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Markets Susceptible to *ex ante* Regulation: Methodology and Commission Recommendation (*)

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Abstract: The EU regulatory framework for electronic communications services distinguishes between markets that are susceptible to *ex ante* regulation and those that are subject to competition law alone. The paper lays out the methodology for identifying relevant markets that may be considered for *ex ante* regulation. It also provides a summary of the relevant markets that should be susceptible to *ex ante* regulation based on an analysis of conditions likely to prevail in a 'representative' member state. The paper finally addresses the role of the European Commission, and in particular its Relevant Markets Recommendation, as a means of providing guidance to NRAs.

Key words: EU regulatory framework, susceptibility to *ex ante* regulation, 3-criteria test, Relevant Markets Recommendation, market definition and modified Greenfield approach.

The EU regulatory framework for electronic communications services distinguishes between markets that are susceptible to *ex ante* regulation and those that are subject to competition law alone. The set of markets that are considered for *ex ante* regulation will change over time as new technologies are implemented, network architectures change, costs decrease, old products disappear and new ones are launched. A periodic review of the set of markets is required.

The paper lays out the methodology of identifying the relevant markets susceptible to *ex ante* regulation. The methodology is primarily guided by the objective to promote competition through remedying market failures created by a substantial degree of market power, where competition law alone is not sufficient. It is also consistent with the objective of applying *ex ante* regulation only in cases where there is a significant benefit to end-users that

(*) The paper benefits from work carried out with Martin Cave and Tommaso Valletti for the Economic Experts Report. Cf. CAVE M., STUMPF U. & VALLETTI T., *A Review of Certain Markets Included in the Commission's Recommendation on Relevant Markets Subject to ex ante Regulation*, an Independent Report, Brussels, June 2006. The two first sections of the paper draw partially on the Report. Remaining errors are the author's sole responsibility.

cannot be achieved under competition law alone. The paper also summarises the results of applying the methodology to market conditions likely to prevail in a "representative" member state. The list of markets proposed in the Economic Experts Report is also compared with that proposed by the Commission in the draft revised Recommendation¹. Finally, the role of the European Commission is examined, and in particular its Relevant Markets Recommendation. Since the Recommendation is based on conditions prevailing in a "representative" member state, it may not provide the right guidance in all cases. The paper concludes by a number of suggestions as to how this problem can be dealt with.

■ Identifying relevant markets susceptible to *ex ante* regulation

The methodology of identifying relevant markets susceptible to *ex ante* regulation must be guided by clear objectives. The primary objective of *ex ante* regulation is to promote competition by addressing high levels of market power in cases where competition law alone is not sufficient. Ultimately, any *ex ante* regulation should provide benefits for end-users by making retail markets more competitive. The benefit to end-users of any such regulatory intervention should be higher than the costs associated with the regulation.

Where *ex ante* regulation is justified, it should be limited to the minimum extent necessary to remedy the competition problems. *Ex ante* regulation should target the source(s) of the competition problems in the value chain. It should be imposed where the least replicable assets are found², i.e.,

¹ For the initial Recommendation see Commission Recommendation of 11/02/2003 on Relevant Product and Service Markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services, Brussels, 11/02/2003, C(2003)497. At the time of writing this paper, the revised Recommendation was still in public consultation. See Commission Staff Working Document: Public Consultation on a Draft Commission Recommendation On Relevant Product and Service Markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services, Brussels, June 28th 2006.

² Another approach proposed in the Economic Experts Report is to start with the functionally least inclusive asset.

usually at the deepest possible level of access, and only extended downstream if *ex ante* regulation of the upstream market(s) is not sufficient to remedy the market failure.

Defining relevant markets

The EU regulatory framework addresses competition failures in economic markets, i.e., relevant markets defined on the basis of demand and supply side substitutability. It is instructive to imagine each value chain giving rise to a sequence of relevant retail and wholesale markets, where a relevant wholesale market can also be related to more than one value chain³. It is not our objective to go through the methodology of market definition, which is treated elsewhere in depth⁴; rather we will highlight a number of issues that are specific to market definition in the electronic communications sector.

Relevant retail markets

Clustering

Economies of scope on the supply side and transactional economies on the demand side provide a strong incentive for suppliers and customers to offer and purchase services as a bundle. Some form of bundling is the rule rather than the exception. Fixed narrowband access is often combined with fixed calls, and mobile access is usually bundled with mobile calls. Fixed broadband access is bundled with internet alone ("high-speed internet access"), or together with internet and voice services (termed "double-play") or together with TV, internet and voice services (termed "triple-play").

