is improving and operators are beginning to introduce more innovative value-added services. As a result, the utility of mobile telephones will increase further.

Exhibit 2: The improved performance and expanding range of services available with new network upgrades



(iii) Demand for mobile data communications

Consumer requirements for mobile telephony are changing. The rising penetration of fixed Internet services in the residential sector, together with the increasing ownership of portable computing devices, is generating greater demand for access to mobile data services. The introduction of new network technologies will meet some of this demand. Furthermore, the introduction of new advanced networks, capable of supporting data communications at high rates, will enable business users to access a wide range of new services.

Despite these advantages, mobile services have certain limitations which mean that users are unlikely to abandon fixed services altogether. For example, GSM networks offer relatively poor data service, especially when compared with fixed services, something with which users are already familiar in the home environment. In addition, although the price premium for mobility has fallen in recent years, it remains quite high for data communications services, which means that users will still want the option of fixed data access.

B. Consumer Issues

For the foreseeable future, consumers will require a combination of fixed and mobile services to meet their evolving communications requirements. Furthermore, as they become familiar with the new services that their mobile telephones offer, the majority of users will seek a seamless and more convenient use of all their communications services, both mobile and fixed. One attraction of such integrated services is that they offer the possibility of one-stop shopping for all telecoms requirements, including single itemised billing.

It is likely that the majority of customers will subscribe to some form of converged service, and this means that it is essential to consider how those services might best be regulated. The current regulatory regimes for fixed and mobile services are very different. Regulation of the fixed market tends to focus on the monitoring of the activities of the incumbent operator and ensuring that other operators can compete on a fair basis. Mobile markets have been more competitive, and regulatory regimes in different European markets have not resembled one another as closely as in the case of fixed communications.

Other obligations on incumbent operators in fixed markets, such as the requirement to offer universal service, have no equivalent in the mobile sector. Furthermore, substitution at both a service and a call level between fixed and mobile communications is leading to a blurring, in the mind of the consumer, of the existing distinction between fixed and mobile services.

From the consumer's perspective, the following issues should be addressed:

- **Pricing of services:** Complexity of pricing is likely to increase as fixed and mobile services converge, in particular as regards tariff transparency and billing information. This complexity is inevitable and will enable the industry to meet the needs of individual consumers. However, care will need to be taken to ensure that consumers are not deterred by pricing complexity.

- **Quality of service:** The quality of service available from fixed and mobile operators varies. The launch of third generation mobile services raises new issues regarding the availability of high-speed data services.
- **Contract terms:** In some Member States, mobile customers have found themselves locked into contracts that are not to their advantage. Contracts for converged services should not unfairly disadvantage consumers.
- **Privacy:** A single provider of all of an individual's communications services will acquire an enormous amount of information about that consumer. It is important that the consumer retains control over that information.
- **Roaming:** One of the main attractions of the GSM standard is that it provides seamless pan-European roaming. However, relatively high roaming charges and punitive deposits are discouraging many consumers from using their mobile phones for roaming.
- **Access to emergency services:** The GSM standard allows for European-wide access to emergency services. Recent technical advances now allow operators to locate a mobile caller. They should be encouraged to share this information with the relevant emergency services.
- **Health:** There has been much publicity about the health risks associated with the use of mobile telephones. Consumers need reassurance that their interests are being protected when health risks are investigated.
- **Carrier selection and number portability:** Consumers would ideally prefer to be able to select their long distance and international carriers for all forms of communication without restriction, and to retain their personal number when they change operators. Given the historical development of the mobile sector, the question arises is whether such measures should be mandated or whether they can best be addressed by a competitive marketplace. On balance, it is felt that the broadening of consumer choice on such issues should prevail through the mandating of such measures, subject to operators not being required to bear disproportionate costs.

Most consumer concerns with respect to converged fixed/mobile services will be best addressed by creating genuine competition in the provision of these services. Price, quality of service, and contractual terms will all be satisfactorily addressed by a market in which service providers compete to meet the needs, and win the business, of consumers. Issues such as privacy and health are covered by general privacy and consumer protection legislation (as well as the threat of legal action through the civil courts). Only a small number of issues, such as access to emergency services and carrier pre-selection, will require specific regulatory action.

II. FUTURE REGULATORY FRAMEWORK

The Study Team is of the view that the interests of all concerned would best be served by transferring responsibility for regulating the industry from specialist sectoral regulators to more general competition and consumer authorities. This process, however, will inevitably be evolutionary in nature and should be managed in a way which recognises that the mobile and fixed markets of today will continue to be resilient for the foreseeable future.

A. *Developing a Future Regulatory Model*

A regulatory process is required which facilitates the transition from the current regulatory regime to a future regulatory environment which could, in principle, be governed solely by competition rules. In the view of the Study Team, an institutional structure needs to be created which brings together the European Commission (the “Commission”) (which will play a crucial coordination role) and the various National Regulatory Authorities (“NRAs”) in the Member States (which will be primarily responsible for the implementation of policy). Throughout this process, regulation should be predicated on a competition-based analysis, derived from an understanding of “markets” developed under Articles 81 and 82 of the EC Treaty (“EC”). Such an approach would distinguish between issues relating to the abuse of market power on the one hand, and those relating to termination and access on the other, with the latter set of issues being likely to display certain “bottleneck” or “market failure” characteristics. Ultimately, the *ex ante* regulatory framework could be dismantled as a competitive marketplace develops and as bottlenecks are overcome by market forces, to be replaced by the *ex post* application of competition rules.

