

FINAL REPORT
ON
LICENSING CONDITIONS
FOR MOBILE COMMUNICATIONS



This study has been prepared by ETO on behalf of ECTRA for the Commission of the European Union.

The report has been approved by ECTRA in by correspondence in July 1998 to be delivered to the Commission. However, individual ECTRA members do not necessarily endorse all findings and proposals contained herein.

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EXECUTIVE SUMMARY

The purpose of this study is to identify and analyse the rights and obligations of operators of mobile networks and services, and to propose licensing conditions - which maintain a balance between rights and obligations - to be attached to authorisations of mobile operators in CEPT/ECTRA countries, with a view to future mobile systems. Because it became apparent that licensing conditions result in some cases from the procedure used to select the operators, licensing procedures have been considered as well.

The justification for such a study lies in the fact that mobile services have until now been subject to national conditions and procedures, varying from country to country. The application of specific licensing conditions for mobile networks and services is justified because they use frequencies, which are a scarce resource. This variation might however, create barriers to a fully competitive internal market or even distortion in competition on different levels (e.g. between different mobile systems or between mobile and fixed services or networks).

The collection of information necessary to draft the part of the study concerning licensing conditions was carried out by the consulting company IDATE in 20 of the ECTRA countries. The collection of information for the other parts of the report was done by ETO by means of a questionnaire and interviews with national experts on mobile communications. Additional information was given by national experts represented in the Project Team on Licensing.

The report is based on the licensing conditions which are valid for second generation systems and an examination of how these licensing conditions relate to the conditions contained in the annex of the licensing directive. Particular attention is given to certain aspects which are of key importance for future systems. ETO proposals are therefore based on trends which appear to be common throughout the member states for the existing mobile licences with the aim of contributing to a co-ordinated introduction of the land mobile part of third generation mobile systems. At this moment, however, there still exists a lot of uncertainty about what sort of service UMTS will actually offer. Certain aspects, therefore, will need further study.

On 9 June, a workshop was organised in Brussels during which ETO presented the survey and proposals to telecommunications operators, service providers, European Associations, representatives of industry and administrations. Comments and views expressed at that occasion have been summarized in annex 11. As a result of this consultation, ETO reformulated proposals 3, 4, 5, 7 and 10 in order to have a clearer, unambiguous text.

1. General characteristics and categories of mobile licences

From the analysis of the general framework for mobile licences and the comparison between the fixed and the mobile sector it became apparent that the following aspects are characteristic of the licensing of mobile communications :

- the categories of licences are technology driven and determined by the standardisation of the air interface and international allotment of frequencies for certain users or applications; the categories of licences are not oriented towards service provision and user-applications
- limitation of the number of operators and the organisation of selection procedures
- direction of licensing towards the operator of the network

- high vertical integration of the sector (i.e. service provision by independent providers is virtually non-existent)
- the legal basis for awarding individual licences is determined on a case-by-case basis and the conditions of the existing licences can be changed when new licences are issued

It can be assumed that the licensing of UMTS will meet the general characteristics found for the licensing of the existing mobile communications systems. However, from a first analysis it appeared that the following particularities of UMTS need to be taken into account:

- co-ordination of frequency bands and standards, respectively by ERC and ETSI
- emergence of service and content providers which are independent from the operator of the network and which will offer innovative services
- existing operators which have an advantage because their networks can be considered to be essential facilities which cannot be readily duplicated by newcomers not running networks
- the converged environment (e.g. landmobile/satellite)

Major steps in the development of the next generation of mobile communications systems were two recent decisions by ETI and ERC. ETSI adopted a decision of 29 January 1998 establishing a single radio interface¹ for the standard that will govern UMTS. ERC adopted a decision² with a view to the introduction of UMTS in harmonised frequency bands. The decision identified 155 Mhz for UMTS within frequencies reserved by the ITU Radio Regulations for IMT 2000.

It can be concluded from this that the new category of licences will again be determined by the adopted air interface standard and by the use of frequencies which have been harmonised on an international level and not by the possible applications.

It is foreseen that the number of operators will be limited by the available spectrum . According to a study from the UMTS Forum three or four operators could be authorised. This implies the organisation of selection procedures.

While the right to use frequencies and to operate services will be granted to network operators, it is very likely that more competition will emerge from the side of independent service providers and content providers who will offer innovative services. In this respect the licensing of UMTS will require that regulators consider the rights and obligations of actors on different levels and take action to foster opportunities for innovative service development by newcomers. It became apparent from discussions during the workshop and the ECTRA plenary that this issue needs further reflection. Therefore, ETO proposes to conduct an in-depth study of the subject, analysing the needs of different kinds of service providers and the impact of open access on the competitiveness of operators.

In the majority of the countries concerned, the granting of UMTS licences will require the adoption of a legal framework for the selection-procedure. Furthermore, it is probable that the licensing conditions applied to existing operators will have to be reviewed.

In this way the licensing regime takes into account the particularities of each category (eg scarcity of frequencies, technology...) as well as the influence the new licensee will have on the competitive market situation. The latter could relate to competition between different

¹ The selected standard is a compromise between W-CDMA (wide-band code division multiple access) and TD-CDMA (time division code division multiple access). The former is adopted for the paired frequency bands, the latter for the unpaired band.

² reference to be added

categories of mobile systems, competition between operators of the same mobile technology and competition between different access technologies (mobile, fixed, satellite).

2. Licensing procedures

It became evident from the analysis of the licensing procedures that comparative bidding is the most popular selection procedure for mobile communications. Auction, however, is becoming a new trend for assigning frequencies for land mobile systems.

In the case of comparative bidding a very wide range of qualification and selection criteria is used.

Qualification conditions were described *as minimum requirements in order to be allowed to participate in the selection process*. They can relate to the commercial, financial or technical capabilities of the operator. Those most commonly used in cases of comparative bidding are the following:

- financial and commercial feasibility
- financial basis or resources
- technical knowledge or expertise.

Where **auctions** are concerned, ensuring financial solvency is crucial to avoid dummy bids. From experience in the US it could be learned, however, that it is important to make sure that candidates are also screened on their technical capabilities.

Selection criteria are the criteria *by which candidates should try to perform better than competitors in order to win the selection process and for which the individual licence reflects the bid made for each of the criteria*.

In the event of comparative bidding the most widespread selection criteria are:

- tariffs for the consumer
- coverage (geographically or in terms of population)
- time for roll-out
- quality and range of services
- efficient use of frequencies.

For **auctioning**, the only selection criterion is the amount of money a candidate is willing to pay for the licence. It is interesting to observe that some countries include in a comparative bidding process a financial bid as one of the selection criteria.

It was found that the distinction between qualification and selection criteria is not always clearly made. Moreover, the criteria are not coherent throughout the different countries. In some procedures, for example, no indication is given of whether complying with a minimum level is sufficient and on which criteria candidates should try to excel. Furthermore, certain criteria are applied in some cases as qualification criteria and in others as selection criteria, varying from country to country and even from category to category within a country. This is in particular the case for the following criteria:

- financial resources
- technical and operational knowledge
- financial and commercial feasibility
- coverage and expansion rate.

Transparency of the procedure would be increased as a result of a clear distinction between the two sorts of conditions and a harmonised ranking of the selection criteria according to their importance. Such a harmonised ranking of selection criteria would also contribute to

fair competition. This is due to the fact that the individual licence granted to the winners of the procedure reflects the bid introduced in relation to each of the selection criteria. The criteria on which the selection is based influence directly the investment and business plan of the operator. Different selection criteria might change the business case. A common framework for the conditions which might vary in each individual licence for different mobile technologies (nationally as well as internationally) could therefore facilitate fair competition between operators of mobile communications.

For reasons of fair competition on the national mobile markets, the criteria for qualification and selection of third generation operators should not differ substantially from those applied in previous licensing procedures.

However, NRAs are eager to find more market-based methods for assigning spectrum. Hence, auctions look as if they will be a growing trend. Mobile operators, however, express concern with regard to the impact of auctions on the cost of licences and the influence this could have on the business plan. Different studies from ERC³ and ITU⁴ on this subject have not resulted in any recommendation on the matter. A Task Group for Licensing Cost and Spectrum Pricing, formed by the UMTS Forum, is currently working on a report concerning the impact of licence cost levels on the UMTS business case. In 1998 ETO will prepare a study concerning licensing fees for the European Commission which will analyse in greater depth the effect of the procedure used on the cost of a licence.

On the basis of the trends found in second generation mobile licences, ETO has formulated recommendations for harmonised qualification and selection criteria rather than recommendations concerning the procedure itself. The proposal for qualification criteria is valid for comparative bidding procedures as well as for auction but the proposed selection criteria will only apply in the event of comparative bidding.

1. ETO recommends that NRAs distinguish clearly between qualification and selection criteria.

2. ETO recommends that candidates for mobile licences should be screened as to their financial and technical capabilities prior to the actual process of selection.

3. ETO proposes that the primary selection criteria in procedures of comparative bidding should be the following:
tariffs, price structure
coverage
time for roll-out
quality and range of services (in particular their innovative aspects)
efficient use of frequencies

If candidates make offers judged equal according to the primary selection criteria, the final selection may be made taking into account other relevant factors in a particular country and notably employment and environmental issues.

The interests of the consumer can be promoted by setting common parameters which take into account the specificities of the underlying technology, and by publishing the results of the

³ Document RR8(97)44 of 5.9.1997 of ERC, Draft Report on the introduction of economic criteria in spectrum management and the principle of fees and charging in the CEPT.

⁴ Document 1B/TEMP/14-E, Draft Report ITU-R (1/53), Economic aspects of spectrum management.

survey carried out to verify the compliance of the actual performance of each operator with the terms of the individual licence.

It was concluded from the workshop organised by ETO to present the proposals to a broad forum, that it should be clear from the recommendation that in a competitive market the level of performance should not be regulated.

4. ETO proposes that the interests of the consumer be promoted by publishing data on the actual performance records regarding the primary selection criteria of all operators in comparable form on a regular basis by the NRA.

During the workshop mentioned above, the proposals concerning harmonised licensing procedures were in general supported by the participants.

3 Licensing conditions

The Licensing Directive provides for a first level of harmonisation of licensing conditions. It must be noted that the mobile sector was already liberalised before the licensing directive came into force. An interesting analysis is therefore to compare all licensing conditions imposed on existing operators with the conditions mentioned in the annex of the licensing directive

Furthermore, on the basis of a comparison between licensing conditions for fixed and mobile services the following issues were identified as being specific to the mobile sector and bearing key importance for future systems:

- ensuring fair competition
- between independent mobile service providers and services providers tied to an operator
- between different mobile technologies
- between mobile and fixed operators
 - roaming and facility sharing
 - interconnection
 - coverage and period for roll-out
 - duration of the licence

3.1 Conformity to the Licensing Directive

It appears that the licensing conditions applied to mobile operators can all be related to the categories mentioned in the Licensing Directive with the exception of one specific condition in one country. Concerning the qualification conditions used in the phase prior to the selection of the operator, “commercial feasibility” or “commercial competence of the applicant” are requirements which cannot be related to the conditions of the annex to the Licensing Directive. In proposal 2, mentioned before, ETO proposes to screen candidates on their technical and financial capabilities and no longer on commercial qualities.

3.2 Ensuring fair competition

3.2.1 Fair competition between different kinds of service providers

The majority of the service providers in second generation mobile communications are tied to the operator of a mobile network or a fixed network. In order not to put the independent service providers at a disadvantage, it is important to avoid cross subsidies and anti-competitive behaviour, e.g. in the form of subsidising terminals. It can be observed that ensuring fair competition between different service providers is mainly treated as a matter of competition law and intervention in case of abuse of dominant position. Some countries however impose separation of accounts and the obligation for operators to admit financially and technically sound service providers.

It is foreseen that with UMTS a new market will emerge for service providers and content providers. It is important that NRAs monitor that development because existing operators hold a competitive advantage towards new service providers in terms of their network and database. This includes making sure that the existing incumbent operators do not refuse to enter into commercial negotiations with service providers and give access to their networks and directory inquiry information contained in their database on a non-discriminatory basis both to service providers which they own and to independent ones.

5. ETO recommends that operators enter into commercial negotiations with financially and technically sound service providers. The principle of non-discrimination should be observed for the commercial agreements giving access to the network and directory inquiry information.

6. Apart from the above, ETO recommends that no *a priori* "sector specific regulation" - further than the obligations flowing from the interconnection directive - should be imposed for the purpose of avoiding abuse of dominant position or anti-competitive activities of service providers owned by a fixed or mobile operator. Normal competition law is believed to be sufficient to guarantee fair competition.

3.2.2 Fair competition between different mobile technologies

For historical reasons certain mobile licences were granted automatically. On the other hand, competition between different mobile technologies has been fostered by a majority of countries by restricting or excluding operators already operating a similar mobile service from participating in the licensing procedure. In general, both the automatic granting of an authorisation and the exclusion of existing operators can be criticised.

In exceptional cases, depending on the competitive situation in the national market, there might, however, be reasons to consider the market as not being a "level playing field". Countries granting a third or fourth licence for second generation systems close to the date of granting UMTS licences, might consider giving these operators an incentive to invest in a network by promising them certain preference rights in the next UMTS licensing procedure. On the other hand, countries with restricted competition in second generation systems might opt to stimulate the entry of new operators by excluding some existing players.

7. ETO recommends that no licences for third generation mobile systems should be automatically granted to existing operators. On the other hand, those operators should not be excluded either. Exceptions can only be made for reasons of maintaining effective competition between different mobile services and networks.

3.2.3 Fair competition between fixed and mobile services

Under their existing licences, operators of mobile communications are usually not allowed to provide transmission capacity for purposes other than the mobile services mentioned in the licence. They can, however, apply for a new licence that would allow them to provide fixed services. There is at first sight no regulatory barrier to fixed/mobile convergence. In certain countries there could, however, arise specific licensing problems. This is for example the case where fixed and mobile services and networks are subject to different licensing procedures.