However, even although bundles of services are traded, rather than individual components, this does not necessarily justify defining a relevant market for a comprehensive cluster of services. Customers who purchase a bundle of services from a single supplier may switch to purchasing individual components from several suppliers if the price of the bundle were increased. If customers react strongly enough in that way, the bundle will not create a

³ Unbundled local loops, for example, are an input for fixed narrowband and fixed broadband access and services.

⁴ See, for instance, *Commission Guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services* (2002/C 165/03).

separate relevant market in the competition law sense; instead the components will be part of distinct relevant markets.

The first issue here is whether customers can actually purchase the components separately and from different suppliers. In the absence of "unbundling requirements" at the retail level, operators will usually bundle access with services provided over the connection. This is obviously the case for mobile services, where mobile operators offer mobile access together with calls and SMS, as well as international roaming. The relevant market is a broader cluster market⁵. This not the case for fixed telephony services where incumbents are obliged to offer carrier selection (CS) to end-users as well as wholesale call origination to alternative network operators to enable CS calls. Furthermore, incumbents usually also have to offer DSL connections as a stand-alone product and separate from internet, voice or TV services.

Where components can be purchased separately, a second issue is whether customers would switch in significant numbers from the bundle to purchasing the components in case of a price increase for the bundle. A Hypothetical Monopolist Test is likely to show that many bundles do not give rise to a distinct relevant market: if the price of a fixed telephony bundle combining access and calls were increased above its competitive level, customers would switch to buying access and calls from separate suppliers. Fixed narrowband access and calls obviously are separate relevant markets. Similarly, if the price of a multi-play bundle were increased, customers would switch to purchasing the individual components from several suppliers. Multi-play products are unlikely to constitute new relevant markets; rather the components are likely to be part of the markets for voice, internet and TV services. It is worth noting that this may not hold for multi-play bundles where terminal devices and networks are fully integrated (for example, for fixed-mobile integrated services).

Two-sided platforms

The scope of fixed and mobile services clusters is also limited by interdependencies among users. When defining relevant markets, the two-sided nature of electronic communications platforms which involves callers

⁵ Note that incoming mobile calls are not part of the mobile services cluster nor are incoming fixed calls part of the fixed services cluster. This is addressed further below.

and receivers has to be taken into account⁶. It is not always possible to examine price effects on one side of the platform without considering the effect on the other side. Depending on the billing arrangement, i.e., whether the calling party or the receiving party or both pay for a call, competitive constraints on the originating or terminating provider of the call can differ.

Let us first consider outgoing calls. Due to Calling Party Pays (CPP), it is generally the calling party, which pays the full charge of the call and the receiver typically accepts all calls. The receiver will only be negatively affected if the sender makes less and shorter calls as a result of an increase in the price of outgoing calls, but this effect may be difficult to discern by receivers. The behaviour of receivers is unlikely to impose constraints on the pricing of outgoing calls. Hence, outgoing calls to end-users can be analysed independently from the receiving side.

Under CPP call termination is purchased on a wholesale basis by the originating operator from the terminating operator. The wholesale termination price is incorporated into the retail price charged by the originating operator to the calling customer. One may say that under CPP the terminating operator charges the price for the incoming call (although indirectly) to the caller. CPP leads to an externality and monopolisation problem for incoming off-net calls that must be analysed separately from outgoing calls (and access).

The case of on-net calls is fundamentally different from off-net calls. Here an operator charges the price of incoming calls to its own subscribers. In case of on-net calls the platform is internalising externalities between the calling and receiving side. The presence of alternative networks can constrain the ability of an operator to raise the price of incoming on-net calls and create competitive conditions that are different from incoming off-net calls. This is why incoming on-net calls should be analysed separately from incoming off-net calls, but may be treated together with outgoing calls.

Chain substitution

Electronic communications services are provided to end-users in a range of service qualities and price options. In particular, where competition is

⁶ See also VALETTI T. (2006), "Mobile Call Termination: a Tale of Two-Sided Markets", *COMMUNICATIONS & STRATEGIES*, no. 61, 1st Q. 2006, pp. 61-77. For a recent survey on the theory of two-sided markets, see ROCHET J.-C. & TIROLE J., "Two-Sided Markets: A Progress Report", 2005.

intense, product and price differentiation is often such that the product and price options offered give rise to a chain of substitution. Even though there is no substitutability between high-quality and low-quality products, or between high-user and low-user price plans, chain substitution across the range of quality and tariff options is often strong enough to justify the definition of a single relevant market.