Accordingly, the regulatory model proposed by the Study Team at the 30 June 1999 Public Workshop, and which has since been modified to take into account the comments of industry and regulators, encapsulates the guiding regulatory principles of the 1999 Review and includes the following key elements:

⇒ An ongoing consultation process to provide the Commission and NRAs with the opportunity:

- To develop a common understanding of the relevant “markets” from a competition law perspective, while at the same time determining those areas of economic activity which do not lend themselves to market analysis because the service in question is inherently price inelastic or because parties with market power have a vested interest in preventing a new service from emerging. In order to facilitate the transition from sector-specific to competition-based regulation, regulators and the industry must address key regulatory issues on the basis of competition principles.
- To ensure that regulation evolves consistently across the EU, and overcomes the regulatory barriers brought about by the divergent application of EU law. The Commission’s participation in the process should address the concerns that, in the absence of a Euro-regulator, national discrepancies will continue to exist. The participation of NRAs will ensure that the principle of subsidiarity is satisfied.

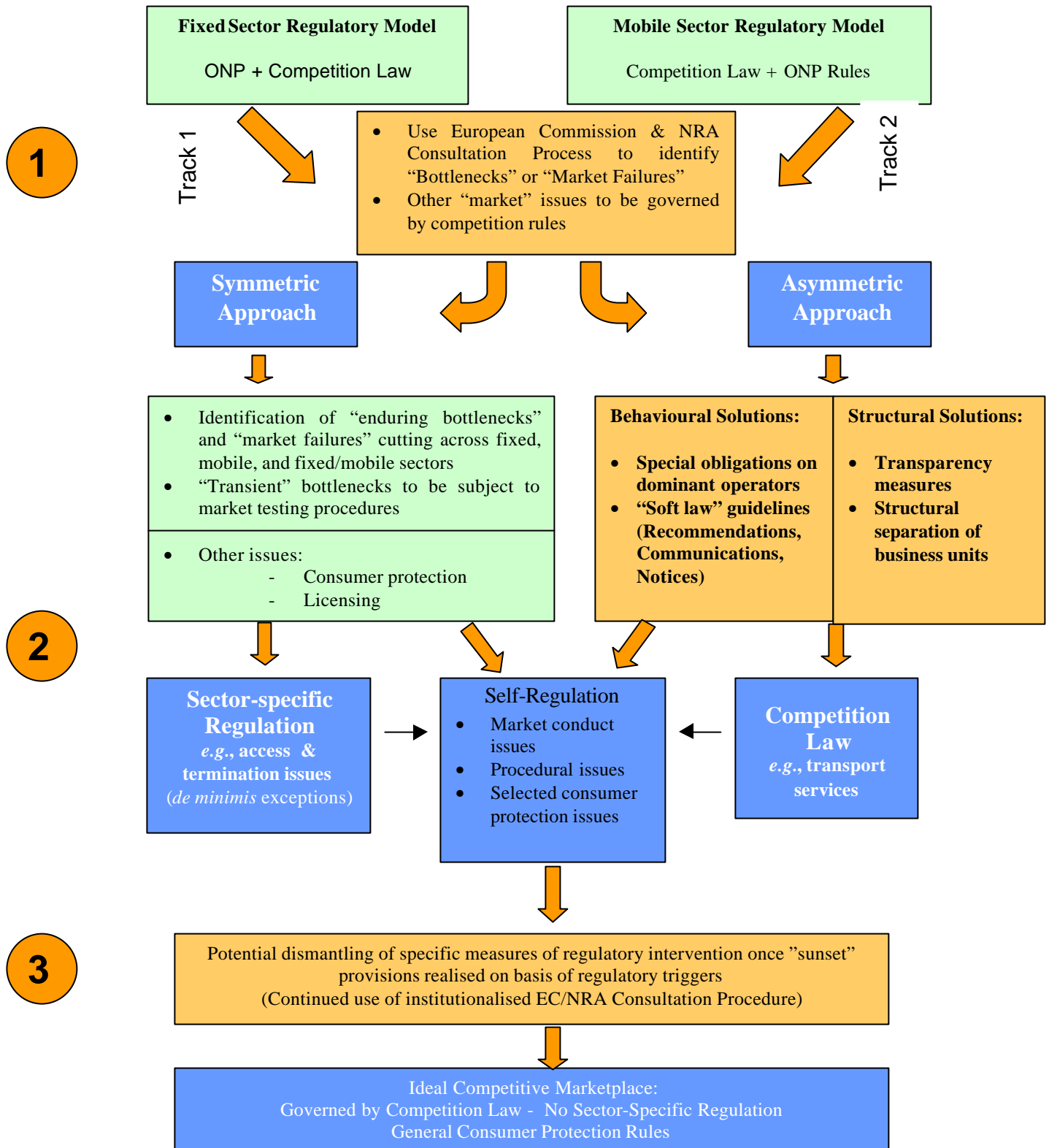
The non-participation of market actors in this process will render it less susceptible to challenge as an “interest group bargain”.

- ⇒ The elimination of the existing Significant Market Power (“SMP”) test in favour of finding certain market actors to be “dominant” in various markets. Dominance should be assessed *ex post* on the basis of standard competition law analysis, using a 50 % share of the relevant market as establishing a rebuttable presumption of dominance, but taking into account other traditional criteria relevant to such an assessment. A finding of dominance will mean that the operator must satisfy a number of general legal obligations, all of which will be sector-specific applications of the principles otherwise contained in Article 82 EC.
- ⇒ The form which these obligations take should be a truncated version of: (i) the key competition-based obligations contained in existing ONP directives; and (ii) “soft law” instruments (*e.g.*, Notices, Guidelines, Recommendations) which clarify key competition principles (*e.g.*, non-discrimination, excessive pricing) across the fixed, mobile and fixed/mobile sectors. A number of alternative methods are explored in this Report with a view to rendering “soft law” more binding, other than merely relying on the new dynamics of the competitive procedure developed between the Commission and NRAs.
- ⇒ In recognition of the fact that the telecoms industry has particular characteristics which cannot be adequately addressed by competition rules alone in the early stages of liberalisation, a continuing role for *ex ante* regulation is envisaged where the marketplace may have, or has, failed to deliver anticipated economic benefits. To this end:
- The consultation process should be used to identify “enduring bottlenecks” or “market failures” which should be addressed by future *ex ante* regulation implemented at national level. For example, to the extent that “markets” fail to materialise for certain types of access or termination services, regulatory intervention could be used to open those markets. This legislation would apply to all operators, without regard to whether they have market power, assuming they provide the networks or services which are subject to the recognised market failure.
 - The means by which such market failures or bottlenecks can be identified under a competition analysis would occur through the vehicle of the sectoral inquiry available to the Commission's Competition Directorate under Article 12 of Regulation 17/62.
 - Exemptions from such obligations could be available to individual operators where they could prove affirmatively to an NRA that the imposition of such regulatory obligations:
 - (i) results in disproportionate burdens on it; and
 - (ii) is unnecessary because it is not a position to influence the market with regard to the particular market conduct in question.