It became apparent in the comparison of licensing in the fixed and mobile sectors, that the following divergences exist between the fixed and mobile sector:

- the scope of mobile licences in all countries covers the infrastructure, the services and the frequencies needed and no distinction is made between service provision and the running of the underlying infrastructure
- mobile voice is not subject to a specific licensing regime in any of the countries concerned while fixed voice is often subject to an individual licence.
- mobile operators are subject to fewer obligations resulting from the interconnection directive than are fixed operators.

There should therefore be clarification as to what licensing regimes and conditions are applicable to converged fixed/mobile services and networks.

8. Although in principle no regulatory barriers exist for mobile operators to obtain the right to offer fixed services over their mobile network, ETO proposes that the licensing regimes and conditions for converged fixed/mobile networks should be clarified as soon as possible.

Access to frequencies to offer public DECT or other technologies to provide a wireless local loop is an important issue for mobile operators in order to achieve fixed/mobile convergence. The regulation concerning DECT and wireless local loop in general however is not clear. This aspect therefore needs further study.

9. The licensing of DECT and wireless local loop should be clarified, as soon as possible, in order to allow a first degree of convergence between fixed and mobile services. Further study of these subjects (fixed/mobile convergence, DECT and wireless local loop) is recommended.

3.3 Roaming and facility sharing/coverage and roll-out

Distinction must be made between international roaming and national roaming. They have substantially different purposes, they affect competition in different ways and the regulations applicable are different.

Concerning **international roaming** the main difference with existing systems is that for UMTS international roaming agreements will also be needed with other access networks, typically satellite networks. Until now international interoperability has been achieved through market forces and self-regulation by industry. There seems no reason to assume that specific regulation would be needed in the future beyond the level of the interconnection directive.

National roaming is actively encouraged in 5 countries. It serves the purpose of easing compliance with licensing conditions related to coverage and roll-out. These items are therefore treated together. National roaming agreements have only been concluded in one country. No particular licensing conditions obliging operators to share facilities were found.

On the assumption that future UMTS licences will set minimum requirements concerning coverage and roll-out, **national roaming between UMTS operators** is an absolutely key issue for operators who do not have mobile access facility. It is a fact that the network and infrastructure of the existing operators constitutes a facility which cannot be readily duplicated by a complete newcomer. Therefore, these operators benefit from a considerable

competitive advantage as they can furnish, from the second generation, the network antennas, transmitters and other facilities required to set up the network to provide third generation services.

This applies not only to the ability to fulfil the coverage obligation but also to the changes in the process of obtaining a licence, since coverage is one of the most common selection criteria. During the workshop, it was recognised by several operators that there might be a case for national roaming between operators already running a mobile access network and those having none in order to allow complete newcomers to roll-out the network.

UMTS is intended to provide a truly universal service, meaning that it will be accessible through several access networks. The dual band/dual mode or even multi-band/multi-mode terminals necessary to realise this can only function if national roaming agreements have been concluded.

Unlike the case of the second generation mobile systems, interoperability between different systems licensed on a national basis (**UMTS and second generation mobile systems GSM and DCS-1800**) here becomes an issue.

Another difference with national roaming in second generation mobile communications is that NRAs need to be prepared to consider national roaming not only for operators but also for service providers. This is due to the development of intelligent networks together with the fact that it is likely that service providers and content providers will play a major role in the development of UMTS.

On the other hand, it appears that the business case for UMTS might be weaker than was the case for GSM and DCS-1800, and NRAs need therefore to be careful not to discourage investment in infrastructure. During the workshop, roaming with service providers was found to be a controversial issue.

Operators expressed deep concern and cautioned that this could lead to preventing investment, slowing down technical development and endangering infrastructure competition.

Furthermore, environmental considerations also have to be taken into account.

It can be concluded from this that a recommendation encouraging national roaming between operators with the double purpose of easing network roll-out for operators having no mobile access network and ensuring interoperability between second and third generation systems could contribute to the development of UMTS.

In a competitive market, the initiative and the contractual terms for national roaming and facility sharing should be left to the parties involved. NRAs can act - as is the case for interconnection - as a last resort, i.e when no deal can be made or if the principle of non-discrimination is not observed, to resolve disputes within six months of being requested to do so by either party.

10. ETO recommends that national roaming and facility sharing between operators should be encouraged in order to ease the roll-out of the network for operators not previously running a mobile access network as well as in order to ensure interoperability between second and third generation systems. In a competitive market, no strong regulation is required and the initiative and contractual terms should be left to the parties involved. NRAs should, however, have the authority to resolve disputes within six months on request by either party and to observe whether the principle of non-discrimination has been respected.

3.4 Interconnection

Existing interconnection agreements between fixed and mobile operators have not always been concluded smoothly. The interconnection directive and the recommendation of the Commission concerning interconnection pricing can, however, be considered to be sufficient as a framework to avoid major problems in the future.

Recommendation 14 of the UMTS Forum Report⁵ states: The UMTS Forum considers that no further regulation for UMTS interconnection is required.

It seems, therefore, that third generation mobile communications systems present no specific interconnection requirement that cannot be dealt with under the terms of the Interconnection Directive. Member States should however take the necessary measures to implement the Interconnection Directive and in particular to monitor the cost for fixed to mobile call termination.

11. It appeared that the provisions of the Interconnection Directive are sufficient for the development of third generation mobile systems. These provisions should be implemented, however, as soon as possible by the Member States.

3.5 Duration of the licence

The duration of licences for second generation mobile communications varies between 2 years and unlimited. For cellular licences, however, 15 years is a common period. Licences in Europe grant, besides the right to set up a network and provide service, the right to use frequencies. Frequencies are not sold and operators do not have proprietary rights over them which would allow them for example to sell the resource. In all countries, furthermore, the right is only granted for a limited time. This allows the NRA to re-claim the frequencies and re-allocate them to ensure the most efficient use.

The licensing of UMTS brings up the discussion concerning ownership of frequencies, specifically in relation to the use of auctions as a selection procedure. Furthermore, re-farming of frequencies becomes an issue. It is foreseen that additional spectrum will need to be made available to respond to market demand after full commercialisation of the service. This will imply, for the first time since the liberalisation of the mobile sector, withdrawal of resources from existing operators.

A proposal which takes into account the interests of the operators and the policy goals of the regulator is therefore appropriate.

12. ETO proposes that the duration of licences be limited in order to enable recovery of the frequencies in the eventuality of their being needed for other systems. The extent of the period must, however, be long enough to enable the operator to make a reasonable return on the investment.

On expiry of the initial period of validity, licences should be automatically renewed until frequencies need to be re-allocated. In the latter case, operators should be given at least two years notice in advance of withdrawal.

⁵ see note 27

1 PRESENTATION OF THE STUDY

1.1 Presentation of the work requirement

The purpose of this study is to identify and analyse the rights and obligations of operators of fixed and mobile networks and services, and to propose harmonised conditions - which maintain a balance between rights and obligations - to be attached to authorisations of mobile operators in CEPT/ECTRA countries, in the context of the liberalisation of telecommunications sectors in the European Union.

The justification for such a study lies in the fact that mobile services have until now been subject to national conditions and procedures, varying from country to country. The application of specific licensing conditions for mobile networks and services is justified because they use frequencies, which are a scarce resource. This variation might however, create barriers to a fully competitive internal market. The harmonisation of obligations to be included in licences for mobile networks and services should therefore be agreed upon by European countries.

The work requirements assigned to ETO were the following:

- (1) to identify different services and networks within the mobile communication sector that have to be distinguished with regard to authorisations.
- (2) to identify the conditions attached to authorisations of mobile networks -including private and public networks- and to compare these conditions with those of fixed networks.
- (3) to describe and analyse those conditions which are specific to mobile communications and their consequences on the licensing of mobile networks and services.
- (4) to compare the above task (3) with the conditions applicable to fixed networks and services, and to give a brief presentation of the common conditions of both fixed and mobile networks as proposed in relevant licensing work orders.
- (5) to coordinate the results with ERC/ERO which are in charge of frequency issues.
- (6) to propose harmonised conditions specific to mobile networks and services to be included in their future licensing conditions.

The text of the work order signed by the Commission and ETO is attached as annex 1.

1.2 Schedule and methodology

The study consists of six sections

The first section, which is mutatis mutandis common to all reports on licensing, presents ETO, the workorder and the methodology used.

The second section analyses the existing situation of licences for mobile networks and services.

A first point (section 2.1) will be dedicated to the legislative framework at European Union level. Two following sections define the services under the scope of the study (section 2.2) and the general legal framework (2.3). A fourth point (2.4) is devoted to the comparison of fixed and mobile licensing regimes.

The third section gives an analysis of the licensing procedures while in a fourth section licensing conditions are considered in depth in order to find what lessons can be learned from the licensing of second generation mobile systems which can be useful for the third generation (section 5). In section 4 the scope for proposals (section 6) is defined.

The collection of the information necessary to carry out this part of the report was conducted by the consulting company IDATE (Paris, France) assisted by BRC (London, UK). They were required to collect accurate information on existing and proposed mobile services and their licences in ECTRA member states and to analyse these data with a comparative presentation making clear any patterns in the issue of licences for mobile communications and their conditions. The section concerning licensing conditions for mobile communications is based on the findings of that investigation. The information for the other parts of the report was collected by means of a questionnaire, to which Denmark, Luxembourg, Portugal, Switzerland and Sweden replied. Finally, during the months of October and November 97 interviews were carried out with licensing experts in Denmark, France, Germany, Norway, The Netherlands and UK.

The first interim report was discussed with the Mobile Project Team in December 1996 in order to check the information regarding national situations and to reach an agreement on the structure and working method. The adopted version of the report was sent to the Commission in December 1996.

As the ECTRA plenary of March 1997 decided that the Project Team on Licensing would be responsible for the follow up to the report, the second and third interim reports were discussed with that Project Team. It was agreed with the project team that interviews should be conducted with national experts in the field of mobile communications in order to complete the information collected by IDATE.

The proposals for harmonisation included in this report were presented at the meeting of the Project Team on Licensing on 27 January 1998. The comments expressed by the PTL have been taken into account.

A Workshop, during which ETO presented the second and third interim report to telecommunications operators, service providers, European Associations, industry and administrations was organised on 9 June 1998. A summary of the views expressed by various participants can be found in annex 11. The results of the discussion arising during the Workshop have been used by ETO for drafting this final report.

2 Mobile communications within the general telecommunications legal framework

The mobile sector occupies a specific place both in the EC telecommunications policy framework and in national legislations. One reason for that is the specific nature of mobile services, another is that liberalisation of mobile networks and services preceded the EC-agenda for introducing competition in the voice telephony and fixed infrastructure. Therefore, the different national licensing regimes diverge substantially because they were established outside the harmonised framework included in the Licensing Directive and the Interconnection Directive.

In this section, a description will first be given of the main steps in the EC telecommunications policy leading to liberalisation of the mobile sector (**section 2.1**). The Licensing Directive, the Interconnection Directive and the proposal for a revised ONP-Voice Telephony Directive will be treated in more detail because they are part of the new framework within which future mobile licences will be granted. Furthermore, analysis of the proposal for a revised ONP Voice Telephony Directive results in an interesting comparison between the rights and obligations of providers of fixed voice on the one hand and mobile voice on the other hand.

A second part of this **section (2.2)** will be devoted to the distinction between different categories of licences granted to public mobile communications systems. For these services, the national legal framework within which they have been delivered will be analysed in **section 2.3**. In particular, attention will be given to the limitation of the number of licences, the procedures used for granting the licence and the legal basis.

In a fourth part (**section 2.4**) a comparison will be made between the licensing of fixed and mobile systems. For fixed as well as mobile systems the licensing regime will be described for the provision of network capacity, service provision without network and the use of frequencies.

The information on which this analysis is based was collected by ETO via a questionnaire sent out in May 1997 and completed by interviews with national mobile experts during the months of October and November 1997. Additional information was given by national experts represented in the ECTRA Project Team on Licensing in January 1998.

2.1 European policy

The **Green Paper of 1987**⁶ announced the co-ordinated introduction of pan-European mobile telecommunications services in the Community. According to that paper, Council Directives were adopted which reserved common frequency bands to be allocated in each member state to ensure pan-European availability of GSM⁷, ERMES⁸ and DECT⁹.

The **Terminal Directive** 91/263¹⁰ establishes procedures for European-wide type approval. This allows terminal equipment which has been approved against European Technical Regulation (CTRs) based on harmonised European standards to be put on the market and used freely throughout the Union. CTRs adopted concern among others GSM and DECT. A new directive should be in place by 1999.

The **Services Directive**¹¹, following from the Green Paper of 1987, opened the telecommunications services market to competition but excluded mobile communications together with telex and satellite communications from its scope. The explanation for this is that mobile communications were at that time still at an early stage of development and a specific set of rules was formulated later on.

The **Green Paper on Mobile communications** of April 1994¹² extended the basic principles of the Union telecommunications Policy to the mobile sector. In particular, the Mobile Green paper promoted

- full freedom for mobile operators to build their own fixed-link infrastructure,
- removal of all restrictions on the provision of mobile services either by independent service providers or through direct service provision,
- the possibility for mobile operators to use alternative infrastructure,
- the right to directly interconnect internationally,
- the right to cost-based interconnection,
- an arm's length relationship between a fixed wireline operator and its wholly-owned mobile subsidiary,
- the facilitating of pan-European operation and service provision.