This is usually the case for mobile narrowband services (ranging from prepaid light-user tariffs to contract high-user tariffs). Another example is fixed national calls, where optional tariffs offer lower per-minute rates for an extra fixed monthly charge, usually creating chain substitution across the range of tariff options.

There is also likely to be chain substitution across the range of transmission speeds for internet services or for bandwidths of retail leased lines. It is worth noting, however, that there seems to be a gap in the chain of substitution between dial-up narrowband internet and broadband internet because of differences in the nature of access provided (in particular because of the "always on" feature of the latter). Similarly, for retail leased lines, the chain seems to be interrupted at 2 Mbs or 10 Mbs. Pricing evidence shows that it is not economically efficient to use multiples of lower capacity leased lines as "building blocks" to respond to a price increase for higher bandwidth leased lines. The break is related to differences in competitive conditions: while lower capacity leased lines are predominantly provided over copper access networks giving the fixed incumbent an advantage, higher capacity leased lines are provided over fibre networks where there is also some investment by alternative operators.

Relevant wholesale markets

Substitution between wholesale services provided at different levels of access

As a general point, wholesale services at two adjacent levels of access are usually not short-run demand or supply side substitutes. In other words, there is no chain substitution across the value chain, either downwards or upwards.

Switching from higher to lower level access necessitates some form of network build-out. Given the economies of scale, scope and density, as well as the sunk costs involved in network build-out, an operator is unlikely to switch to a lower level of access within a short period of 6-12 months purely

as a result of a price increase for the higher level access. Of course, operators build out networks and migrate to deeper levels of access, but only once they have reached the necessary critical scale in terms of number and density of customers and volume of traffic. The prime driver for network build-out is growth in customer bases and traffic volume, which allows the exploitation of economies of scale and scope when the operator itself is providing the input.

Operators would also not switch from a lower level to a higher level of access given the stranded investment. Clearly, a price increase for a lower level access service is unlikely to make an operator "build" back its network in the short or medium run.

As a result, there is a sequence of distinct wholesale markets across the value chain. For example, for broadband, the sequence is national – regional – local (e.g. DSLAM) broadband access – ULL. Similarly, for fixed narrowband calls, the sequence is national – regional – local call origination – ULL.

Notional wholesale markets

Wholesale remedies can be imposed on operators which have SMP in a wholesale market susceptible to *ex ante* regulation. This creates a conceptual problem in cases where access to a particular wholesale service is considered to be necessary to ensure competition, but this service is not yet provided. A commercial wholesale product may not be made available in the absence of *ex ante* regulation, because the dominant firm(s) may have no interest in providing new entrants with an input needed to compete. For example, it is questionable whether incumbents would provide wholesale access to ULLs or wholesale fixed call origination absent *ex ante* regulation. In a number of member states, incumbents would not have provided wholesale broadband access without regulatory intervention. Similarly, jointly dominant firms may tacitly collude by not providing wholesale services. For example, it has been argued that the leading mobile operators in some countries may tacitly collude in not providing wholesale access and call origination on their networks. This raises the question whether a notional wholesale market can be constructed in countries, where wholesale services have not been mandated in the past and commercial wholesale transactions do not exist.

The market definition exercise has to be based on a Greenfield approach, i.e., carried out under the assumption of competitive products and

prices and absence of *ex ante* regulation through the SMP mechanism for the wholesale service in question. It is therefore necessary to establish whether, in such circumstances, commercial wholesale offerings would have developed. Under competitive conditions, the upstream (network) and downstream (retail) divisions of vertically integrated firms would earn a normal return. If a new entrant (non-integrated) downstream operator were more cost efficient than the downstream arm of the integrated operator(s), or if it could market retail services to a wider range of customers, it would request a wholesale product from the vertically integrated operator(s). Given that the new entrant would be able to offer terms that would increase the vertically integrated operator's return, it may be able to reach a commercial agreement for the wholesale service. It can therefore be argued that under competitive conditions, a vertically integrated operator would have an incentive to offer a wholesale product to third parties. It is worth noting that this result holds only if the new entrant has some sort of advantage over the incumbent's downstream arm and that the incumbent's economies from a vertically integrated value chain do not outweigh this advantage.