At Community level, legislation might even take the form of “block exemption” regulations where gateway issues are involved (taking into account that this option should be consistent with the policy orientation contained in the Commission's White Paper on Competition Policy) or the scope of existing legislation could be extended.

- ⇒ Most forms of consumer protection legislation addressing converged fixed/mobile services should apply in a symmetric manner (especially where information-related obligations are concerned), without regard to any particular standard of market power. Asymmetric obligations might be more appropriate where the measures in question have a clear effect on market structure (*e.g.*, carrier selection and number portability policies).
- ⇒ The increased use of self-regulation mechanisms in the industry should be explored, particularly where market power considerations are not relevant. Self-regulation measures may be particularly useful with respect to consumer protection issues.
- ⇒ The same consultation procedure which is used to justify regulatory intervention should be used to identify those situations where regulation should not be introduced (“forbearance”) or removed (“sunset clauses”). Regulatory policies should not be adopted in principle if they are not capable of being removed at a future point in time once the market has demonstrated that it can address such issues of its own accord.

Exhibit 3: Future Regulatory Model in a Converged Fixed/Mobile Environment



B. Consumer Expectations Affecting Regulatory Options

The scope and content of consumer protection rules governed by various provisions of the *ONP Voice Telephony Directive* often vary according to both the type of operators providing the service (e.g., fixed or mobile) and the market position of such operators (e.g., operators with significant market power). The Study Team considers, however, that the continued application of these criteria is questionable in light of fixed/mobile convergence. More specifically, fixed/mobile convergence requires that a number of specific consumer protection issue be addressed by regulators, namely:

Scope of Universal Service

The Study Team is of the view that there is no justification for including broadband access as part of universal service at this stage of the development of the market, nor is there a pressing need to have mobile communications included within the scope of universal service. There exist no compelling reasons to move from guaranteeing affordable any-to-any voice communications for all EU citizens to ensuring “anywhere-to-anywhere” connectivity. It seems much more appropriate, as mobile services increasingly substitute for fixed services, to include mobile operators as contributors to an overall universal service fund (if deemed to be necessary), as already occurs in a number of Member States. By the same token, the use of wireless technologies should also be taken into account in determining the net “cost” of providing universal service.

Directories

The Commission should ensure that Member States comply with the terms of Article 6(2) of the *ONP Voice Telephony Directive*, which provides that: (a) subscribers have the right to have an entry in publicly available directories; (b) directories of all subscribers who have not expressed opposition to being listed, including fixed, mobile and personal numbers, are available to users; (c) at least one telephone directory enquiry service covering all listed subscriber numbers is available to all users, including users of public pay telephones.

Location-based emergency services

To ensure the availability of location-based emergency services, amendments to the current regulatory framework may be needed, especially in the context of data protection rules. The question of who (i.e., the State authorities or the operators) should bear the cost of providing location-based emergency services needs to be addressed by the Commission and the Member States in consultation.

Unfair contract terms

Horizontal legislation at EC level already addresses the issue of the unfairness of contract terms, albeit in accordance with the principle of subsidiarity. Accordingly, the Study Team does not propose that the content of standard terms and conditions be regulated. However, it notes that consumer protection legislation should be effectively enforced. In our view, the protection of consumers could be significantly improved if the *ONP Voice Telephony Directive* were amended to require additional conditions in standard contracts to the effect that: (i) operators are obliged to

give consumers reasonable notice of any modifications to the standard terms, together with an explanation on how subscribers are bound by subsequent changes; and (ii) operators are obliged to describe not only the conditions for the renewal of contracts, but also the conditions for the termination of contracts.

Tariff unbundling

Given the relative likely importance of fixed/mobile tariff packages, it would be untenable to exempt mobile tariffs from the unbundling obligations contained in Article 17(4) of the *ONP Voice Telephony Directive*. However, such restrictions on unbundling should be explicitly qualified in the manner currently intimated by Recital 14 of the *ONP Voice Telephony Directive*, so that such unbundling obligations do not prevent the emergence of fixed/mobile packages that benefit consumers.

Disconnection

It should be ensured that there are limits on the extent to which all operators, whether fixed and mobile, can disconnect a subscriber. Disconnection rights should take into consideration the fact that the relationship between a telecoms service provider and a customer is contractual in nature, imposing rights and obligations on both parties. Moreover, industry and consumer consultants confirm that fierce competition in the mobile sector has ensured that responsiveness to consumer sensitivities is an increasingly relevant competitive factor. It can be anticipated that telecoms operators that have paid a high price to gain customers are unlikely to engage in abusive disconnections or to stop supplying their services.

Quality of Service (QoS)

Different consumer perceptions of the quality and price attributes of fixed and mobile services are likely to create consumer confusion in a fixed/mobile environment, unless effective ways are found to inform consumers of the key characteristics of bundled products and services. However, as the telecoms market moves from a monopoly model to an open market model, mandated QoS specifications become increasingly less relevant as consumers are able to assess the relative value of quality criteria against other criteria such as price.