⁶ Green paper on the Development of the Common Market for Telecommunications Services and Equipment, COM (87) 290 final, 30.06.1987

⁷ Directive 87/372/EEC of the Council of 25 June 1987 on the frequencies to be reserved for the co-ordinated introduction of public pan-European cellular digital land-based mobile communications in the European Community, OJ L 196/85, 17.07.1987

⁸ Council Directive of 9 October 1990 on the frequency bands designated for the co-ordinated introduction of pan-European land-based public radio paging in the Community, (90/544/EEC OJ L 310/28, 9.11.1990)

⁹ Council Directive of 3 June 1991 on the frequency bands designated for the co-ordinated introduction of digital European cordless telecommunications (DECT) into the Community (91/287/EEC, OJ L 144/45, 8.6.1991)

¹⁰ Council Directive of 29 April 1991 on the approximation of the laws of the Member States concerning telecommunications terminal equipment, including the mutual recognition of their conformity, (91/263/EEC; OJ L 128/1, 23.05.1991)

¹¹ Council Directive of 28 June 1990 on competition in the markets for telecommunications services (90/388/EEC OJ L 192/10, 24.07.1990)

¹² Green Paper on a common approach in the field of mobile and personal communications in the European Union, COM (94) 145 final, 27.04.1994

This position of the Commission was reinforced by a Resolution adopted by the European Parliament in May 1995¹³. In the same spirit, a **Council Resolution**¹⁴ puts forward

- the abolition of special and exclusive rights
- allowing service offerings as a combination of fixed and mobile networks and services.

Following the Green Paper and the resolutions of Parliament and Council, the Commission proposed a **mobile directive**¹⁵. This directive includes mobile communications under the scope of the Services Directive. This entails that all special and exclusive rights in the field of mobile communications must be abolished. Therefore, Member states should immediately lift restrictions concerning :

- the number of licences issued to mobile operators, (the number of licences should only be limited by essential requirements such as spectrum efficiency);
- access to frequencies;
- access to fixed infrastructure;
- interconnection agreements;
- allocation of frequencies for telepoint-like or DECT systems;
- the use of combined mobile technologies;
- the granting of DCS-1800 licences by 1 January 1998 to new operators or to existing GSM operators.

The **Licensing Directive**¹⁶, which was a key development in the legislation, proposes a general framework for authorisations in the field of telecommunications which will also apply to mobile services and networks. The general approach is to require the lightest possible authorisation regime, with no *a priori* limitation of the number of licences. Access to scarce resources is however an issue regarding which it is considered that individual licences and *a priori* limitation of the number of licences are valid. Article 3, 3 stipulates “*Member States shall ensure that telecommunications services and/or telecommunications networks can be provided either without authorization or on the basis of general authorizations, to be supplemented where necessary by rights and obligations requiring an individual assessment of applications and giving rise to one or more individual licences. Member States may issue an individual licence only where the beneficiary is given access to scarce physical and other resources or is subject to particular obligations or enjoys particular rights, in accordance with the provisions of Section III.*”. The limitation of the number of licences can be based on article 10: “*Member States may limit the number of individual licences for any category of telecommunications services and for the establishment and/or operation of telecommunications infrastructure, only to the extent required to ensure efficient use of radio frequencies or for the time necessary to make available sufficient numbers in accordance with Community law.*”

¹³ European Parliament Resolution of 19 May 1995 on the Commission’s communication to the European Parliament and the Council ‘Towards the personal communications environment: Green Paper on a common approach in the field of mobile and personal communications in the European Union’ and on the Commission’s communications to the European Parliament and the Council on the consultation on the Green Paper on mobile and personal communications.’

¹⁴ Council Resolution of 29 June 1995 on the further development of the mobile and personal communications sector in the European Union, OJ C 188/3, 22.07.1995.

¹⁵ Commission Directive 96/2/EC of 16 January 1996 amending Directive 90/388/EEC with regard to mobile and personal communications, OJ L 20/59, 26.01.1996.

¹⁶ Directive 97/13/EC of the European Parliament and of the Council on a common framework for general authorisations and individual licences in the field of telecommunications services

The provisions of the **Interconnection Directive**¹⁷ concerning interoperability, equal access, universal service, regulating significant market power and sharing of facilities are of importance for the mobile sector.

One of the underlying goals of this directive is to ensure interoperability of public mobile telephone networks and a universal voice service. Therefore, organisations providing public mobile telephone networks and/or services are given the right and - with certain other operators - the obligation to negotiate interconnection agreements. Furthermore, mobile operators can be obliged to share the net cost of universal service obligations although only the fixed public telephone network may be financed in this way.

Under this directive, those mobile operators notified as having significant market power are subject to the obligations concerning non-discrimination and transparency with regard to interconnection. Also, their interconnection charges should follow principles of transparency and cost orientation. Unlike organisations having significant market power providing leased lines or fixed public telephony networks and/or services, notified mobile operators are **not** subject to the obligations concerning

- a reference interconnection offer,
- unbundled interconnection charges,
- their cost accounting system and
- separate accounts for interconnection activities and others.

A **Commission Recommendation** concerning interconnection pricing¹⁸ followed this directive. One of the two areas on which the biggest impact is expected is that of the price paid by mobile operators to terminate calls on fixed networks.

The **ONP Voice Telephony Directive** 95/62/EC did not apply to mobile telephony services. In the revision it was however thought appropriate that "*in view of the growing demand for mobile telephony services (...) certain provisions of this Directive should apply to mobile telephony services*"¹⁹.

In principle, the scope of the revised Voice Telephony Directive still does not include public mobile telephone networks and services²⁰. Exceptionally the following articles are applicable to mobile public telephony :

- article 6 (directory services),
- article 9 b and c (connection of terminal equipment and use of the network),
- article 10 (contracts) and
- article 11 a (publication of and access to information).

Furthermore, it is stated that Member States are not prevented, *in conformity with Community law, from extending the application of provisions of the Directive to mobile networks and/or services even if they are not explicitly mentioned in its scope.*

In annex 2 can be found a table setting out for comparison, for each of the different obligations found in the Voice Telephony Directive, the types of operators to which it applies in the fixed and the mobile sector.

¹⁷ Directive 97/33/EC of the European Parliament and of the Council of 30 June 1997 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP)

¹⁸ Commission Recommendation on Interconnection in a liberalised telecommunications market Part 1 - Interconnection Pricing Brussels, 15 October 1997, C (97) 3148

¹⁹ whereas 3 of the Common position adopted on 9 June 1997 concerning the ONP voice telephony directive

²⁰ Article 1, 2 of the Common position adopted on 9 June 1997 concerning the ONP voice telephony directive

From that analysis it can be concluded that in the European legislation the fixed and the mobile telephony services are subject to very distinct regulations.

The provisions of Voice Telephony Directive 95/62/EC relate mainly to:

- regulating operators with significant market power
- provisions on universal service
- consumer protection.

Neither the provisions regulating operators with significant market power nor those on universal service apply to mobile operators. On consumer protection, only three articles partly apply to mobile telephony.

Therefore it can be concluded that the fixed telephone service has a specific status. “*Whereas 6*” of the VT directive expresses this clearly in stating that “*the importance of the fixed public telephone network and service is such that the latter should be available to anyone reasonably requesting it*”.

At the moment, mobile public voice is not given the same specific status and is therefore not subject to the same regime as fixed public voice. This means that, while in the fixed sector distinction is made between voice and other services, all mobile services, including mobile voice, are treated equally.

However, it is foreseen that in the future, the market share of mobile telephony will grow to a level where it becomes a substitute for fixed telephony. At that point the issue will arise of ensuring fair competition between mobile and fixed telephony by subjecting both services to similar regulation. One option would be to impose more provisions of the voice telephony directive to mobile telephony. Alternatively, consideration could be given to lightening the regulation on fixed telephony, assuming that competition and normal competition law can equally well guarantee availability, affordability, quality, choice, fair competition and non-abuse of a dominant position.

Finally, due to the fact that this study could give an input to the licensing of future mobile networks and services, it is worth referring to the **time-table for UMTS**²¹.

On 9 February 1998, the Commission adopted a proposal for a *Decision of the European Parliament and of the Council on the co-ordinated introduction of mobile and wireless communications (UMTS) in the Community* setting out the political priorities. Member States should decide on the structure for the future licences, in particular concerning the procedure that will be used, what licensing conditions will be imposed and how many frequencies will be made available.

As many of the issues surrounding licensing of UMTS will be the same as for other public mobile services, the findings of this report could contribute to the development of a harmonised framework for issuing third generation licences.

²¹ UMTS Task Force Report : The road to UMTS “in contact anytime, anywhere, with any one”, Brussels, 1st March 1996.

2.2 Categories of mobile licences

The first work requirement mentioned in the workorder is *“to identify different services and networks within the mobile communications sector that have to be distinguished with regard to authorisations”*.

Section 2.2.1 will mention the different categories of mobile services and networks for which licences have been granted until now. As it appears that these categories are very specific for the mobile sector, section 2.2.2 analyses what the underlying reasons are for the difference between the notion “service” in the mobile sector as opposed to the fixed sector and what consequences this entails in term of licensing.

2.2.1 Categories of services and networks within the mobile communications sector

In annex 3, a table can be found, summarizing the different public landmobile licences granted until now. In all countries, distinction is made between

- GSM,
- DCS-1800,
- analogue paging,
- ERMES,
- mobile data, and
- telepoint.

In UK, DTI issued a consultation document²² for third generation mobile systems (UMTS).

It can be concluded that in all countries licences are named after the technology used. There is no explicit reference to the applications or services which are allowed. No distinction is made between the licensing of the network and the services.

This technology driven approach is characteristic of the mobile sector. In previous studies concerning services over the fixed sector, it was found that the underlying technology does not determine the category of licences. The underlying reasons and consequences will be described in the next section.

2.2.2 The notion “services” in the fixed and mobile sector.

In previous studies, ETO found the licensing of services over the fixed network to be based rather on an application point of view. From such a point of view, GSM could be described as mobile voice, data, short messaging, and fax. As found out in the previous section, the licensing of mobile communications is, however, mainly technology driven.

The main reason for this orientation towards technology rather than towards applications is certainly the fact that the licensing method for mobile communications is coupled to the methods for frequency assignment and the underlying need for electromagnetic compatibility and efficient use of frequencies.

On the international level (e.g. ITU and ERC decisions) as well as on the national level, frequency plans reserve certain frequencies for a certain type of use.

Furthermore, in order to stimulate interoperability and pan-European services, for the recent types of public mobile communications, a standard for a common air interface has been developed by ETSI. In the case of GSM, DCS-1800 and ERMES, the mobile licences basically assign co-ordinated frequencies for the use of services according to an international standard.

²² DTI, Multimedia communications on the move.; A consultation document from the Department of Trade and Industry, 31 July 1997.

It can be concluded that licences for mobile communications do not refer to the services which can be provided because reference to the frequencyband used and to the standard incorporates the service element.

As a consequence of the fact that the number of services described in the standard grows over time, the scope of the original licence expands automatically to cover additional services and service features.

Therefore, a drawback of the linking of the licence to a standardised technology is that it does not leave much room for independent service providers to develop their own innovative services. And it is a fact that until now the category of service providers developing specific value added services and providing them using leased capacity is not very developed in the mobile sector. Mobile service providers and mobile operators are in most cases the same entities. It is therefore not surprising that the difference between providing a service and running a network is not clearly made in the licensing. The denomination GSM can for example cover the network as well as the range of services.

There are resellers of subscriptions active on the mobile market. Their activities do not, however, constitute a telecommunications service in the sense of the Services Directive²³. Some rules concerning commercial practice can be applicable to them with the objective of avoiding unfair practices on the part of the entity that is at the same time operator and service provider. Fair competition between such entities and independent service providers or resellers will be treated in more detail in section 4.3.

2.2.3 Conclusion

When analysing the situation in different European countries, the following categories of public land mobile licences were found: GSM, DCS-1800, analogue paging,ERMES, mobile data, telepoint and UMTS.

Unlike in the fixed sector, the licensing of public landmobile communications has not been oriented towards applications and services for the users. Licences have been awarded on a case-by-case basis for the use of harmonised frequency bands and standardised applications. The availability of frequencies and standardisation of the air interface are determining the categories of licences for public landmobile systems.

Furthermore, a high degree of vertical integration is characteristic for the mobile sector. The licensing regime is therefore directed at the operator of the network rather than service providers not running a network.

In the future for UMTS, an approach which is more technology-neutral might be preferable. When the penetration rate of mobile services grows and the prices drop, the possibility exists that mobile services may grow to a size where they could compete with fixed services. At that moment, the factors decisive in making the user opt for a certain service will be price, quality offered and range of application, rather than the access technology.

Furthermore, standards should be developed in such a way that opportunities will be provided for independent service- or content-providers to develop their business.

²³ In article 1 telecommunications services are defined as: "services whose provision consists wholly or partly in the transmission and routing of signals on the public telecommunications networks by means of telecommunication processes with the exception of radio-broadcasting and television".

2.3 General principles applying to the licensing of mobile communications

As set out in section 2.1, the Licensing Directive requires as a general principle that national licensing regimes are light (no authorization or general authorization) and without *a priori* limitation of the number of licences. From articles 3 and 10 it appears, however, that when the right to use scarce frequencies is at stake, an individual licence may be issued and the number of operators may be limited. Mobile communications are an outstanding example of a field where regulators have made use of these exceptions to the general principle.

It is therefore useful, in order to situate the licensing of mobile communication, to analyse for the different countries:

- on what basis the number of licences can be limited or refused, even if the number of licences is not limited (2.3.2)
- what procedure is used to select operators (2.3.3)
- on what legal basis mobile licences are granted. (2.3.4).

This section is based on annex 4. The information was gathered through interviews with national experts of Denmark, France, Germany, Norway, The Netherlands and UK in October 97. For the other countries, Members of the Project Team on Licensing completed the tables.