If commercial wholesale offerings were likely to develop under competitive market conditions, it would be justified to construct a notional relevant wholesale market and include the self provided inputs of existing operators. For example, where commercial wholesale broadband access services do not exist, the (notional) wholesale broadband access market may include the self-provided bitstream of the incumbent and of rival cable operators; or, in the absence of commercial wholesale mobile access and call origination services, the relevant wholesale market may include the self originated calls of licensed mobile operators.

Relevance of retail demand substitution

Where the incumbent is the only provider of wholesale services, and where neither wholesale demand nor wholesale supply substitution puts a competitive constraint on the pricing behaviour, there may still be an indirect pricing constraint from the retail level. A hypothetical monopolist test would be carried out under the assumption of competitive products and prices in the value chain. Retail prices can be regarded as being comprised of a number of input costs. If the price of a wholesale input is raised, the prices of the retail products that are based on the wholesale input increase as well. Retail customers may switch to other retail products based on self supplied inputs. For example, consumers may substitute broadband internet access provided by the incumbent or a cable operator for a product of a wholesale broadband access (WBA) based competitor, whose retail price rises as a

result of an increase in the price of WBA. If retail customers substitute the retail product based on the self supplied input for the retail product based on the wholesale input, there is a corresponding effect on the upstream input level: The self supplied input replaces the wholesale input.

The cost share of the wholesale input is of major importance to the strength of the indirect pricing constraint. The impact of the wholesale price increase on wholesale demand is diluted if the cost share is too low. Other things being equal, the lower the cost share, the lower the increase of the retail price, and the lower the reduction of demand for the wholesale based retail product. As a rule of thumb, only where the share of the wholesale input in the retail price is over 50 % does the indirect pricing constraint appear to become large enough. This may be the case, for example, for ULL and WBA. If the indirect pricing constraint from retail demand substitution is found to be strong enough, self supply of competitors and the incumbent should be included in the relevant wholesale market.

Establishing susceptibility to *ex ante* regulation

Identifying the relevant markets to be considered for *ex ante* regulation involves two issues: firstly, how to sequence the tests of markets in order to minimise the amount of *ex ante* regulation, and secondly, how to test a given market for susceptibility to *ex ante* regulation. The approach taken in the Economic Experts Report relies upon a linkage between defects in competition in wholesale and retail markets. If competition problems emerge in an end-to-end market for the supply of a service to end-users, it must be possible to locate them in the value chain. Equally, if competition problems arise in the value chain, they would be reflected in an end-to-end regime for the supply of a service.

Sequencing of tests

In order to identify competition problems in retail markets and locate their source in the value chain(s), a modified Greenfield approach is applied. This means that all SMP regulations in the value chain are initially assumed to be absent. By contrast, all regulations which are unrelated to SMP in the value chain are assumed to be maintained. The latter include, for example, general obligations to offer interconnection and number portability, which apply to all operators connecting end-users.

The initial step in a modified Greenfield analysis is to identify those retail markets for electronic communications services which on an end-to-end basis – absent *ex ante* regulation at both retail and wholesale levels – are likely to be characterised by competition problems that justify the imposition of *ex ante* regulations (see the following section for an explanation of the test itself).

However, where such markets are "emerging markets", any competition problems should not be addressed by *ex ante* regulation even if there is a first mover advantage. If new products create a new retail market which is also an "emerging market", both the retail market and the related wholesale markets (to the extent that they provide inputs for the retail product) should not be subjected to *ex ante* regulation. The Draft Revised Recommendation defines emerging markets roughly as markets, "where due to their novelty it is impossible to apply the 3 criteria", but greater precision seems to be warranted.

Where retail markets (which are not emerging markets) are characterised by market failures on an end-to-end basis, the source of such problems is localised in the value chain. Where alternative wholesale inputs can be ranked in terms of increasing replicability, the least replicable input should be examined first. Where there are problems in ranking inputs in terms of replicability, an alternative is to rank them in terms of increasing functional coverage. The least inclusive input should then be examined first. Table 1 shows the ranking for various value chains.

Table 1 – Ranking of assets

<i>Value chain</i>	<i>Ranking</i>
Fixed narrowband access	ULL – Retailing
Fixed narrowband calls	Termination – ULL – Origination – Local-tandem transit – Inter-tandem transit – Retailing
Fixed broadband Internet access	ULL – DSLAM – Regional backhaul – National backhaul – Internet connectivity – Retailing
Mobile services	Termination – Access & call origination – Retailing
Leased lines	Terminating segments – Trunk segments – Retailing

If the wholesale market for the least replicable input is found to be characterised by competition problems that cannot be dealt with by competition law alone, *ex ante* regulation should be considered. The wholesale market would be made "susceptible to *ex ante* regulation". It should then be tested if regulation of this market would promote competition in the retail market in a way that any remaining competition problems could be adequately dealt with by competition law. If this is not the case, we go to

the wholesale input that comes next in terms of replicability. Only if all wholesale remedies are exhausted without sufficiently improving competition at the retail level, can *ex ante* regulation be considered for the retail market.