Tariff transparency

A challenge for both regulators and consumer groups in a fixed/mobile environment is the promotion of greater tariff transparency, while at the same time being mindful not to stifle the introduction of innovative tariff packages of the kind that have thus far characterised the mobile sector. In striking this balance, the costs borne by industry in satisfying consumer protection requirements must not be disproportionate. In the view of the Study Team, the current European regulatory framework can be amended to give customers additional rights to information. In particular:

- The convergence of fixed and mobile service offerings highlights the need to harmonise regulation so that all operators are subject to a minimum set of obligations to provide their customers with tariff information, including an obligation to set out precisely their detailed tariffs in their standard terms and

conditions, to inform customers in advance of tariff changes and to provide consumers, at no charge, with their general terms and conditions.

- Consumers must be adequately informed of the different tariffs which attach to those communications (or parts thereof) as a result of those communications being transmitted over a fixed or a mobile network, as the case may be, because significant tariff differentials exist between fixed and mobile communications in most Member States.
- The introduction of AoC (Available on Command) services would be useful to consumers in their decisions, *i.e.*, whether to make a call on the basis of the pricing information immediately available to them (thereby avoiding confusion regarding the applicability of fixed or mobile tariffs for every given call).

Data protection

The Study Team is of the view that the current regulatory framework at Community level for data protection addresses adequately a broad range of data protection issues which cut across both the fixed and mobile sectors. However, a number of Member States have still to implement adequately and expeditiously the provisions of the two relevant Directives in this area.

In addition, the combined effect of mobility and the potential growth of Internet-related and e-commerce-related communications will hinder legal certainty relating to the governing law with respect to individual communications and the regulation of the full range of “data processors” involved in any given communication.

Consumer rights of due process and fair treatment

The Study Team believes that telecoms sector-specific NRAs are in the best position to function as an appellate body for operators' decisions relating to consumer complaints in the sector. In addition to their existing relationships with operators, these bodies are *de facto* already involved in consumer matters. Moreover, consumer complaints are a valuable source of information to NRAs. To the extent that it is deemed necessary for a consumer protection body to develop an identity distinct from the NRA, the Study Team believes that it may be advisable to create a panel of sector-specific expertise as part of a broader consumer complaints panel whose jurisdiction embraces a number of industrial sectors. NRAs should be able to issue guidelines and recommendations concerning the handling of consumer complaints by operators.

A formal complaints and appeals structure in which consumer representatives are given an “official voice” will increase their influence in defining regulatory policies. Such a role is especially important in relation to universal service and in defining what is essential for participation in the Information Society. In addition, consumer confidence in the regulatory process and the efficiency of “soft law” instruments will be enhanced as a result. Even if only engaged in an advisory role, consumer representatives could serve a valuable role in informing consumers of their rights, providing recourse in disputes and in the formulation of new technical standards.

C. *Regulatory Options Driven by Consumer Concerns*

There are a number of existing regulatory policies in the fixed sector which play a dual role of expanding consumer choice, while at the same time facilitating market entry by particular classes of new entrants. The two key policies with this dual character which will have an influence on the future form of regulation in a converged/mobile environment are number portability and carrier selection. It is the view of the Study Team that the creation of greater consumer choice through the introduction of such policies may mean that that more onerous forms access to mobile networks are unnecessary.

Number portability

Even though there is growing competition between mobile operators in most EU Member States and there exist relatively high levels of consumer churn across all Member States in the mobile sector, the Study Team takes the view that the increased choice made available to consumers, coupled with the principle of technology neutrality, justifies that the existing policy of mandated number portability in the fixed sector should be migrated to the mobile sector (*i.e.*, mobile-to-mobile portability). Moreover, the requirement that providers of fixed/mobile integrated packages should provide number portability to other operators not only increases consumer choice, but also serves as a means of ensuring that market power held by an incumbent fixed operator and its mobile affiliate is not abused.

The portability of numbers from fixed-to-mobile, and *vice versa*, should not be mandated at this stage, as it is likely to result in significant technical problems and is likely to create disproportionate costs on operators.

The introduction of number portability should not impose disproportionate costs on smaller operators. Consequently, smaller operators should be afforded the possibility of seeking an exemption from number portability requirements.

The Study Team's concerns that the porting of numbers across fixed, mobile and fixed/mobile offerings could result in tariff transparency concerns are largely overcome if Member States adopt a clear policy of identifying "personal" numbers with a clear numerical prefix which identifies that this number has a financial premium attached to it. The increased use of personal numbers might, over time, mean that a mandated policy of portability is no longer necessary. The issue then becomes one of whether the ability to port personal numbers should be mandated by regulation, an issue that falls outside the scope of this Report.

Carrier selection policies

The Study Team is of the view that it is only desirable to mandate call-by-call carrier selection for the mobile sector at present. Such a policy would increase consumer choice and have a positive competitive effect on international tariffs. Such an approach would also be desirable because: (i) it is **symmetric** with existing customer behaviour in the mobile sector (*i.e.*, it is consistent with the call-by-call selection of mobile operators outside a subscriber's home territory when roaming); (ii) it is a **proportional** regulatory response in light of the fact that a relatively small portion of all outgoing international calls are currently made from mobile phones when a

subscriber is in his or her home territory; (iii) it constitutes a much more **cost-effective** means of enhancing consumer choice than pre-selection, which can result in high costs of implementation on a mobile network; and (iv) **technically**, it is relatively easy for consumers to implement, given the automated programming functions available on mobile handsets. For these same reasons, it is the view of the Study Team that mandating a policy of pre-selection is arguably a disproportionate regulatory response.

The views of the Study Team on the extension of a carrier selection policy to the mobile sector do not, at this stage in the development of the industry, extend to national calls. This is because: (i) domestic calls on mobiles are generally regarded as being subject to a greater degree of price competition than international calls; (ii) the very high level of investments required of mobile operators for third generation mobile systems might be jeopardised if such a measure were mandated on existing operators; (iii) the network architecture of a mobile network is fundamentally different to a fixed network, resulting in no distinctions being drawn between local, trunk and long distance calls with a Member State. To the extent that regulators feel that consumer choice should prevail even on national calls, the Study Team would not advocate the use of a purely cost-based model for this type of indirect access unless the relevant national market is not sufficiently competitive.