2.3.1 Description

Table 1: Comparison of the general principles applying to the licensing of mobile communications in European Countries

Country	reason for <i>a priori</i> limitation of the number of operators	grounds for refusal of licence	Procedure used in case of limitation of operators *	Legal documents, used as basis for the licensing of mobile communications
BE	not specified	<ul style="list-style-type: none"> • incomplete information • public order or public security • not meeting qualification criteria • applicant was subject to penalties 	<ul style="list-style-type: none"> • aut grant • comp bid • fcfs 	<ul style="list-style-type: none"> • Telecom Act • Radio Act • Royal Decree • Terms and Conditions/technology
DK	scarce frequencies	scarcity of frequencies	<ul style="list-style-type: none"> • aut grant • comp bid 	<ul style="list-style-type: none"> • Public Mobile Telecom Act • executive order/technology
FR	scarce frequencies	<ul style="list-style-type: none"> • public order • national defence • public safety • scarce frequencies • applicant has no technical or financial capacity • applicant was subject to penalties 	<ul style="list-style-type: none"> • extension of existing licences • comp bid • fcfs 	<ul style="list-style-type: none"> • General Telecom Act • Tender/technology
FI	scarce frequencies	<ul style="list-style-type: none"> • not meeting qualification criteria (financial resources) • applicant does not comply with provisions of telecom regulations 	<ul style="list-style-type: none"> • comparative bidding 	Telecommunications Market Act (396/1997)

Country	reason for <i>a priori</i> limitation of the number of operators	grounds for refusal of licence	Procedure used in case of limitation of operators *	Legal documents, used as basis for the licensing of mobile communications
		<ul style="list-style-type: none"> scarcity of frequencies 		
GR	scarce resources (radio frequencies)	<ul style="list-style-type: none"> public safety applicant has no technical or financial capacity applicant has no credibility 	<ul style="list-style-type: none"> comp bid 	<ul style="list-style-type: none"> Telecom act (Law Nr. 2246/94)
GER	scarce resources	<ul style="list-style-type: none"> NRA does not possess usable frequencies applicant has not necessary reliability, efficiency and specialised knowledge 	<ul style="list-style-type: none"> comp bid auction 	<ul style="list-style-type: none"> General Telecomm Act Tender/technology
IR	scarce frequencies	scarcity of frequencies	comp bid	Wireless Telegraphy Act
IT	scarce frequencies	<ul style="list-style-type: none"> applicant did not provide all documentation required 	<ul style="list-style-type: none"> comp bid aut grant 	<ul style="list-style-type: none"> General Telecomm Act Tender/technology
LUX	essential requirements		<ul style="list-style-type: none"> comp bid 	<ul style="list-style-type: none"> General Telecom Act Tender
NL	lack of resources		<ul style="list-style-type: none"> aut grant fcfs. comp bid auction 	<ul style="list-style-type: none"> General Telecom Act Tender/technology
NW	not explicated	<ul style="list-style-type: none"> justified by fundamental telecommunications policy considerations essential requirements no licence to establish or operate a network or service radio equipment fails to comply with relevant requirements 		
PO	radio spectrum limitations	<ul style="list-style-type: none"> applicants do not fulfill all requirements mainly concerning identification, technical and financial capability 	<ul style="list-style-type: none"> aut grant com bid in case of extreme scarcity: auction 	<ul style="list-style-type: none"> Telecom Act licensing regime
SWE	mobile communications if scarce frequencies	<ul style="list-style-type: none"> scarce frequencies applicant is not capable of pursuing the activity on a permanent basis and with adequate capacity and quality 	<ul style="list-style-type: none"> comp bid 	<ul style="list-style-type: none"> Telecom Act Radio Act Conditions/technology
UK	in cases involving radio spectrum	<ul style="list-style-type: none"> applications are considered on their individual merit scarce frequencies 	<ul style="list-style-type: none"> aut grant comp bid fcfs future: auctioning 	<ul style="list-style-type: none"> General Telecom Act Wireless Telegraphy Act Invitation to bid/technology

* For a description of the procedures reference can be made to section 2.3.3.

aut. grant : automatic grant
 com bid: comparative bidding
 fcfs first come first served

2.3.2 Limitation of the number of operators

Limitation of the number of operators is generally based on lack of radio spectrum. In Luxembourg, all essential requirements can be a valid reason. In Sweden only the number of mobile operators can be limited on this ground. Indeed, operators of fixed networks can fall back on wired infrastructure so there is no reason to limit the number of operators of fixed networks on the basis of shortage of frequencies. Of course it is very possible that the amount of spectrum available for fixed links is not sufficient to satisfy the demand. Shortage can necessitate a specific selection procedure to divide the resources available. It should not result, however, in a limitation of the number of operators opting to realise their network using other technologies.

2.3.3 Selection procedures

From table 1 in section 2.3.1 and the overview in annex 3, it becomes clear that Member states have followed a variety of approaches towards **selection procedures** for mobile operators.

Analysing these differences is of interest because the selection procedure has consequences for the qualification of the operator, the information that has to be provided and the licensing conditions. In the case of "first come first served", for example, qualification is a simple administrative procedure and all operating conditions not related to the assignment of a frequency will be found in general legislation. In the case of comparative bidding, part of the operating conditions is not predefined in general legislation. There, the conditions of the individual licence reflect the terms of the bid introduced by the operator.

Different procedures can therefore lead to potential distortion in competition between

- operators of the same technology licenced in the same country
- operators of the same technology in different countries
- operators of different technologies offering substitutable services

In this section, the sort of selection procedure will be analysed in a general way. The consequences of the selection procedure on the licensing conditions and competition, however, will be examined more closely in section 3.

In the monopoly situation, licences were **automatically granted**. In a liberalised environment however, the licensing procedure entails that the granting of licences is preceded by the drawing up of provisions for a tender followed by a selection procedure.

Generally there is **no selection procedure** for the attribution of frequencies in the public interest to government services or to services which have a vital function like emergency services. Services of this nature are not, however, examined in this report.

For the categories of public landmobile communications systems, distinguished in section 2.2.1, the following methods for selecting operators of mobile communication systems were applied:

first come first served,
 comparative bidding
 auction
 lottery

First come first served is a widespread, longstanding method. In principle, applications are dealt with in the order in which they come in. This approach is appropriate where there is no scarcity of frequencies. Private Mobile Radio (PMR) licences are a typical example. A large number of users, who are not commercial operators and who in consequence do not compete among each other in the telecommunications service, obtain licences if the qualification criteria imposed by the NRA are met.

Comparative bidding has as its goal the selection of the best applicant, according to pre-defined selection criteria. This method enables the pursuit of telecommunications policy goals and implies a thorough and systematic comparison of candidates. The reverse side is the risk of a complex and time-consuming procedure, subject to litigation.

Auctions are the process by which, among all candidates who fulfil the qualification criteria, the one making the highest bid is awarded the licence. The high prices which are usually paid for the licence in this way encourage on the one hand an efficient use of the frequencies, but may on the other hand increase the user tariffs. Another disadvantage is that it benefits the bidder with "cheap money" which is not necessarily the most efficient. As in the case of lottery, the effect of auctioning on frequency efficiency and development of the mobile market is also influenced by whether the licences are delivered on a transferable or a non-transferable basis and whether they are for a specified use or not.

Lotteries, which have been used in the US, were not found in the systems studied here. In this system, all interested parties which fulfil the qualification criteria if any, can apply for a part of the available spectrum. The award of the licence is not subject to a selection based on technical or economical criteria. The advantage is that, for the administration, it is a quick, simple and non-discriminatory procedure. The disadvantage is that there is no guarantee that it will result in choosing the most efficient operator, especially if the qualification criteria do not impose a high level of performance. Moreover, this procedure can lead to speculation if resale of the licence is allowed .

The following table, based on information collected in annex 3, shows the selection methods in different countries and for different systems. It shows that the method used depends upon the type of service or category of users and upon technical and economic decisions taken by the NRA.

Table 2 Comparison of selection procedures used for different mobile systems

	GSM	DCS-1800	analogue paging	Ermes	mobile data	telepoint	UMTS
AU							
BE	automat/ comp bid	comp bid	automat grant	comp bid	f c f s	no system	?
DK	comp bid	comp bid	automat grant	automat/ comp bid	no system	no system	not de- cided yet
FI	comp bid	comp bid	free	free	free	no system	com bid
FR	extention	com bidd	?	?	f c f s		?
GER	comp bid	comp bid	comp bid	auction	f c f s/ comp bid	no system	auction or comp bid
GR	comp bid	no system	not lib	not lib	?	?	
IRL	comp bid	comp bid					
IT	aut grant/ comp bid	aut grant/ comp bid	comp bid		no system	comp bid	no system
LUX	comp bid	comp bid					
NL	comp bid	auction	automat/ fcfs	comp bid	automat/ fcfs		
NOR		comp bid					
POR	aut grant comp bid	aut grant comp bid	aut grant comp bid	fcfs (future)			
SP							
SWE	extension	comp bid	comp bid	comp bid	comp bid	comp bid	comp bid
UK	comp bid	comp bid		automat comp bid	f c f s	no system	auction

The methods for selecting mobile operators vary greatly both from country to country as well as between the different technologies in the same country.

Variation of selection procedures for different networks and services between countries

A description of the selection procedures can be found in the paragraphs preceding the table above.

From the table, it appears that the procedure evolves over time. When the mobile sector was first liberalised, in many countries the incumbent operator was already providing a GSM network and service. A second operator was then chosen on the basis of comparative bidding, while the existing operator was granted the licence automatically.

Comparative bidding is by far the most popular selection procedure in a competitive market although recently countries like Germany, The Netherlands and UK have tended recently to organise auctions. Also in Belgium and Italy, the amount an operator is willing to pay for the licence is an important selection criteriom so that comparative bidding is developing into a precess resembling auction.

Variation of selection procedures for comparable services in the same country

Sometimes, even for the same technology, operators within one country were found to be subject to different procedures. This is generally the case when the operator with exclusive rights was already operating NMT, GSM, mobile data or analogue paging before the mobile market was liberalised. **In those cases, new licences were given after a selection procedure, while the existing operator was granted the licence automatically.**

Furthermore, in a liberalised environment new spectrum can also be made available for a new operator for services which are already in operation. This has been the case in Germany for DCS-1800 and in UK for digital paging. In the first case, the new German DCS-1800 operator was subjected to a new comparative bidding procedure. In the UK only the new operator will be selected through comparative bidding while the three existing operators were allowed to operate digital paging on the basis of their licence for analogue paging. **In a liberalised environment, examples are also found where new operators are selected on a different basis from the ones which were already on the market before additional spectrum was made available.**

Finally, GSM/DCS-1800 and digital paging/ERMES can be seen as competing, substitutable services only offered in different frequency bands.

Comparative bidding has been the procedure most frequently used in Europe for these services. In The Netherlands, however, auction is being considered for DCS-1800 while in UK some licences for ERMES have been automatically granted.

For Germany it is interesting to observe the difference in approach for the two licences (2nd DCS-1800 and ERMES) granted on the basis of the new Telecommunications Act, which put auction forward as the normal selection procedure. Organisation of comparative bidding for the second DCS-1800 licence was chosen in order not to distort competition with the existing operator on the market. ERMES frequencies were, on the other hand auctioned, because the market for this service was seen as different from the one for analogue paging.

It can be concluded that, **while most countries use comparative bidding in a consequent way to select the operator for substitutable services and networks, there are examples where operators of such services and networks have been selected on the basis of divergent procedures.**

2.3.4 Legal basis

The granting of licences on a case-by case basis has as a consequence that each new technology is governed by a set of rules dispersed over telecommunications legislation, radio legislation, secondary legislation, administrative documents and individual licences or concessions which have to be partly revised or newly created in order to issue new licences.

This leads to

- long legislative procedures, legal uncertainty and non-transparent legislation
- potential distortion of competition between operators on the same market or similar markets within one Member State
- potential distortion of competition between operators across different countries.

Member States are aware of this. In section 4, the transparency of the licensing regime as well as what is done to safeguard fair competition will be examined further.

2.4 Comparison of categories of licences in the fixed and in the mobile sector

2.4.1 Introduction

It is common in the EU that national telecommunications regulations are built on a layer model, distinguishing between **infrastructure, services and terminals**.

The licensing of the mobile communications sector is rather complex because activities and actors on different levels are involved and these activities or actors can on each level be subject to a distinct licensing regime. Besides that, access to scarce resources and in particular the **use of frequencies** is also subject to specific regulation. In annex 6, a description can be found of how these different elements are licensed in EU countries in the fixed and mobile sectors.

A mobile operator is involved simultaneously in

1. the installation and operation of a fixed system
2. the installation and operation of a mobile system
3. the provision of mobile services
 - basic services (e.g. voice calls)
 - enhanced services (e.g. call blocking, voice mail)
 - reselling, marketing and distribution
4. the selling and connection of terminal equipment.

Theoretically, there is room for competition between the different levels. Independent service providers, having access to the operators network, could e.g. compete with the services the operator is operating himself. It could, however, already be concluded from **section 2.2** that the mobile sector is in reality dominated by vertically integrated operators. There are relatively few independent service providers (resellers not being considered as service providers) and mobile services are typically marketed by the same entities that also operate the network.

In point 2.4.2 the scope of the mobile licences granted to the operator of the network will be analysed. The purpose is to find out how many and what kind of licences are required in the different countries for an operator wishing to build a network and provide mobile services.

A comparison of the licensing regimes applicable in the fixed and the mobile sectors to providers of capacity (infrastructure), services only (not on a self provided network) and users of frequencies can be found in **section 2.2.3**. The licensing of terminals will be treated in **2.4.4**.

2.4.2 Scope of the mobile licence

The following table is based on the information in annex 5. The information was gathered through interviews with national experts of Denmark, France, Germany, Norway, The Netherlands and UK in October 97. For the other countries, Members of the Project Team on Licensing were invited to complete the tables.