Testing a particular market for susceptibility to ex ante regulation

The approach taken in the Economic Experts Report is to examine whether there is high level of market power, notably SMP, and, where high a level of market power is found, to apply the three criteria for the application of *ex ante* regulation as outlined in the initial Recommendation. A market is identified as susceptible to *ex ante* regulation only if the three criteria are cumulatively satisfied. The approach taken in the Report is broadly consistent with the Commission's approach, even though the latter focuses exclusively on the three criteria.

High and non-transitory barriers to entry

The Recommendation distinguishes between structural barriers and legal or regulatory barriers. A structural barrier exists when, given the level of demand, the state of the technology and the resulting cost structure are such that they create asymmetric conditions between incumbents and new entrants and impede or prevent market entry of the latter. For example, high structural barriers are found to exist when the market is characterised by substantial economies of scale, scope and density in combination with high sunk costs.

It should be noted that while we go through the sequence of tests from less to more replicable inputs, the view on structural barriers to entry may change. When we carry out the initial test for an end-to-end retail market – in the absence of any regulation in the value chain –, structural barriers are often significant. If we apply the 3-criteria test at a later stage of the analysis, i.e., once we have introduced some wholesale regulation in the most upstream markets, the structural barriers in downstream markets (including the retail market) are mitigated and may disappear.

A particular type of structural barrier is created by the need to interconnect in order to enable an end-to-end connection. The terminating network operator can affect competition adversely by raising a rival's costs. This by itself need not lead to an absence of competition. For example, where the receiving rather than the calling party is responsible for paying any charge associated with incoming calls, the ability to raise termination charges above costs is muted by competition.

In contrast to structural barriers to entry, legal or regulatory barriers are not based on economic or technological conditions, but result from legislative or NRA measures. These barriers should be set at the lowest level possible consistent with public policy goals and regulatory best practice. This is often not the case, for example, where regulators have issued an unnecessarily low number of mobile licences. Legal or regulatory barriers may induce circular causation. As a result of poor policy choices or bad regulatory practice, markets may not function properly. Before legal or regulatory barriers are accepted as a reason to make a market susceptible to *ex ante* regulation, the NRA in question should demonstrate that it has used its powers to set the regulatory barriers to entry at the lowest level possible, or commits itself to do so in future.

Lack of dynamic trends towards effective competition

Besides high and non-transitory barriers to entry, there should also be a lack of dynamic trends to competition behind the barriers to entry. Prospective developments, such as convergence or the implementation of disruptive technologies, can affect behaviour in advance of their implementation. Established firms may lower prices in advance to make the market less attractive for such entry. Another example is mobile markets, which are characterised by high and persistent barriers, but where asymmetry and excess capacity can drive the market towards a competitive outcome.

Insufficiency of competition law

Finally, *ex ante* regulation should only be introduced if application of competition law alone is not sufficient to address the market failures. This may be the case where compliance requirements of an intervention are extensive (such as the need for detailed cost accounting based on the LRIC standard, monitoring of terms and conditions including technical parameters). Competition alone may also not be sufficient if frequent, timely or anticipatory intervention is required or where regulatory certainty (for example, by means of a multi-period price cap) is of concern.

Applying the third criterion to a "representative" member states raises a number of issues. The efficacy of applying competition law alone will significantly vary between member states; it will depend on the legal powers as well as the capacity and competence of the National Competition Authority (NCA). However, lack of resources on the side of the NCA, a priori, should not be a reason to maintain *ex ante* regulation; rather Member States

should resource their NCAs in a way that they are able to fulfil their tasks. It is also worth noting that in at least two Member States the NRA has the competence to apply competition law with regard to exclusionary or abusive behaviour.

The Economic Experts Report suggests that competition law alone should be sufficient to deal with the competition problems at the retail level. Firstly, NCAs should be able to deal with exclusionary practices such as margin squeezes. In any case, dealing with margin squeezes is assisted by *ex ante* regulation, where wholesale markets are subject to price control (retail-minus or LRIC) and other remedies.