As in the case of number portability, smaller operators should be afforded the possibility of an exemption from a mandated policy of call-by-call selection if it can be shown that it would result in a disproportionate financial burden being borne by them in order to satisfy the terms of the obligation.

D. Licensing Issues

The existence of inconsistent licensing requirements which cut across the fixed and mobile sectors might impede the entry of operators into the emerging converged fixed/mobile sector. One of these obstacles to converged service provision has been removed in a number of Member States, whose licensing frameworks do not restrict licensed operators from providing services over fixed or mobile delivery platforms. The Study Team endorses this approach. Bearing in mind that spectrum continues to be a scarce resource, however, it is also recommended that the licensing of spectrum be disassociated from the licensing of services. Such an approach would assist in avoiding any undue discrimination against fixed telecoms operators competing against GSM operators which also operate in fixed telecoms markets.

In addition, the Study Team recommends that:

- Current restrictions on non-GSM network operators from establishing GSM home base stations should be reviewed in light of the development of fixed/mobile converged services.
- It will be necessary to determine whether there are any technical justifications to reserve GSM 1800 bands solely for mobile communications.
- The importance of business communications, and the need for business customers to obtain both fixed and mobile service offerings, necessitates that the licensing requirements for

Closed User Group (*i.e.*, non-public) communications be treated in a comparable manner in both sectors (*i.e.*, subject to a general authorisation).

- Differences which continue to exist at Member State level regarding the licensing of different mobile technologies should be reviewed, given their potential to retard the growth of converged fixed/mobile services.

E. Access Issues

The provision of fixed/mobile converged services by integrated companies, or by operators who resell part of the converged service portfolio or provide it by means of an indirect access relationship with another operator, means that a broad range of new access issues will inevitably need to be addressed in a future regulatory environment. Such issues have the potential to significantly skew the way in which markets develop or evolve, through their impact on investment incentives and "build or buy" decision.

Unbundled local loop

The ability of any mobile operator to develop competitive fixed/mobile converged offers is ultimately dependent on their ability to obtain access to the fixed incumbent's unbundled local loop. Consequently, in order to ensure the equality of opportunity to provide fixed/mobile converged offers through the availability of a local loop unbundling (LLU) policy, the Commission can take action with respect to LLU policy by issuing Recommendations, Notices, Guidelines, or other instruments of "soft" law. In the view of the Study Team, the introduction of soft law on this issue is necessary because:

- legislative action before the year 2002 may be difficult to achieve;
- the technical complexities of LLU are best be dealt with at local level, consistent with the principle of subsidiarity;
- there is a need for a co-ordinated approach at Community level, in order to prevent wide discrepancies between Member States developing LLU policies;
- it is important to define a set of criteria according to which NRAs would be required to mandate LLU (*e.g.*, level of competition in the local loop, measured in terms of the fixed, mobile, and/or fixed/mobile converged market);
- it will be necessary to provide guidelines regarding the forms of LLU to be implemented, including the pricing formula, taking into account the available technical possibilities of access and the level of competition in the relevant local access markets.

LLU should in principle be achieved in such a manner so as not to create disincentives for investment in alternative local access networks. This may require, for example, the introduction of "sunset" provisions which can be clawed back upon satisfaction of pro-competitive criteria, so that LLU can then occur on the basis of commercial negotiations. In addition, the clawback of

regulation should also rely on the satisfaction of qualitative competitive criteria (*e.g.*, similar to the manner in which “Competitive Checklist” is used in the *United States*).

Competitive issues in the mobile market affecting access requests

The Study Team takes the view that preference should be given to parties being able to negotiate the terms of access to mobile networks freely and on commercial terms.

Although not immune from all criticism, in the view of the Study Team, a “retail minus” formula is arguably the most appropriate charging formula for determining the price of access to mobile networks in the absence of the parties being able to reach commercial agreement. This is because such a formula: (i) is sensitive to “free rider” arguments raised by network operators; (ii) does not act as a disincentive for mobile operators to expand their network investments; (iii) does not require excessive and further regulatory intervention at the retail pricing level; and (iv) is the least disruptive alternative to the existing regulatory environment. Access charges to mobile networks at purely cost-based rates would ignore the competitive conditions under which network investment has taken place in the mobile sector and the relative immaturity of the sector compared to the fixed sector.

In the view of the Study Team, the level of competitiveness of mobile markets throughout the EU will be an essential element in determining whether, and the extent to which, access to mobile networks should be mandated. The collective impact of market and regulatory developments should be taken fully into account when determining critical access issues. For example:

- The future greater regulatory competitiveness of **international roaming** will be an important element in the gradual development of a pan-European mobile sector, both in terms of network and service provision. As such, it has the potential to play a key role in the ability of mobile operators from one Member State exerting competitive pressure on mobile operators in other Member States (through the potential to provide “local competition” while roaming internationally).
- In the view of the Study Team, the availability of **national roaming** can assist new mobile entrants greatly by allowing them to obtain access to the broadest possible customer base, while being given the opportunity to roll out their networks over a relatively short period of time. This form of entry assistance greatly increases the overall competitiveness of the mobile sector in any given Member State market. There is sufficient economic evidence, however, to suggest that, in markets of three or four existing mobile operators, there is already sufficient commercial incentive for at least some of these operators to offer national roaming to new entrants without the need for regulatory intervention mandating such practices (*e.g.*, as concluded recently in Australia in a regulatory hearing). Operators should therefore be encouraged to reach commercial agreement on national roaming without NRA involvement.
- The availability of “**mobile wash**” practices (*i.e.*, the ability of a local operator to use the international roaming agreement of a foreign mobile operator in order to achieve national roaming) raises the possibility that the number of national mobile operators available in any

given Member State could be increased. This could have a positive effect on overall competitiveness. Regulators should exercise caution in mandating the use of the mobile wash technique, however, as there is growing evidence that market actors will increasingly be able to negotiate commercial agreements which give effect to the practice.