Exploring further on the basis of table 3, an analysis will be made of

- how many licences are required from an operator in order to provide mobile services on his own network
- what rights are covered by the licence(s)
- in particular, how the right to use frequencies is treated.

Table 3 Comparison of the scope of licences for operators of mobile systems

	Be	Dk	Fi	Fr	Ge	Gr	Ir	It	Nl	Nw	Po	Sw	UK
number of licences required	1	1	1	1	1	2	*	2	1	2	1	1*	2
Network													
setting up of the network		X	X	X		X	X	X					X
operation of the network		X		X	X	X	X	X	X			X	X
Services							X						
provision of services		X				X	X	X	X		X	X	X
Right to use frequencies													
part of the network or service licence		X		X	X						X		
supplementary administrative document		X	X	X	X							X	
separate decree									X				
separate licence						X	X						X

In Sweden, major operators with a market share of 5-10% need a service licence according to the Telecom Act of 1997.

* In Ireland, the mobile network is subject to one individual licence, completed with various radio licences.

Although the provision of services as a separate activity for independent service providers is usually covered by general authorisation and not subject to any formality, it is very common that NRAs issue licences to the operator which cover the establishment and operation of a public communications network with associated basic services.

The individual licence therefore covers not only the operation of the network and the use of frequencies but also the provision of basic services.

In all countries, the assignment of frequencies involves a specific document, which can be an integrated part of the licence or a completely separate legal document. If two licences are required, one covers the provision of the network and the service while the second one grants the right to use the frequencies.

The supplementing of the licence with an administrative document governing detailed technical frequency aspects like the outgoing power of the base stations, the allocated channels and the location of the base, allows the necessary flexibility for building out the network. Moreover, in certain countries frequency assignment is based on a Radio Communications Act which is not incorporated in the Telecommunications Act. The responsibility for frequency allocation may also remain with a separate entity. But even when this is the case, the different regulatory bodies involved coordinate their work.

In all countries, the operator is provided at the same time with the full set of licences and administrative documents needed to start off at the same time.

Therefore, no further proposals for harmonisation are deemed necessary.

2.4.3 Licensing regimes in the mobile and fixed sector

On the basis of the information contained in annex 6, the following table reviews the consistency of the licensing regime for different actors in the mobile sector with the same sort of actors in the fixed sector. Three categories will be compared:

- 1 operators providing services which also run infrastructure,
- 2 providers of services which do not run infrastructure and
- 3 providers of voice services.

A category “operators running infrastructure without providing services” has not been retained, as it could be concluded from the above section 2.4.2 that licences for mobile operators cover the setting up of the network as well as the running of the service.

Within the category of “service providers without infrastructure” on the fixed network, voice telephony is distinguished as a separate category. “Mobile voice” was not given a special category because when analysing the different categories of mobile licences, it was in none of the countries found to be considered a separate service. The same is true for the categories of services provided over the fixed network ETO distinguished in earlier studies : bearer data services, premium rate services, services not provided to the public and other liberalised services.

Where these services are provided over mobile networks, the categorisation is not retained.

The assessment²⁴ of the licensing regime is made on the basis of the regimes identified in the licensing directive:

- General authorisation, not requiring registration²⁵
- General authorisation, requiring registration²⁶
- Individual Licence²⁷.

²⁴ In previous ETO studies concerning the licensing of bearer data services and other liberalised services, four general licensing regimes were distinguished and defined: free regime, general authorisation, registration and individual licence.

In the meantime, *Directive 97/13/CE on a common framework for general authorisations and individual licences in the field of telecommunications services* has been adopted. The categorisation of the directive was used for this study.

²⁵ In article 2, 1 (a) of the licensing directive, general authorisation is defined as “*an authorization, regardless of whether it is regulated by a “class licence” or under general law and whether such regulation requires registration, which does not require the undertaking concerned to obtain an explicit decision by the national regulatory authority before exercising the rights stemming from the authorisation*”

²⁶ Registration requires that the potential service provider make a declaration to the NRA of his/her intention to offer the service. In this declaration the applicant has to give the NRA a list of requested information. The legal form which regulates registration is telecommunications legislation. General law remains applicable. In general the service can be opened a short period of time after the declaration if no answer is given by the NRA, unless the NRA decides otherwise before the deadline. In some countries the procedure is slightly different; the service provider can start to operate the service immediately after the declaration and the NRA cannot disapprove.

²⁷ Individual licence is defined in article 2 of the licensing directive as “*an authorisation which is granted by a national regulatory authority and which gives an undertaking specific rights, or which subjects that undertaking’s operations to specific obligations supplementing the general authorization where applicable, where the undertaking is not entitled to exercise the rights concerned until it has received the decision by the national regulatory authority*”.

An individual licence requires that the potential service provider send an individual application to the NRA, asking for an individual authorisation to provide the service. In this application form the applicant has to give the NRA a list of requested information. This regime is regulated by general law, telecommunication law and a document called Individual Licence which allows an individual service provider to provide the service. NRAs issue the individual licence and have the power both to reject the demand and to withdraw the individual licence if the service provider does not respect certain conditions

Table 4 Comparison of licensing regimes in the fixed and mobile sector.

	operators providing network capacity		service providers without infrastructure		use of frequencies		
	fixed	mobile	fixed		mobile	fixed	mobile
			<i>voice telephony</i>	<i>other than voice telephony</i>			
AU							
BE	indiv lic	indiv lic	indiv lic	registration	registration	part of operator lic	part of operator lic
DK	gen auth	indiv lic	gen auth	<ul style="list-style-type: none"> gen auth registration for premium rate services 	gen auth	indiv lic	part of operator lic
FI	registration	indiv lic	registration	<ul style="list-style-type: none"> gen auth 	registration	indiv lic	indiv lic
FR	indiv lic	indiv lic	indiv lic	gen auth	gen auth	part of operator lic	part of operator lic
GE	indiv lic	indiv lic	indiv lic	registration		part of operator lic	part of operator lic
GR	monopoly	indiv lic	monopoly			indiv lic	indiv lic
IRL	indiv lic	indiv lic	monopoly	indiv lic	indiv lic	part of operator lic	indiv lic
IT	indiv licence	indiv lic	indiv licence	<ul style="list-style-type: none"> gen auth registration for services on PSTN 	indiv lic	indiv lic	indiv lic
LU			monopoly	registration			
NL	indiv lic	indiv lic	registration if inter-connection needed	gen auth	gen auth	separate procedure	part of operator lic
NW		indiv lic		gen auth	gen auth		
PO	monopoly by 2000 indiv lic	indiv lic	monopoly by 2000 indiv lic	registration	registration	part of operator licence	part of operator licence
SP			3 licences, full liberalisation by dec 98	<ul style="list-style-type: none"> indiv lic registration for premium rate services 			
SW E	registra /indiv lic	registra/ indiv lic	registra/ indiv lic	registration	registra	ind lic/gen auth	ind lic gen aut
UK	indiv lic	indiv lic	individual lic	general authorisation	gen auth	indiv lic	indiv lic

Most countries distinguish between operators providing network capacity and service providers without infrastructure. The first category is usually subject to individual licence, while there is a tendency towards general authorisation for service provision alone.

Although service providers are usually subject to general authorisation, some services provided on the fixed network (like public voice telephony, voice to closed user groups, international simple resale or premium rate services) are subject to a more regulated regime. This could be an individual licence or a registration procedure. The situation differs for the mobile sector.

One reason why service provision over mobile networks has until now in most countries not been subject to any formalities is that the nature of the services provided over mobile networks differs substantially from the variety of services offered over the fixed network. Furthermore, public mobile voice is considered a different market from fixed voice. The sector is also more vertically integrated and independent service providers offering value added services are only beginning to emerge.

2.4.4 The licensing of terminals

Article 24 of the ITU Radio Regulations requires members to regulate the use of radio transmitters through a licensing regime as follows:

“No transmission station may be established or operated by a private person or by any enterprise without a licence issued in an appropriate form in conformity with these regulations by the Government of the country to which the station in question is subject.”

The holder of a terminal intended for use on a public landmobile network is therefore subject to licensing. However, the regime for type approval of terminals, and the responsibility for manufacturers to put only type approved terminals on the market, are equally important for the free circulation of terminal equipment. The question of type approval will, however, not be treated here as it is not a licensing issue.

Within ERC, a Recommendation was adopted in 1995 on a harmonised regime for exemption from individual licensing of radio equipment (CEPT/ERC/REC 01-07). On the basis of the criteria put forward in the Recommendation, it could be decided to exempt certain types of equipment from individual licences.

As shown in the following table, most terminals functioning on public mobile networks are completely exempted from licence or subject to a general authorisation.

Table 5 Licensing regime for terminal equipment

	GSM	DCS-1800	analogue paging	ERMES
AU				
BE	exempted	no system	exempted	no system
DK	exempted by executive order no. 504 of 19 June 1997			
FI	exemption of licence for all terminal equipment for public mobile systems			
FR	general authorisation for all terminal equipment for public mobile systems			
GE				
GR				
IRL	exempted	exemption proposed		
IT				
LU				
NL	exemption of licence for all terminal equipment for public mobile systems			
NW				
PO				
SP				

SWE	exemption of licence for all terminal equipment for public mobile systems
UK	class licence for all terminal equipment for public mobile systems

Although type approval is strictly speaking not a licensing issue, it should be mentioned briefly. Free circulation of terminals and mutual recognition of type-approval of terminals are important for the manufacturers and users. Moreover, a truly pan-European or worldwide service requires that users have the possibility to cross borders without further formalities being involved.

3 Analysis of licensing procedures

As already set out in section 2.3 on the general framework for mobile licences, an important difference between the mobile and the fixed sector is that scarcity of frequencies and concern for efficient use of frequencies may be reasons to limit the number of licences for mobile communications.

It was observed in that section that the difference in procedure could result in distortion of competition. It is therefore worthwhile to analyse the licensing procedures of comparative bidding (3.1) and auctioning (3.2) in more detail.

3.1 Comparative bidding

Except for France, Luxembourg and the UK, the legal framework distinguishes between qualification and selection criteria²⁸:

In Ireland the qualification and selection criteria used in competitive bidding procedures are confidential.

During a **qualification phase**, an initial evaluation is made on the basis of a number of minimum requirements in order to screen the candidates on their seriousness. Those tenderers who live up to the stipulated minimum are subjected to the selection criteria. Qualification criteria are afterwards not reflected in the operating conditions of the operator.

Selection criteria are those which are decisive for the choice of the winner. While for qualification it was sufficient to comply with a minimum level, candidates should try to perform better than competitors on the selection criteria. The individual licence granted to the winner of the selection process reflects in the operating conditions the bid made in relation to each criterion.

A description of the criteria used in each of the two stages can be found in annex 7. They will be analysed consequently in the following sections 3.1.1 and 3.1.2. For France, Luxembourg and UK, all criteria have been treated as selection criteria.

3.1.1 Qualification phase.

During a qualification phase, an initial evaluation is made on the basis of a number of minimum requirements. Those tenderers who live up to the stipulated minimum are subjected to the selection criteria.

The following table, based on the information collected in annex 7, shows how many European countries take into account each of the different criteria. Austria, Ireland and Greece are the countries on which the information is not included.

Because in France, Luxembourg and UK qualification conditions are not mentioned, the total is given for 9 countries.

²⁸ In Denmark, Norway and UK the selection procedure is preceded by a 'call for interests' with the purpose of obtaining indications about the number of possible bidders and preliminary indications concerning certain licensing conditions.

Table 6 Criteria used in the qualification phase

Criteria	Total/9
<i>Commercial aspects</i>	
financial and commercial feasibility	6
general management of the project	2
<i>Financial aspects</i>	
financial basis/resources	6
<i>Technical aspects</i>	
coverage and expansion rate	2
technical and operational knowledge and expertise	5
availability of frequencies	1
<i>Others</i>	
compliance with telecommunication regulation	2
competitive aspects of activities as manufacturer of systems technology	1
registered to maintain a trade activity and in Register of Collective Persons	2
absence of debt to the state	2
have an approved account system	2
maximum of 25% non-Community capital	1

Portugal sets some specific conditions like “absence of debt to the state” and “a maximum of 25% non-Community capital”. The latter has been changed since the approval of the Telecommunications Act on 1st of August 1997.

Proof of financial resources and technical and commercial capability are recurrent criteria. The qualification phase has obviously as goal to admit to the selection procedure only those applicants of which it can be reasonably assumed that they are serious candidates, capable of setting up the network and providing the service.

Closer evaluation of commercial, technical and financial credibility is part of the selection criteria.

3.1.2 Selection phase

The following table, based on the information collected in annex 7, shows many of the 12 European countries have taken into account each of the different criteria used. Austria, Ireland, Spain and Greece are the countries on which the information is not included.