Secondly, the Report notes that SMP involving collective dominance may be better dealt with under competition law. The demonstration of joint dominance under the regulatory framework in practice requires evidence of current as well as of prospective behaviour. The standard of proof for joint SMP is accordingly high, and such cases may therefore fail the third criterion. Competition policy has the right tools to deal with abuses of joint dominance; therefore *ex ante* intervention at the retail level does not seem to be required.

■ Analysing a "representative" member state

Table 2 summarises the results of an analysis for a "representative" Member State. "Representativeness" means that the modified Greenfield analysis is applied to stylised and somewhat simplified conditions that are thought to prevail in a majority of member states. The table reflects the conclusions of the Economic Experts Report ⁷.

The first column shows the major retail markets for electronic communications services. The definitions are broader than possibly justified in individual Member States, where, for instance, a distinction between low- and high-capacity narrowband access or between leased lines up to and including 2 Mbps may be required.

⁷ The table omits wholesale international roaming as well as markets for transmission of broadcasting content, which have not been dealt with in the Economic Experts Report.

Table 2 - Analysis for a “representative” member state

<i>Retail market</i>	<i>Competition problems absent regulation?</i>	<i>Wholesale markets susceptible to regulation?</i>	<i>Retail market susceptible to regulation?</i>
<i>Fixed narrowband access</i> ⁽¹⁾	Yes	ULL ⁽⁷⁾	Yes
<i>Fixed outgoing national calls</i> ⁽²⁾	Yes	Call termination on individual fixed networks ⁽⁸⁾ ; ULL;	No
<i>Fixed outgoing international calls</i> ⁽²⁾	Yes	Call origination; Local-tandem transit; [Inter-tandem transit ⁽⁹⁾]	No
<i>Dial-up Internet calls</i> ⁽³⁾	Yes	Call origination	No
<i>Leased lines</i> ⁽⁴⁾	Yes	Terminating segments; Trunk segments	No
<i>Retail broadband access</i> ⁽⁵⁾	Yes	ULL; Whs. broadband access	No
<i>Mobile access and outgoing calls</i> ⁽⁶⁾	Yes	Call & SMS termination on individual mobile networks ⁽¹⁰⁾ ; [MACO ⁽¹¹⁾]	No
<i>Mobile data services</i>	Emerging market	No	No

(1) The Experts Report suggested separate markets for low- and high-capacity access, while the draft revised Recommendation proposed no split.

(2) PSTN/ISDN calls and voice-over-broadband calls.

(3) Call to ISP bundled with Internet connectivity.

(4) Possibly separate markets for up to/including 2 Mbps (or 10 Mbps) and above.

(5) Broadband connection bundled with Internet connectivity.

(6) Also including outgoing SMS as well as international roaming.

(7) High-capacity access relies on leased lines rather than ULL.

(8) The Experts Report suggested a further possible distinction between termination of off-net calls originated on fixed narrowband networks, including termination of CS/CPS calls, and termination of off-net calls originated on mobile and broadband networks.

(9) The Experts Report did not recommend to include inter-tandem transit in the Recommendation, while the draft revised Recommendation included it.

(10) The Economic Experts Report suggested a further possible distinction between termination of mobile-to-mobile calls and fixed-to-mobile calls.

(11) The Experts Report did not recommend to include MACO in the Recommendation, while the draft revised Recommendation included it, subject to further consultation.

The second column shows whether each retail market, on an end-to-end basis, is likely to be characterised by competition problems under modified Greenfield assumptions.

The third column locates the competition problems in the value chain and shows which wholesale markets should be susceptible to *ex ante* regulation. It is worth noting that terminating and trunk segments of leased lines are not

only inputs for retail leased lines; they are inputs for most other retail and wholesale services.

The fourth column shows whether wholesale regulation is sufficient or whether the retail market should be susceptible to *ex ante* regulation as well.

The analysis resulted in the following conclusions, which, with a few exceptions noted below, are also reflected in the Commission's draft revised Recommendation.

Firstly, in the absence of *ex ante* regulation, most retail markets for electronic communications services would be characterised by substantial competition problems if analysed on an end-to-end basis. Competition law alone would not be sufficient and some form of *ex ante* regulation is clearly warranted. An exception is the mobile data market, which, can be regarded as an emerging market (as the Commission has done), where *ex ante* regulation would not be appropriate.