- The Study Team does not believe that it is necessary to mandate access for VNOs (Virtual Network Operators) to mobile networks. In particular, the Study Team considers, given that the level of existing competition among mobile operators is relatively high, that the mandating of VNO access would be likely to dampen further investment in mobile networks – especially as regards third generation mobile systems – and that such a requirement would be particularly burdensome on smaller mobile operators. In addition, the Study Team notes that, at this stage of the development of the mobile industry in the EU, this view can also be vindicated on other grounds, namely:
 - **Commercial Practice:** There is an increasing number of instances of mobile operators having granted access to their networks without the need for direct regulatory intervention. In the *United Kingdom*, for example, Virgin Mobile will use the One2One network to provide its new mobile services. Through the use of the “mobile wash” technique, additional operators have been introduced in *Germany* and *Finland*. Similarly, Herzog Telecom AG signed in August 1999 an agreement to distribute the services of Viag Interkom.
 - **Technical Problems:** Although still the subject of debate, there is growing evidence to suggest that, because mobile networks are so traffic-sensitive, it is highly unlikely that they could satisfy all requests for network access from potential VNOs. Allowing all operators to become VNOs in theory therefore would, at the very least, have disproportionate negative side-effects on network security and service quality. However, because the current SMP non-discrimination obligations require that an SMP operator not refuse to grant access to any particular licensed operator or range of licensed operators, existing regulation suggests that the mandating of VNOs can only be on an “all or nothing” basis.
 - **Costs:** It is unclear whether the long-run incremental costs of terminating a call on a mobile network should include spectrum value (as an opportunity cost).

Fixed-mobile termination charges

Mobile termination charges are coming under increasing pressure, whether through the direct application of competition rules, or in the implementation of the cost-orientation principle brought about by an increasing number of mobile operators being classified as having SMP in their respective “national market[s] for interconnection”. The Study Team is of the view that increasing competitive pressure will be brought to bear on mobile termination rates. In the fixed sector, the regulation of termination rates for dominant operators is necessary to the extent that the fixed line incumbent continues to have a very high market share for the termination and origination of calls. To the extent that commercial pressures do not produce tangible competitive results in lowering termination charges, the Commission would be justified to examine whether

call termination on mobile networks can also be characterised as a “bottleneck” or “market failure” in a manner similar to that in the fixed sector.

Spectrum

To the extent that the number of mobile operators is limited because of spectrum scarcity, it must be acknowledged that this is a regulatory barrier created by government intervention. If this intervention creates an insurmountable entry barrier, the entry barrier should be overcome by a more flexible spectrum allocation and valuation policy, rather than access being regulated to “manage” the spectrum shortage. This can be accomplished through a variety of measures, including:

- the development of an efficient means of allocating spectrum to its most efficient use;
- the development of a policy of secondary trading in spectrum, which would greatly facilitate market entry and exit; and
- implementing flexible spectrum licensing policies that permit innovative uses of wireless services, leading to wireless Internet applications.

F. Identifying Relevant Markets and Measuring Market Power

The relevant markets defined for regulatory purposes are currently distinct from those identified for competition law purposes. This is because markets defined for the purposes of *ex ante* regulation have been based on particular forms of end-to-end communications rather than on individual economic markets defined under EC competition rules. In the evolution to a fully competitive market, the Study Team believes that the competition-based approach to market definition is most appropriate.

Network elements

The underlying technology of telecommunications transmission platforms (namely, fibre and copper cables; radio links; and satellite links) determines to a significant degree whether these platforms can be viewed as true substitutes, which in turn determines whether they fall within the same relevant product market. In this context, there is a disequilibrium between the types of network markets which exist in the fixed sector and the types of network “markets” which may exist in the mobile sector. Consequently, it may not be appropriate to apply the concept of “technology neutrality” across the fixed and the mobile sectors without certain qualifications.

There are compelling grounds to support the finding that there exist distinct markets for termination, origination and transport (transit). Termination is the service most prone to market failure; origination is highly competitive in certain Member States and potentially highly competitive in others; and transport services are likely to be highly competitive. These assumptions should provide guidance regarding the shape of a future regulatory framework. However, the termination/origination distinction may become less appropriate in a future environment characterised by an increasing number of on-line communications, unbundled local

loops and “bill and keep” arrangements between operators (*e.g.*, “peering” relationships in the Internet world).

Service elements

The case for the application of the technology neutrality principle across both the fixed and mobile markets appears to be much stronger at the service level. Moreover, the differences which currently exist between the fixed and mobile sectors are likely to continue to exist in the short to medium term, and will be reflected in terms of: (i) the price premium applicable to mobile communications; (ii) the likely migration of voice services to the mobile sector, whereas heavy content and data transfers will be drawn primarily to the fixed sector; and (iii) the lack of full substitution between fixed and mobile services.

From the supply side, there will be an ever-increasing blurring of the distinction between voice and data, so that the two elements will be seen to constitute part of the same “communications” or “connectivity” market. Distance will quickly cease to be a defining characteristic of service markets and will be increasingly perceived only as a relevant element of tariffing policy.

Geographic markets

Unlike the fixed sector, which has been characterised by highly fragmented geographic markets conditioned by the types of wholesale or retail customers being supplied (*e.g.*, international markets for global telecoms services to multinationals, regional markets for carriers’ carrier services, bilateral country routes for international voice calls, national markets for intra-Member State calls) mobile markets continue to remain stubbornly national in character. Real competition between operators occurs at the national level. Similarly, mass market customers see their needs as being fundamentally national in scope.

The relevant geographic market for mobile communications services may, however, assume a regional or pan-European scope in the future to the extent that a number of mobile operators are integrated into separate corporate groupings. This process, to the extent that it results in the dismantling of international roaming charges within the newly formed group, will have the potential to provide European consumers with a truly “European” mobile service, especially as regards business users (*e.g.*, the logical extension of existing Virtual Private Networks (VPNs) across Member States in the fixed context is already spreading quickly to the mobile sector).