In the introduction, selection criteria were described as *those which are decisive for the choice of the winner. While for qualification it was sufficient to comply with a minimum level, candidates should try to perform better than competitors on the selection criteria. The individual licence granted to the winner of the selection process reflects in the operating conditions the bid made in relation to each criterion.*

Distinction has been made between

- commercial aspects
- financial aspects
- technical aspects
- others

Table 7 Criteria used in the selection phase

	Total/12
<i>commercial aspects</i>	
tariffs/cost efficiency /price structure	7
efficiency/development of the market	5
relation price/quality	1
effective distribution channels/expertise with marketing appropriate services/ marketing capabilities	4
contribution to pan European service	2
credibility of commercial or marketing hypothesis	2
competence in mobile market	2
development of the mobile telephony market and integration with other telecom networks	1
satisfaction of end user/ services in accordance with the reasonable needs of the users of telecommunications	2
<i>financial aspects</i>	
financial capability	4
credibility of business plan	6
amount willing to pay for concession	2
amount prepared to invest	2
<i>technical aspects</i>	
coverage (geographically or in terms of population)	9
timing of roll-out	7
provide services in certain specific areas	1
technical experience	4
quality of the service	3
quality of the network	3
technical viability	3
range or quality of services/ development of VAS/technically advanced services	7
functional reliable and secure services	1
efficient use of frequencies	7
best promotion of efficiency of the telecommunications market	1
expertise for setting up the network	2
systems increasing voice quality	1
technologies permitting international roaming	1
widely accepted technologies	1
<i>others</i>	
structure, size, organisation of the undertaking	2
employment	3
competitive aspects	4
absence of direct or indirect participation of PTS in capital	1
qualifications exceeding the criteria for qualification	2
innovation and development	1
quality of bidding on use of DCS-1800	1
previous experience in the field	3

The following four criteria are used in some countries as qualification conditions and in others as selection criteria:

- financial basis/resources
- technical and operational knowledge
- financial and commercial feasibility
- coverage and expansion rate.

In Portugal, Norway and the Netherlands, financial aspects are only part of the qualification phase not of the selection. Commercial aspects are not a selection element in Portugal and UK. Technical criteria are present in all countries.

The most widespread selection criteria (found in at least 5 countries) are:

- the tariffs, price structure
- coverage (in terms of population or geographically)
- time for roll-out
- quality and range of services
- efficient use of frequencies
- financial capability and credibility of the business plan.

From the table below, it appears that the total number of criteria taken into account for selecting the winners varies between 1 and 9. However, countries without a qualification phase are likely to check the financial and commercial credibility of the candidates during the selection process. If the number of qualification and selection criteria are taken into account, the total number varies between 6 and 13, leaving aside Italy where the total number of criteria is 21.

Table 8 Overview of the total number of selection and qualification criteria

	BE	DK	FI	FR	GE R	IT	NL	N W	PO	SW E	UK	LU
Total number of qualification criteria	4	2	3	11	1	13	3	9	6	4 ²⁹	9	9
Total number of selection criteria	3	10	7		5	8	5	3	17	9		
total number of criteria	7	12	10	11	6	21	8	12	23	13	9	9

During the interviews carried out with national mobile specialists, it appeared that picking winners is a difficult process. One reason could be that the weight of the different selection criteria is not set out clearly, except in Belgium. In that country a percentage expressing the relative weight of each criterion adds to the transparency of the procedure.

In a general way it can be said that coverage and time for roll-out is in all countries considered a very important element.

Together with the quality of the services, it is the only element which in some countries is set as a minimum. Candidates are invited to present a bid exceeding the minimum. The individual licence reflects the obligation undertaken by each of the winning candidates during the bidding procedure. This results in different terms in the individual licences, which influence in their turn the investments which have to be made by the operators.

²⁹ The qualification criterion of max 25% foreign capital, which existed at the moment the licences were granted, is no longer present in the new Telecommunications Act.

3.2 Auctioning

In the case of auctioning ERMES licences in Germany, the bidder's ability to pay was crucial as well as the guarantee that no dummy bid was placed. Inability to pay or withdrawal of a bid during or after auction distorts the whole process.

To ensure solvency, each participant in the auction procedure was required to provide a deposit, equal to the minimum bid, and in addition to provide a bank guarantee as proof of ability to pay for bids exceeding the amount of the deposit.

Serious bidding is ensured by the provision of penalties for withdrawal.

In the Netherlands, the auctioning of DCS-1800 licences is preceded by a qualification phase. The same qualification criteria are found for all types of selection procedures; they are financial position and technical and operational expertise.

In the US, there were bad experiences with auctioning frequencies without screening the candidates on their financial, technical and commercial qualifications. Winners of auctions were unable to make the necessary investments because the licensing fee took up the largest part of their budget or they did not have the necessary experience to build out a successful commercial service.

3.3 Conclusion

Comparative bidding is the most popular selection procedure for mobile communications.

Both auctioning and comparative bidding are in the majority of the countries performed in two stages: qualification and selection.

During the qualification stage, candidates can prove their seriousness and capability to set up a network and run services financially, technically and commercially. Selection criteria are used to select winners between qualified candidates.

An extremely wide range of selection criteria is used in the case of comparative bidding. The following 5 however can be put forward as the most important ones:

- the tariffs for the customer, price structure
- coverage (in terms of population or geographically)
- time for roll-out
- quality and range of services
- efficient use of frequencies.

At the same time, those are also the criteria for which candidates are invited to come up with a bid exceeding minimum criteria, which results in conditions in the individual licence that diverge for each operator. This determines the investments which have to be made by each of them.

Due to the effect on competition between mobile systems, nationally as well as internationally, harmonisation in CEPT Member-States of the criteria for qualification and selection respectively should be envisaged.

4 Analysis of licensing conditions

The basis for the analysis of licensing conditions is the information gathered in annex 8. In **section 4.2** the elements found in the country analysis are related to the provisions of the licensing directive and the scope for possible harmonisation of certain conditions beyond the level of the EU framework is determined. In a third **section 4.3** certain conditions related to fair competition within the mobile sector on the one hand and the mobile and fixed sectors on the other hand are highlighted. Finally, conditions related to roaming and interconnection are analysed (sections 4.4 and 4.5).

4.1 Country analysis

The country-by-country analysis of the licensing regime for mobile services and networks in section 8 is based on information collected by the consulting company IDATE, assisted by BRC. The methodology for analysis of the licensing conditions and distinguishing between qualification conditions, information to be provided and conditions of operating refers back to previous ETO studies.

Within the licensing conditions that have to be respected by the operator, distinction was made between the following:

1. qualification conditions: conditions the operator has to comply with in order to qualify as a candidate and information to be provided
2. operating conditions: conditions/rules to comply with while operating the service

Because IDATE was not subcontracted to analyse licensing procedures, only few qualification conditions were identified. For a more complete and in-depth analysis, section 3 of this report should be consulted.

In the section 4.2, the analysis is given of whether

- the licensing conditions imposed on different mobile networks and services are in conformity with the framework set out by the licensing directive
- certain licensing conditions can be harmonised beyond the level of European legislation.

4.2 Scope for harmonisation

The following table is structured along the lines of the annex of the licensing directive.

The first column literally takes over the provisions found in annex to that directive. In the second column, the elements found in the country analysis included in annex 8 are related to the provisions of the licensing directive. The third column considers whether the different licensing conditions should be the subject of proposals for further harmonisation within the context of this study. The content results from an ad-hoc meeting of the ECTRA Mobile Project Team and the ECTRA Project Team on Licensing and Declaration. A subject is only retained for harmonisation if

- it is specific for mobiles and does not occur in licensing regimes for other services or networks;
- it has not been treated by other ETO or ERO studies;
- there is no de facto harmonisation by the GSM MoU;
- it is a licensing matter, not related to social obligations (such as universal service or provisions for disabled people) or non telecom specific legislation (such as competition law or criminal law);
- in European directives a detailed level of regulation has not yet been foreseen.

1. Any conditions which are attached to authorisations must be considered with the competition rules of the Treaty

2. Conditions which may be attached to all authorizations, where justified and subject to the principle of proportionality:		
CONDITIONS MENTIONED IN THE ANNEX OF THE LICENSING DIRECTIVE	CONDITIONS IDENTIFIED IN THE ANALYSIS OF THE NATIONAL SITUATION (ANNEX 5)	SUBJECT TO FURTHER HARMONISATION?
2.1 Conditions intended to ensure compliance with relevant essential requirements.	essential requirements	Reference can be made to the results of the ETO-report on essential requirements (workorder 48372).
2.2 Conditions linked to the provision of information reasonably required for the verification of compliance with applicable conditions and for statistical purposes.	reporting duties connection to PSTN info concerning CUG roll-out of network absence of debt to state identification of operator	Needs further study ETO proposed a specific workrequirement on this subject for the workprogramme of 1998
2.3 Conditions intended to prevent anti-competitive behaviour in telecommunications markets, including measures to ensure that tariffs are non-discriminatory and do not distort competition.	control over tariffs subsidising terminals with network profits obligation to commercialise through service providers subsidy of own retail only accounting rules	Needs further study see section 4.3
2.4 Conditions relating to the effective and efficient use of the numbering capacity.	access to numbers	Reference to ETO studies on - European Numbering conventions (WO48379) Number portability for pan European services (WO 48375) and Personal Numbering

3 Specific conditions which may be attached to general authorizations for the provision of publicly available telecommunications services and of public telecommunications networks that are required for the provision of such services, where justified and subject to the principle of proportionality:		
CONDITIONS MENTIONED IN THE ANNEX OF THE LICENSING DIRECTIVE	CONDITIONS IDENTIFIED IN THE ANALYSIS OF THE NATIONAL SITUATION (ANNEX 5)	SUBJECT TO FURTHER HARMONISATION?
3.1 Conditions relating to the protection of users and subscribers in relation particularly to: <ul style="list-style-type: none"> • the prior approval by the national regulatory authority of • the standard subscriber contract, • the provision of detailed and accurate billing, • the provision of a procedure for the settlement of disputes, • publication and adequate notice of any change in access conditions, including tariffs, quality and the availability of services 	<i>has not been examined</i>	Reference can be made to study concerning consumer protection for public fixed voice telephony services (work-requirement 48371) as consumer protection is not specific for the mobile sector
3.2 Financial contributions to the provision of universal service, in accordance with Community law.	universal service rights and obligations	This can be considered to be a particular issue, related to social obligations not specific for mobile communications and not to be treated in the scope of this report
3.3 Communication of customer database information necessary for the provision of universal directory information.	entry of numbers in the directory and directory inquiry provisions	no harmonisation beyond ONP Voice Telephony directive needed
3.4 Provision of emergency services.	priority in case of emergency or disaster	Reference to ETO report on Essential Requirements where it was concluded that no further harmonisation on this issue is feasible
3.5 Special arrangements for disabled people.	<i>has not been examined</i>	
3.6 Conditions relating to the interconnection of networks and the interoperability of services, in accordance with the Interconnection Directive and obligations under Community law.	interconnection	Further analysis needed see section 4.5

Specific conditions which may be attached to individual licences, where justified and subject to the principle of proportionality:		
CONDITIONS MENTIONED IN THE ANNEX OF THE LICENSING DIRECTIVE	CONDITIONS IDENTIFIED IN THE ANALYSIS OF THE NATIONAL SITUATION (ANNEX 5)	SUBJECT TO FURTHER HARMONISATION?
4.1 Specific conditions linked to the allocation of numbering rights (compliance with national numbering schemes).	access to numbers	no further harmonisation to be proposed
4.2 Specific conditions linked to the effective use and efficient management of radio frequencies.	<ul style="list-style-type: none"> • quality of service • period for building the network • access to other frequency bands • roaming 	Further study needed see section 4.3 and 4.4
4.3 Specific environmental and specific town and country planning requirements, including conditions linked to the granting of access to public or private land and conditions linked to collocation and facility sharing.	<ul style="list-style-type: none"> • site sharing • roaming 	In the ETO-report on essential requirements it was concluded that this is closely related to conditions ensuring fair competition see section 4.4.
4.4 Maximum duration, which shall not be unreasonably short, in particular in order to ensure the efficient use of radio frequencies or numbers or to grant access to public or private land, without prejudice to other provisions concerning the withdrawal or the suspension of licences.	duration	further analysis in section 4.7
4.5 Provision of universal service obligations in accordance with the Interconnection Directive and Directive 95/62/EC of the European Parliament and of the Council of 11 December 1995 on the application of open network provision (ONP) to voice telephony .	universal service rights and obligations	This subject is very broad and touches social obligations for operators, not only in the mobile sector.
4.6 Conditions applied to operators having significant market power, as notified by Member States under the Interconnection Directive, intended to guarantee interconnection or the control of significant market power.		Treated in the ETO study on operators with significant market power. (workrequirement 48370)
4.7 Conditions concerning ownership which comply with Community law and the Community's commitments vis-à-vis third countries.	<ul style="list-style-type: none"> • legally registered representative • nationality of the licensee • foreign ownership restrictions 	no harmonisation beyond EC legislation needed after the conclusion of WTO agreement

<p>4.8 Requirements relating to</p> <ul style="list-style-type: none"> the quality, availability and permanence of a service or network, including the financial, managerial and technical competence of the applicant and conditions setting a minimum period of operation and including, where appropriate and in accordance with Community law, the mandatory provision of publicly available telecommunications services and public telecommunications networks. 	<ul style="list-style-type: none"> quality of service availability roll-out of network technical capability economic structure and economic viability <i>has not been examined</i> <i>has not been examined</i> 	<p>already treated by standardisation, no further harmonisation needed</p> <p>no harmonisation beyond EC legislation feasible</p> <p>no harmonisation beyond EC legislation necessary</p>
<p>4.9 Specific conditions relating to the provision of leased lines in accordance with Council Directive 92/44/EEC of 5 June 1992 on the application of open network provision to leased lines</p>	<p>not applicable</p>	

OTHER LICENSING CONDITIONS		
CONDITIONS MENTIONED IN THE ANNEX OF THE LICENSING DIRECTIVE	CONDITIONS IDENTIFIED IN THE ANALYSIS OF THE NATIONAL SITUATION (ANNEX 5)	SUBJECT TO FURTHER HARMONISATION?
<p>This list of conditions is without prejudice of</p> <ul style="list-style-type: none"> any other conditions which are not specific to the telecommunications sector measures taken by Member States in accordance with public interest requirements recognised by the Treaty, in particular Articles 36 and 56, specially in relation to public morality, public security, including the investigation of criminal activities and public policy. 	<p>interception of calls</p>	<p>not specific for mobile communications harmonisation of these issues is not part of this study.</p>
	<p>authorities which grant the licence</p>	<p>not subject to further harmonisation as not specific for mobile communications</p>
	<p>withdrawal of the licence</p>	<p>not specific for mobile communications</p>
	<p>appeal</p>	<p>not specific for mobile communications</p>

	transferability of the licence	not specific for mobile communications
	interception of calls	not specific for mobile communications

From the table above, it is evident that:

- there are few licensing aspects which are specific to mobile communications (only the information to be provided for reporting and the duration of licences)
- some licensing conditions do not need to be further examined because they are included in other ETO studies or have been harmonised by other organisations such as ERO and the GSM MoU
- European directives already include a highly detailed level of provisions regarding certain aspects.