Secondly, wholesale regulation is able to cope with these competition problems. There is usually a wholesale remedy, or a set of wholesale remedies, which can improve conditions at the retail level to an extent that market power is sufficiently reduced and the three criteria are no longer fulfilled. In a sense this is even true for retail fixed narrowband access: while ULL is unlikely to make retail fixed narrowband access competitive, wholesale line rental (WLR) could fulfil the task. The fact that retail fixed narrowband access is still maintained as a market susceptible to *ex ante* regulation has formal reasons. WLR is not defined as a wholesale market⁸, and therefore can only be imposed as a remedy to SMP in another market susceptible to *ex ante* regulation. The current practice is to mandate WLR as a remedy for SMP in retail fixed narrowband access.

Thirdly, wholesale markets which are further downstream should not be susceptible to *ex ante* regulation. The reason is that replication of assets usually is easier. Core networks, for example, are easier to replicate than access networks. Self-provision of downstream inputs is also facilitated by regulated upstream inputs. There is usually no justification to mandate the resale of services, except in the case of fixed narrowband access (WLR). There is also not a strong case to make inter-tandem transit susceptible to *ex ante* regulation. Inter-tandem conveyance can be easily replicated, in

⁸ An exception is the UK, where Ofcom has defined a market for WLR

particular, using wholesale inputs (wholesale trunk and terminating segments). Let us note, however, that the draft revised Recommendation still regards transit services in their entirety as susceptible to *ex ante* regulation. Similarly, to transit in the core network, national wholesale broadband access, as far as the national backhaul part is concerned, should not be considered for *ex ante* regulation.

Fourthly, the wholesale market for mobile access and call origination (MACO) should not be susceptible to *ex ante* regulation. There are usually three or four network operators competing at the retail level. Besides regulation of mobile termination, there is usually no further wholesale regulation required to move the retail market towards a competitive outcome. Where there are problems, the Experts Report recommended to deal with them under competition law. The draft revised Recommendation provisionally included MACO, but asked for further input in the consultation.

It is worth noting that besides the retail markets included in table 2, the Experts Report also examined retail markets for incoming fixed and mobile calls. Under CPP, termination of an incoming off-net call is charged on a wholesale basis to the operator that originates the call, rather than charged on a retail basis to the receiving end-user. CPP confers a monopoly to the terminating operator. CPP creates competition problems in termination, which also impact the outgoing calls market. I have therefore treated wholesale termination on individual fixed or mobile networks in table 2 as a wholesale remedy that improves competition in outgoing calls markets.

Relevant markets under the framework are economic markets and should be technology neutral. Nevertheless it is clear that some of the analysis for the revised Recommendation has been carried out for a value chain that is based on PSTN/ISDN network architecture and related wholesale markets. With the emergence of NGNs, the value chain as well as wholesale market definitions will change. Traditional market definitions (for example, wholesale call origination, inter-tandem or local-tandem transit) refer to network elements which will no longer exist on an NGN. Since NGN wholesale products and interfaces are not yet fully specified, the recommended markets are still largely PSTN/ISDN based. It is, however, clear that the lifetime of the revised Recommendation is likely to be limited given the uptake of NGNs over the next years

■ Deviating from the Recommendation

The Commission has an important role to ensure the consistency of regulatory measures across member states and to promote legal certainty. Firstly, the Commission provides guidance on how relevant markets susceptible to *ex ante* regulation are to be identified. Market definition issues are dealt with in the SMP Guidelines, and the sequencing of tests and the 3-criteria methodology are explained in the revised Relevant Markets Recommendation and an accompanying Working Paper. Secondly, the Commission itself performs the sequence of tests for a "representative" Member State, whose results are reflected in the Recommendation. The analysis is carried out without consideration of the geographical dimension of relevant markets⁹. The markets listed in the Recommendation create a presumption for NRAs, which they have to take "utmost account of." Thirdly, the Commission may comment on, and veto, the draft measures of an NRA if they deviate from the relevant markets identified in the Recommendation.

A major issue is whether, as a result of the powers of the Commission described above, NRAs follow too quickly the Recommendation without due account of national circumstances. In this respect it is useful to distinguish between two cases:

The first case is where NRAs may apply a market definition different from the one used in the Recommendation, but this does not affect the overall area subject to *ex ante* regulation. Gaps in the chain of substitution may differ between Member States or such gaps may change frequently over time. The Recommendation therefore has to rely on a broader market definition and leave it to NRAs to identify the gaps in the chain of substitution. NRAs may divide up a recommended market into several separate relevant markets, or extend the boundaries of a market beyond the ones foreseen by the Recommendation. Since the Recommendation's main objective is to draw the border line between *ex ante* regulation and sole application of competition law, such fine tuning of relevant market definitions may not really be considered as a material deviation from the Recommendation. The practice is that NRAs can deviate from the Recommendation relatively easily in these instances, and they have chosen to do so quite often.