Alternative tests for determining market power

The Study Team is of the view that regulatory triggers based on market shares which are too low might of themselves have distortive effects on affected markets. The proliferation of multiple market power standards that presently trigger regulatory intervention should therefore be avoided.

In the view of the Study Team, abusive market behaviour can be best addressed by the application of legal standards developed under general competition rules (even if this requires them to be specifically interpreted in light of unique sector-specific characteristics). Accordingly, the legal standard under general competition rules – dominance – should govern the regulation of anti-competitive behaviour in a future regulatory model.

On the other hand, existing regulatory triggers are arguably not effective in addressing structural competitive concerns in telecoms markets. Issues which fundamentally relate to the effects of market structure should be dealt with by the concept of a “bottleneck” or a “market failure”. To this end, the Commission should consider whether the existing concept of SMP should be eliminated altogether. In the alternative, SMP could be used to establish behavioural standards geared only towards the promotion of market transparency in a converged environment.

G. The Application of Competition Rules in a Fixed/Mobile Converged Environment

To the extent that mobile operators provide services which are partial or actual substitutes for those provided over fixed networks, the key issue is whether market power can, on the basis of existing case-law and administrative practice, be identified with respect to any individual operator or group of operators. To the extent that no dominance can be identified in such an environment, it is arguable that **market distortions** from industry structure may not be capable of being resolved through the application of competition rules alone.

“Associated markets” dominance

The close associative links between the fixed and mobile markets suggest that the reasoning in the *Tetra Pak* case can be used to address the anti-competitive conduct of a dominant firm whose interests cut across the fixed and mobile sectors, especially where dominance in the fixed sector results in the leveraging of that market power to provide converged or integrated services. The *Tetra Pak* doctrine may, however, be of more limited application in a fully converged environment in which fixed and mobile networks and services are part of a single, unified product market.

“Double dominance”

Because mobile operators do not enjoy “special or exclusive rights” within the meaning of that expression under Article 86(1) EC, it is arguable that the use of the “double dominance” approach, which has characterised the Commission's approach towards fixed line incumbents and their affiliated cable operations, has less relevance in the context of fixed and mobile networks. Moreover, there appears to be less economic incentive for operators in the fixed and mobile sectors to develop the arrangements that generate the types of conflicts of interest which exist when fixed and cable TV operations are operated and controlled by a single operator. In any event, the range of structural *ex ante* competition law responses designed to identify or make more transparent potential abusive practices appears to provide an appropriate and proportionate regulatory tool to prevent abusive practices when a situation comparable to “double dominance” materialises.

Applying the “essential facilities” doctrine

In light of the Judgment of the European Court of Justice in *Oscar Bronner v. Mediaprint*, it has been argued by various commentators that the “essential facilities” doctrine may be more difficult to apply in the future in the communications sector. It is foreseeable that *ex ante* sector specific regulation may continue to be necessary to regulate certain types of access issues, as competition rules may not always produce satisfactory results of themselves. To the extent that a number of key observations of the Advocate General in *Oscar Bronner v. Mediaprint* are

followed or amplified in the future, the doctrine of essential facilities may still play an important role in the sector. In particular, in the fixed/mobile context:

- it is conceivable that an operator with a “*genuine stranglehold on a related market*” can have control of an essential facility to which access is sought; and
- incumbent fixed operators which have benefited from a long term monopoly and which have obtained funding from the State during that time might be considered to have control of an “essential facility”.

To all intents and purposes, case-law suggests that an “essential facility” exists if either all competitors are reliant upon its provision from a very limited source of providers (usually only one) or where there is no real pattern of supply or demand for the access sought which has developed (*i.e.*, it can be described as a “non-market” or a classic instance of a market failure or “bottleneck”). In such situations, there may be a clear justification for maintaining *ex ante* regulation in relation to a clearly designated class of telecoms operators, if certain objective circumstances are satisfied. In the view of the Study Team, sector-specific regulation could legitimately apply to a range of situations prone to market failure, even where they are not operated or controlled by any single market actor with dominance on the relevant market affected by the particular interconnection or access request. The Study Team proposes that these situations, falling short of the standard for an essential facility, could amount to “bottleneck” facilities or be evidence of a particular instance of “market failure”, consistent with the regulatory model put forward in this Report.

Collective dominance and oligopolistic markets

Traditionally, Article 81 EC has been considered to be an inadequate enforcement tool to address anti-competitive issues arising from oligopolistic market structures (*e.g.*, collective dominance). Until very recently, there was considered to be an “enforcement gap” in the extent to which Articles 81 and 82 EC could address particular types of market failure in concentrated parts of the communications sector. Recent case-law in the context of mergers suggests, however, that the traditional evidentiary burdens for establishing collective dominance have been partially dismantled because:

- there are no formal “links” which need to be established between competitors to establish collective dominance (*Gencor* case); and
- a merger creating an oligopoly in an apparently historically dynamic consumer market may be deemed to be anti-competitive if certain future market dynamics are presumed likely to occur (*Airtours* case).

The net effect of recent cases may be that concentrated markets in “network” industries may fall foul of this expansive view of collective dominance under the *Merger Regulation*. Moreover, it appears that the logic of those cases might also be extended to situations under Article 82 EC.

The Study Team does not consider that the application of the doctrine of collective dominance, in its developing form, is to be appropriate in as dynamic a sector as communications. Mere

pricing parallelism in a concentrated but expanding market need not be indicative of collusion. Nor does high pricing in a part of the value chain by all market actors amount to tacit collusion. Such conduct may, more appropriately, be the result of transient or residual market failure or the existence of some form of bottleneck particular to the industry. In these circumstances, it would be more appropriate to deal with a lack of price elasticity or high prices by regulatory intervention addressed at such a market failure, rather than by relying on the doctrine of collective dominance.