The licensing conditions which will be further analysed, are:

- conditions intended to ensure fair competition (section 4.3)
- access to other frequency bands (section 4.3)
- roaming and site sharing (section 4.4)
- interconnection (section 4.5)
- coverage and period for roll-out of the network (section 4.5)
- duration of the licence (section 4.6)

4.3 Competition aspects

The mobile sector has been liberalised before the licensing and interconnection directive were adopted. Therefore, it is interesting to study how each country put in place a system to guarantee fair competition. Moreover, the future mobile systems are likely to offer high bandwidth services only available today from fixed operators. At the same time seamless service provision between fixed and mobile operators will be developed. Hence, it is useful to distinguish between assuring a fair level of competition on the following levels:

- between independent mobile service providers and service providers tied to an operator
- between different mobile technologies (GSM/DCS-1800 or analogue/digital paging)
- between mobile and fixed operators

The measures NRAs apply to safeguard fair competition on each of these levels will be analysed in this section. More explicit reference to national legislation can be found in annex 9.

4.3.1 Fair level of competition between independent mobile service providers and service providers tied to an operator

In order not to put independent service providers at a disadvantage compared to service providers who are an integral part of a mobile or fixed operator, unfair cross subsidies and anti-competitive activities (like subsidising retail or terminals) must be avoided. In the following table, based on the information contained in annex 9, an analysis is given of the measures taken in different countries.

Table 9 Measures to ensure fair competition between independent mobile service providers and those tied to an operator

	B	DK	FI	Fr	Ge	Ir	It	NL	Po	UK
separation of accounts			X if SMP	X*		X	X		X ³⁰	X
separation of activities/separation between the provision of network services and telecom services			X*	X if dominant		X	X		X ³¹	X
provide NRA with financial statement			X	X		X	X		X	X
obligation for operators to admit suitable service providers	X	X	X		X	no	X	X		X
make public tariffs and technical specifications for access			X			X	X	X	X ³²	
provisions on restrictions on pricing and contractual terms					X	no			X ³³	X
provisions on exclusive binding of service providers					X	no				X
provisions on mergers					X	X			X	X
formula for discount on terminals						no				X

* For Finland and France, the measure applies if the turnover exceeds a certain threshold.

It can be observed that ensuring fair competition between service providers is mainly a matter of competition law and intervention in case of abuse of dominant position. Only the obligation for separation of accounts and admittance of suitable service providers is in a number of countries imposed as an a-priori measure to avoid abuse of dominant position. Under “suitable” it should be understood that the service provider is technically and financially sound.

4.3.2 Fair level of competition between different mobile technologies

Mobile licences, as found before, are in general technology-specific. When new frequency bands are made available and new technologies are standardised, a new licensing procedure is organised. At that moment, it depends on the service and the objective of the NRA whether licencees which already operate services on the same relevant market but with another technology can participate or not in the new tender or auction.

The decision to exclude certain existing operators from tendering is taken in all countries on a case-by-case basis depending on whether the goal is to

- create competition between different technologies within the same relevant market (e.g. competition between GSM and DCS-1800)
- attract new entrants (e.g. the new tender for a second DCS-1800 licence)

³⁰ The entities that provide public telecommunications networks and/or public use telecommunication services should have an analytical accounting system (cost accounting system) and present separate accounting for the telecommunications business or create legally distinct entities for the corresponding business, whenever:

- they pursue a business under exclusivity in other sectors different from telecommunications or
- they participate by the public telecommunications service operator
- they hold significant market power

³¹ same as previous footnote

³² The contracts concluded between the registered and licenced entities and the users cannot contain any provisions violating the dispositions of Decree-Law nr 381-A/97 of 30 December and concerning subscription contracts, they shall be subject to ICP’s prior approval (article 9 of Decree-Law nr 381-A/97 of 30 December)

³³ The decision concerning registered and licensed company concentration operations, under the terms of the applicable general legislation, requires a prior advice from ICP (article 31 of Decree-Law nr 381-A/97 of 30 December).

- avoid misuse of dominant position (e.g. statement of having licences in other fields of mobile communications or mergers under normal competition law)
- develop services under new technologies (e.g. ERMES).

GSM operators have obtained DCS-1800 licences in Denmark, Sweden and Luxembourg. In Belgium, The Netherlands, Germany, France and UK, the existing GSM licencees were excluded or restricted in tendering for DCS-1800 licences.

They were totally excluded in Belgium, Germany and UK

In France, GSM-licencees obtained experimental licences for DCS-1800 in two cities allowing commercial provision of the service. The goal of this procedure was to attract a new third national operator for digital cellular mobile voice services. On the other hand, the existing operators in the 900 MHz were given the opportunity to gain experience with service in the 1800 MHz band in the perspective of solving future problems of saturation in the 900MHz band. This experience could also be an advantage when French licencees participate in tender procedures abroad.

Also in the Netherlands GSM and DCS are seen as equivalent services, only using a different technology for the air interface. As it is the intention to attract newcomers to the market, the available frequencies are divided into two major blocks and a number of smaller blocks. The existing GSM operators have been excluded from obtaining the two major blocks of frequencies put to auction in the DCS-1800 band. They can however bid for the smaller blocks although they will be prohibited from using these frequencies for the first two years if they obtain them.

Operators **of analogue paging**, on the other hand, have in all countries been admitted without any restriction to enter bids for the ERMES licences.

The existing mobile licences in Germany include a clause on the basis of which they can be broadened in the future to include new technologies automatically.

4.3.3 Fair level of competition between mobile and fixed operators

Because mobile licences are technology-oriented, they generally do not allow for providing fixed services.

In Germany, tenderers must provide a clearance certificate from the Federal Cartel Authority³⁴ so that activities in the fixed telecommunications sector are taken into account when granting mobile licences, and vice versa.

Mobile licences are in general restricted to the setting up and operation of the network and the provision of mobile communications services. The provision of transmission capacity for other purposes than the mobile services mentioned in the licence is not permitted. However, the mobile operators could be entitled to make transmission capacity available to the operators of other mobile networks.

In general, under the current licences, mobile operators do not have the right to use their network to provide fixed services. The fixed links they are authorised to set up must be part of the construction of their network to provide mobile services.

However, convergence of fixed and mobile networks and services is allowed in all countries, provided the necessary licences have been obtained and the regulation on fair competition has been observed.

³⁴ Chapter III, section 1.2 of the tender specifications for a licence for the provision of a digital cellular mobile radio network in the Federal Republic of Germany, based on DCS-1800, 12.06.1992

There is, at first sight, no regulatory barrier to fixed/mobile convergence. In certain countries specific licensing problems could however arise. This is for example the case where fixed and mobile services and networks are subject to different licensing procedures.

It appeared from the section 2.4, comparing the licensing in the fixed and mobile sectors, that the following divergences exist between the fixed and mobile sectors :

- the scope of mobile licences in all countries covers the infrastructure, the services and the frequencies needed and no distinction is made between service provision and the running of the underlying infrastructure
- mobile voice is in none of the countries subject to a specific licencing regimes while fixed voice is often subject to an individual licence.
- mobile operators are subject to fewer obligations flowing from the interconnection directive than fixed operators are.

It should therefore be clarified what licensing regime and conditions are applicable to converged fixed/mobile services and networks.

Access to frequencies to offer **public DECT** is an important issue for mobile operators. It allows them to access the customer without using the infrastructure of another wireline operator. Below are set out the possibilities for access to DECT frequencies in 4 countries. The access to DECT frequencies for mobile operators will be described for Denmark, France , the Netherlands and Sweden.

Denmark

The use of DECT frequencies is completely free. No licence is required.

France

DECT is considered a mixed technology, allowing limited mobility and wireless local loop. However, until January '98, the provision of fixed services, in particular using DECT technology, is limited to experimental licences granted on the basis of the provisions of a specific Act concerning experimentations.

If mobile operators demand to be allowed to provide fixed services, two aspects will be taken into account:

- availability of frequencies (in particular when they want to use GSM/DCS frequencies
- competition with other fixed service providers.

Finland

No licence is required for DECT

Portugal

A consultation was held in Portugal and comments were invited concerning the interest in the provision of DECT as a mobile service. The result of the consultation (which ended on 15 June 1998) is not yet known, but in any case, it will not oblige the State to launch a public tender for this service. However, DECT frequencies are already reserved and in the case of providing the service, an individual licence will be required.

Sweden

No licence is required for DECT.

The Netherlands

The DECT technology is not subject to any licensing formalities.

4.4 Roaming and facility sharing

Distinction needs to be made between national and international roaming. The objectives of NRAs for both kinds of roaming have been completely different.

International roaming is an obligation which aims at ensuring international interoperability of mobile telecommunications services. All GSM and DCS-1800 operators comply with the obligation through membership of the GSM MoU. This is a good example of a domain where national regulators only impose a general obligation and leave the practical arrangements to industry self regulation.

National roaming (and facility sharing) could in theory serve three purposes

1. interoperability on a national level
2. environmental concerns
3. easing compliance with the obligation for coverage and roll-out for new operators

The countries that have provisions on national roaming are Denmark, France, Italy, The Netherlands and UK. In all of these countries the provisions concerning national roaming aim at easing compliance with obligations concerning coverage and roll-out. These obligations tend to take up a substantial part of the investment the operator has to make. Moreover, it can be considered that the new entrants to the mobile market are at a disadvantage compared to the existing mobile operators due to the fact that they have to invest in the building of a new network and do not generate any revenue in the meantime while their competitors already running a network can immediately come on the market

It has to be specified that the only country where national roaming agreements at present have been concluded is Denmark.

As a general principle, in all countries the mobile operators are free to conclude national roaming agreements on the basis of commercial agreements but nowhere is there an obligation. The four countries mentioned before encourage national roaming more than other countries because in some cases the NRA has the possibility to impose it. This will be commented on country by country

In Denmark the legislation foresees that operators have to agree to national roaming if this is technically feasible. In practice, national roaming cannot be refused if it can be documented that hand-over is possible. These national roaming agreements are concluded on a commercial basis. Unlike the interconnection agreements, there is no obligation for cost-orientation, no reference offer or arbitration from the NRA.

In France mobile licences state that the Minister can make national roaming mandatory in certain parts of the country in order to complete the coverage. National roaming is also the counterpart for giving GSM operators access to DCS-1800 frequencies. In other words; GSM operators will be obliged to enter into national roaming agreements with DCS-1800 operators at the moment they are granted the right to use DCS-1800 frequencies.

In the Netherlands the NRA can in certain cases impose national roaming for a limited period of time in order to permit a new operator to offer services and generate revenue before the new network is fully rolled out.

In the UK there is an existing facility in the current mobile licences, allowing inter-system roaming in the event that it should be required in order to satisfy coverage obligations in the short term.

The following table summarises the information contained in annex 10

Table 10 Comparison of licensing conditions concerning roaming and facility sharing

	BE	DK	FI	FR	GER	Ir	It	NL	NW	PO	SWE	UK	LU
obligation to be member of GSM-MoU	X	X	no	X	X	no	no	X	?	no	no	no	X
possibility for NRAs to impose national roaming	no	X	X	X	no	no	X	X	?	no	no	X	?
facility sharing encouraged	X	*	X		*	X		X	X	*	no	X	
obligation for operator to accept reasonable request for site sharing			X			X	X	X		*	no		

*: the encouragement of facility sharing is under discussion in Denmark and Germany.

*: In Portugal sharing of facilities is allowed under terms and conditions to be agreed between parties. Whenever the parties do not reach an agreement, the regulator shall decide based on cost-oriented criteria.

In order to overcome the competitive advantage which existing operators have compared to newcomers in terms of using an existing network or dual-mode terminals, some NRAs try to encourage operators to enter into voluntary national roaming agreements or agreements to share facilities. Generally, priority is given to commercial agreements but an operator can demand the intervention of the NRA.

International roaming is generally guaranteed through membership of the GSM-MoU.

4.5 Interconnection

Interconnection agreements are of crucial importance for mobile operators in order to terminate to and from the fixed networks. Existing interconnection agreements have not always been concluded smoothly. Disputes over interconnection tariffs have occurred in several countries. The implementation of the provisions of the interconnection directive will certainly avoid some of the difficulties encountered before. Organisations having significant market power providing leased lines or fixed public telephony networks and/or services have obligations to

- provide interconnection with public mobile networks
- publish a reference interconnection offer,
- handle unbundled interconnection charges,
- set up a cost accounting system and
- separate accounts for interconnection activities and others.

The directive also imposes certain obligations on mobile operators. In particular, mobile operators can be obliged to share the net cost of universal service obligations although only the fixed public telephone network may be financed in this way.

Those mobile operators notified as having significant market power are subject to obligations concerning

- non-discrimination and transparency with regard to interconnection.
- interconnection charges following principles of transparency and cost orientation.

The following other obligations are not applicable to the mobile sector:

- a reference interconnection offer,
- unbundled interconnection charges,
- cost accounting system and
- separate accounts for interconnection activities and others.

A **Commission Recommendation** concerning interconnection pricing³⁵ followed this directive. One of the two areas where the biggest impact is expected is the price paid by mobile operators to terminate calls on fixed networks.