⁹ The framework requires NRAs to define the geographical boundaries of markets in the subsequent market analysis stage when particular product markets have already been designated as susceptible to *ex ante* regulation

The second case is where NRAs, compared to the Recommendation, significantly reduce or extend what is susceptible to *ex ante* regulation. They may identify a market included in the Recommendation (or parts of it) as not being susceptible to *ex ante* regulation on their national territory. Or they may identify a market as susceptible to *ex ante* regulation which is not foreseen by the Recommendation. In practice, however, NRAs rarely do so ¹⁰. Instead, there tends to be a bias towards follow the Recommendation even though national circumstances may differ from those of a "representative" member state.

Even though the Recommendation may be based on a proper analysis and provide the right answers for a "representative" member state, particular national circumstances could warrant a different approach. NRAs that automatically follow the Recommendation are prone to two types of errors:

- A type 1 error occurs if, as a result of the Recommendation, a particular market is regarded as susceptible to *ex ante* regulation in a particular Member State even though it would not meet the criteria. Type 1 errors can occur if, from an individual Member State's perspective, "old" markets are removed "too late" from the Recommendation or "new" markets are included "too early" in the Recommendation.
- A type 2 error occurs if, as a result of the Recommendation, a particular market is not susceptible to *ex ante* regulation in a Member State even though it would meet the criteria given the particular national circumstances. Type 2 errors occur if, from the perspective of an individual Member State, "old" markets are removed "too early" from the Recommendation or "new" markets included "too late".

Table 3 – Type 1 and 2 errors in relation to the Recommendation

	<i>Type 1 error</i>	<i>Type 2 error</i>
"Old" market	Removed too late from Recommendation	Removed too early from Recommendation
"New" market	Included too early in Recommendation	Included too late in Recommendation

How can errors be minimised? It is useful to distinguish between old markets and new markets. There is a safeguard against the type 1 error of removing old markets too late: where markets are included in the Recommendation as susceptible to *ex ante* regulation, NRAs still have to do

¹⁰ An exception is broadcasting transmission services, where NRAs have defined separate relevant markets for cable and satellite (or a market for both), and considered these markets as not being susceptible to *ex ante* regulation.

a market analysis. They are not obliged to impose remedies if they do not find operators with SMP. This has frequently happened in the first round of market reviews. In turn, there is no safeguard against the type 2 error of removing an old market too early. If removed from the Recommendation, NRAs no longer have to carry out a market analysis and may abandon regulating such a market, even though this is not yet justified. This would suggest that the Commission needs to be cautious when removing markets from the Recommendation in case there is a great variation of conditions across member states.

The situation is different with regard to new markets. There is no safeguard against the type 1 error of including markets too early, notably if such markets are still emerging. As such markets would usually be characterised by first-mover advantages, they are also likely to be characterised by SMP. However, such markets should not be subject to inappropriate regulation. There is also no safeguard against the type 2 error of including a "new" market too late into the Recommendation, since in that case the market may already be effectively foreclosed. In the case of new markets, where member states may significantly differ with regard to their development, errors are inevitable. A way out of this dilemma could be to remain particularly cautious with regard to the inclusion of new markets in the Recommendation, but encourage NRAs to run their own tests on the susceptibility of new markets to *ex ante* regulation. To assist NRAs, the Commission could issue guidelines that further clarify the identification of new markets as susceptible to *ex ante* regulation and monitor the proper application of such guidelines.

■ Conclusions

The EU regulatory framework requires a periodic review of markets susceptible to *ex ante* regulation based on a methodology that limits *ex ante* intervention to cases where it benefits consumers and addresses competition problems at their roots. This approach is also reflected in the Commission's Relevant Markets Recommendation.

The Recommendation increases regulatory certainty and consistency across EU Member States. It may however also create a cost to those Member States that are characterised by conditions that substantially differ from those prevailing in a "representative" Member State on which the

Recommendation is based. Guided by the list of recommended markets, such Member States may regulate (or not regulate) a market even though a proper analysis based on national circumstances would suggest the opposite. Such types of errors may be reduced if the Commission, whenever there is a large variation of conditions across Member States, is cautious in removing "old" markets from, and adding "new" markets to the Recommendation and at the same time encourages NRAs to carry out their own 3-criteria test.