H. Potential Abusive Practices and Structural Remedies

The offering of fixed/mobile integrated services will create the possibility for abusive practices through the leveraging by fixed incumbent operators of their dominance into the mobile sector. The range of potential abuses may require varied responses under competition rules.

Anticipated anti-competitive behaviour

An incumbent operator can be expected to try to dominate a converged fixed/mobile market at the services level. Hence, the primary focus of regulation in the transition to a converged fixed/mobile market must be on the restraint of cross-market leverage. There appear to be a number of mechanisms for cross-market leverage, including but not restricted to:

- cross-subsidisation of a packaged converged fixed/mobile product from local fixed network revenue streams or through taking advantage of different termination rates;
- use of customer information from the local fixed network to cross-market packaged fixed/mobile or mobile services;
- tied sales of fixed and mobile services;
- preferential interconnection arrangements; and
- selective predatory pricing strategies which target different segments of the fixed/mobile market.

Most of the practices identified above can be addressed by traditional competition rules, which may need to be re-evaluated in the light of the blurring of market definitions brought about by fixed/mobile convergence. A number of other issues present particular difficulties of competition enforcement strategy in a fixed/mobile environment, namely:

- The possible fragmentation of voice over mobile and high speed data over fixed networks raises the possibility that incumbent fixed operators may be keen to extract maximum value from Internet usage. This might be achieved, however, at the expense of interconnecting operators. It is important for consumers that access to the Internet is not overpriced because strategic pricing behaviour likely to be favoured by dominant fixed operators with mobile affiliates is inadvertently justified by the application of the “non-discrimination” regulatory obligations in interconnection contracts which conform to the strict terms of the *Interconnection Directive*. In the absence of the introduction of demand-based wholesale prices, wholesale access pricing for the Internet might result in competitive distortions

brought about by a “price squeeze” through the application of this regulatory non-discrimination principle (the application of the more flexible test of “discrimination” understood by Article 82EC could avoid this potential problem).

- Future convergence in the longer term at the network level means that the number of delivery platforms offering all communications services may be limited over time to a relatively small number. This raises a number of potential competition concerns under Article 81 EC (express or tacit collusion) or Article 82 EC (collective dominance), depending on the identity of the market actors whose fixed and mobile networks converge. The consolidation of networks may mean that there is scope for *ex ante* regulation in the future in the event that those operators seeking access to such converged networks are faced with bottlenecks.
- In a fixed/mobile converged environment, there is a growing need to be able to apply a more strategic behavioural approach to the issue of predatory pricing, instead of the formalistic approach which has been applied to date. A more realistic appraisal of strategic market behaviour is therefore required which identifies predatory tactics and acknowledges that such tactics are “rational” from an economic point of view. The Study Team recommends that the scope of concepts such as predatory pricing and other key strategic behavioural issues affecting the communications sector be clarified in “soft” law.

***Ex ante* structural measures**

In determining the extent of regulatory intervention necessary to ensure that the offering of fixed/mobile service packages does not foreclose competitors and produce other anti-competitive consequences, the types of structural safeguards which can be imposed to ensure that market power in one market or market segment is not leveraged into another are conditioned for the Study team by a number of guiding principles, namely:

- Foreclosure concerns stem primarily from integrated packages offered by fixed incumbents and their mobile operations.
- Despite identical concerns among EU and US regulators regarding the pursuit of technology neutral policies, US regulators continue to recognise that the competitive structure of mobile markets justifies a relatively “light touch” regulatory approach.

Structural measures which may be sufficient to assist regulators in detecting and preventing anti-competitive practices in a fixed/mobile environment include:

- obligations on dominant fixed operators to establish structurally separate mobile operators;
- separation of databases;
- separation of marketing and management personnel;
- non-discriminatory access to interfaces and relevant back office systems;

- arms' length dealings not only on issues of price, but also with respect to technical operational matters;
- arms' length dealing obligations between affiliated fixed and mobile operators; and
- the prevention of mobile operators from imposing resale restrictions.

A growing number of European mobile operators affiliated with fixed line incumbents have already begun to implement such measures as a means of avoiding regulatory concerns regarding their integrated service offerings.

“Gateway” Issues

The increased functionality of mobile handsets raises the issue of whether they will have the potential of assuming the role of a ‘gateway’ to a broad range of Information Society services. If fixed/mobile convergence leads to a situation where the restrictive practices of operators controlling essential technologies for handsets effectively reduce overall competition and innovation, it is arguable that the introduction of a “light” form of *ex-ante* regulatory regime would be a more effective means of regulating digital gateway issues than *ex post* competition rules. An *ex-ante* approach could also ensure that public interest objectives are clearly defined in a precise framework and would provide legal certainty for investors. This would leave room for case-by-case application of the competition rules only to “grey area” cases.

Exclusive Relationships

The limited number of mobile operators compared to fixed operators raises the question of whether mobile operators should be permitted to enter into exclusive relationships with fixed operators to provide fixed/mobile converged services and, if so, on what terms and conditions. The nature of strategic relationships in a fixed/mobile environment will influence, and be influenced by, regulatory policy. For example, an industry structure characterised by the provision of fixed/mobile services by only a handful of mobile operators enjoying exclusive relationships with independent fixed operators will be the subject of serious scrutiny under competition rules and will need to be analysed on a case-by-case basis.

Exclusivity is most likely to be sought in the context of fixed operators providing converged services with their mobile affiliates. Exclusive relationships between these market actors will also trigger regulatory pressure to have access provided to those networks on cost-based terms. On the other hand, the Study Team does not perceive any particular commercial benefit which would be derived from non-affiliated mobile operators seeking to provide converged services exclusively with fixed incumbent operators. On the contrary, maximum revenue generation would appear to be derived from mobile operators entering into numerous non-exclusive relationships with multiple operators from the fixed sector.

Squire Sanders & Dempsey L.L.P./Brussels
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