It appears, however, that termination to a mobile network is normally several times more expensive than termination to a fixed network.

Furthermore, termination charges to mobile networks are in many countries higher than the international terminating charge (or accounting rate). This has as a consequence that fixed operators receiving international calls and retransmitting these calls to a mobile network lose money for every such call.

From this it can be concluded that the Interconnection Directive is sufficient as framework but a certain monitoring of termination of mobile calls to a fixed network might be necessary.

4.6 Coverage and period for roll-out

Coverage is a key issue in competition. Achieving national coverage (expressed in terms of geographical coverage or population) and rolling out the network within a certain timescale are conditions which take up significant financial resources from the operators. On the other hand, it can be observed that extension of coverage is strongly driven by the need to extend the services offered to customers and maximise market share.

For the licensing of UMTS frequencies, the UK does not intend to set exceptionally high coverage obligations since it is of the opinion that *vigorous competition already achieves this objective*.³⁶ Taking into account the effect on the investment cost for newcomers, the possibilities for encouraging national roaming, technical limitations and the customer needs, it was decided that licences should set a minimum acceptable coverage and roll-out obligations consistent with the efficient use of spectrum and the need for an operator to provide a reasonable level of service to its customer.

Satellite services could play an important role in achieving “national coverage” for third generation mobile communications in remote or scarcely populated areas where terrestrial coverage is economically not feasible.

4.7 Duration of the licence

Regulators limit the duration of the licence in order to be able to recover the frequencies in the eventuality that they might be needed for other systems. The extent of the period must, however, be long enough to enable the operator to make a profit out of the investment.

The shortest durations are 2 years for PAMR licences in Lithuania and 5 for GSM licences in Latvia.

A ten year period is mentioned in the GSM-licence in Denmark, Sweden and Lithuania as well as in the paging licences in The Netherlands, Spain, Switzerland and Lithuania. PAMR and mobile data licences are limited to 6 years in Belgium and to 10 years in Spain. In the case of telepoint, France gives licences with a duration of 15 years.

³⁵ Commission Recommendation on Interconnection in a liberalised telecommunications market Part 1 - Interconnection Pricing Brussels, 15 October 1997, C (97) 3148

³⁶ DTI, Multimedia on the move: A consultation document from the Department of Trade and Industry, 31 July 1997, section 6.10

For cellular licences, 15 years is a very common period. It can be found in Austria, Belgium, France, Ireland, Netherlands, Norway, Portugal, Spain, Hungary, Slovakia and Turkey as well as for paging licences in the Czech Republic and Slovakia.

Cellular licences in Finland, Germany and the Czech Republic have a duration of 20 years at the most, only exceeded by UK, where it is 25 years. The licences in Germany and UK, however, have a fixed duration.

In all other countries, prolongation is possible and is even often automatically granted from year to year.

5. Evaluation of the licensing regime of existing mobile systems: lessons to be learned and their possible application to UMTS

5.1 Introduction

It is clear that harmonisation of the licensing conditions applied to the existing operators would be neither useful nor feasible. It is not reasonable to assume that NRAs or operators would opt to change the terms of the existing licences for the purpose of harmonisation throughout Europe.

However, certain conclusions can be drawn from analysis of the licensing conditions applicable to second generation mobile communications which could be useful for future systems, UMTS in particular. Both the mobile sector and the European Commission are urging the regulators strongly for initiatives enabling rapid and simultaneous introduction of this third generation mobile communications system. ETO proposals based on trends which appear to be common throughout the member states for the existing mobile licences could contribute to this.

At this moment, however, there still exists a lot of uncertainty about what sort of service UMTS will actually offer. In consequence few NRAs have given thought to the licensing regime to be put in place in order for the system to become operational in 2002. Certain aspects, therefore, will need further study so that proposals for more detailed harmonised licensing conditions can be formulated.

The following section (5.2) will summarise the findings concerning general characteristics, licensing procedures and licensing conditions for the existing categories of mobile licences, with particular attention to the following issues which are of key importance for future systems:

- conditions for qualification and selection, used in different licensing procedures
- ensuring fair competition
 - between independent mobile service providers and service providers tied to an operator
 - between different mobile technologies
 - between mobile and fixed operators
- roaming and facility sharing
- interconnection
- coverage and period for roll-out
- duration of the licence

A third section will attempt to clarify the concept of UMTS (Universal Mobile Telecommunications System) and focus on action to be taken in order to facilitate the harmonised provision of those services by 1 January 2002. Therefore, each of the findings related to the licensing of existing categories of mobile communications will be evaluated in the light of the particularities of third generation systems, as far as possible.

Finally, the last part of this section, 5.4, gives an overview of the sort of proposals ETO will put forward in section 6 and which could be a first step to a co-ordinated introduction of UMTS.

5.2 Summary of the findings

5.2.1 General characteristics

From the analysis of the general framework for mobile licences and the comparison between the fixed and the mobile sectors (section 2) it became apparent that the following aspects are characteristic of the licensing of mobile communications

- the categories of licences are technology driven and determined by the standardisation of the air interface and international allotment of frequencies for certain users or applications; the categories of licences are not oriented towards service provision and user-applications
- limitation of the number of operators and the organisation of selection procedures
- direction of licensing towards the operator of the network
- high vertical integration of the sector (i.e. service provision by independent providers is virtually non-existent)
- the legal basis for awarding individual licences is determined on a case-by-case basis and the conditions of the existing licences can be changed when new licences are issued.

5.2.2 Licensing procedures

It became evident from the analysis of the licensing procedures (section 3) that comparative bidding is the most popular selection procedure for mobile communications. Auction, however, is becoming a new trend.

It is apparent that in the case of comparative bidding a very wide range of qualification and selection criteria is used.

Qualification conditions were described as *minimum requirements in order to be allowed to participate in the selection process*. They can relate to the commercial, financial or technical capabilities of the operator. Those most commonly used in cases of comparative bidding are the following:

- financial and commercial feasibility
- financial basis or resources
- technical knowledge or expertise.

Where auctions are concerned, ensuring financial solvency is crucial to avoid dummy bids. From experience in the US it has become evident, however, that it is important to make sure that candidates are also screened on their technical capabilities.

Selection criteria are the *criteria by which candidates should try to perform better than competitors in order to win the selection process and for which the individual licence reflects the bid made for each of the criteria*.

In the event of comparative bidding the most widespread selection criteria are:

- tariffs for the consumer
- coverage (geographically or in terms of population)
- time for roll-out
- quality and range of services
- efficient use of frequencies.

For auctioning, the only selection criterion is the amount of money a candidate is willing to pay for the licence. It is interesting to observe that some countries include in a comparative bidding process a financial bid as one of the selection criteria.

It was found that the distinction between qualification and selection criteria is not always clearly made. Moreover, the criteria are not coherent throughout the different countries. In some procedures, for example, no indication is given of whether complying with a minimum level is sufficient and on which candidates should try to excel. Furthermore, certain criteria are applied in some cases as qualification criteria and in others as selection criteria, varying from country to country and even from category to category within a country. This is in particular the case for the following criteria:

- financial resources
- technical and operational knowledge
- financial and commercial feasibility
- coverage and expansion rate.

Transparency of the procedure would be increased as a result of a clear distinction between the two sorts of conditions and a harmonised ranking of the selection criteria according to their importance. Such a harmonised ranking of selection criteria would also contribute to fair competition. This is due to the fact that the individual licence granted to the winners of the procedure reflects the bid introduced in relation to each of the selection criteria. The criteria on which the selection is based influence directly the investment and business plan of the operator. Different selection criteria might change the business case. A common framework for the conditions which might vary in each individual licence for different mobile technologies (nationally as well as internationally) could therefore facilitate fair competition between operators of mobile communications.

5.2.3 Licensing conditions

Conformity with the licensing directive

The licensing directive provides for a first level of harmonisation of licensing conditions. It must be noted that the mobile sector was already liberalised before the licensing directive came into force. As set out in the introduction, an interesting analysis is therefore to compare all licensing conditions imposed on existing operators with the conditions mentioned in the annex of the licensing directive. It appears that the licensing conditions applied to mobile operators can all be related to the categories mentioned in the licensing directive with the exception of commercial qualifications required from candidates in order to be allowed access to the selection procedure and one specific condition in one country.

Ensuring fair competition

The majority of the service providers in second generation mobile communications are tied to the operator of a mobile network or a fixed network. In order not to put the independent service providers at a disadvantage, it is important to avoid cross subsidies and anti-competitive behaviour, e.g. in the form of subsidising terminals. It can be observed that ensuring fair competition between different service providers is mainly treated as a matter of competition law and intervention in case of abuse of dominant position. Some countries however impose separation of accounts and the obligation for operators to admit financially and technically sound service providers.

For historical reasons certain mobile licences were granted automatically. On the other hand, competition between different mobile technologies has been fostered by a majority of countries by restricting or excluding operators already operating a similar mobile service from participating in the licensing procedure. In general, both the automatic granting of an authorisation and the exclusion of existing operators can be criticised.

No regular barriers were found to fixed/mobile convergence. Although mobile operators can only provide mobile services under their existing licences, they can apply for other licences (e.g. fixed infrastructure, wireless local loop, voice telephony, satellite networks and services) without limitation. Licensing regimes for combined services and networks are, however, unclear. The same is true for public DECT in some countries.

Roaming and facility sharing

No particular licensing conditions obliging operators to share facilities were found. In five countries national roaming can be imposed in order to enable a new operator to comply more easily with the coverage obligations in the licence. Only in one country had national roaming agreements been concluded.

Interconnection

Existing interconnection agreements between fixed and mobile operators have not always been concluded smoothly. The interconnection directive and the recommendation of the Commission concerning interconnection pricing can, however, be considered to be sufficient as a framework to avoid major problems in the future.

Duration of the licence

The duration of licences varies between 2 years and unlimited. For cellular licences, however, 15 years is a common period.

5.3 Third generation mobile communications

5.3.1 What is UMTS?

The commercial provision of UMTS is not foreseen before 2002. Many uncertainties therefore still exist and only general characteristics of the service can be given.

The UMTS Forum described UMTS as *“a mobile communications system that can offer significant user benefits including high-quality wireless multimedia services to a convergent network of fixed, cellular and satellite components. It will deliver information directly to users and provide them with access to new and innovative services and applications. It will offer mobile personalised communications to the mass market regardless of location, network or terminal used”*³⁷.

The DTI consultation document on third generation mobile communications presents UMTS in the following way: *“UMTS will bring mobile networks significantly closer to the capabilities of fixed networks, providing mobile users with full interactive multimedia capabilities and data rates up to 2 Mbits/s, in addition to conventional voice and fax and data services. Improvements in coding and data compressing technology will provide better speech quality and more reliable data transmission.*

As well as enhancing the range of quality of mobile services in the market, UMTS will, for the first time, provide truly ubiquitous coverage by providing combined access to cordless, cellular and satellite networks from a single hand-held terminal. (...)

*UMTS will combine the mobility functions of today’s mobile networks with the enhanced facilities of fixed networks(...).”*³⁸

³⁷ Report No 1 from the UMTS Forum, A Regulatory Framework for UMTS, 25 June 1997, p.5

³⁸ DTI consultation document: “Multimedia communications on the move”; p. 3 and 4

In article 2 of the *proposal for a Decision on the co-ordinated introduction of mobile and wireless communications (UMTS) in the Community*³⁹ UMTS is defined in a general way as: “a third generation mobile and wireless communications system capable of supporting in particular innovative multimedia services, beyond the capability of second generation systems such as GSM, and capable of combining the use of terrestrial and satellite components. This system shall at least be capable of supporting the characteristics referred to under Annex 1.

In Annex I to the proposal for a Decision cited before, the different elements of UMTS are characterised as follows:

Services

1. Multimedia capabilities; full mobility and low mobility applications in different geographical environments;
2. Efficient access to the Internet, Intranet and other Internet Protocol (I/P) based services
3. High quality speech commensurate with that of fixed networks
4. Service portability across distinct UMTS environments where appropriate (e.g. public/private/business; fixed/mobile)
5. Operations in one seamless environment including full roaming with GSM as well as between the terrestrial and satellite component of UMTS networks

Radio Access Networks

- New terrestrial air interface for access to all services including to packet data based services, supporting asymmetric traffic, and allowing for band width/data rate on demand in harmonised frequency bands.
- Good overall spectral efficiency including the use of paired and unpaired frequencies.

Core Network

- Call handling, service control and location and mobility management including full roaming functionality based on an evolution of existing core network systems, for example on an evolved GSM core network, taking the convergence between mobile/fixed network into account.

5.3.2 General characteristics

It can be assumed that the licensing of UMTS will meet the general characteristics found for the licensing of the existing mobile communications systems, with the exception of the role of independent service providers and content providers. Furthermore, it is expected that satellite systems will play an important role in the development of UMTS in areas where terrestrial coverage is not economically or technically viable. Satellite issues will not be discussed further in this report, however, as harmonised licensing conditions were the subject of a separate ETO study (workorder 48315).

Major steps in the development of the next generation mobile communications systems were two recent decisions by ETI and ERC. ETSI adopted a decision of 29 January 1998 establishing a single radio interface⁴⁰ for the standard that will govern UMTS. ERC adopted a decision⁴¹ with a view to the introduction of UMTS in harmonised frequency bands. The decision

³⁹ 20 April 1998, Proposal by the Commission for a Decision of the European Parliament and of the Council on the co-ordinated introduction of mobile and wireless communications (UMTS) in the Community

⁴⁰ The selected standard is a compromise between W-CDMA (wide-band code division multiple access) and TD-CDMA (time division code division multiple access). The former is adopted for the paired frequency bands, the latter for the unpaired band.

⁴¹ reference to be added

identified 155 Mhz for UMTS within frequencies reserved by the ITU Radio Regulations for IMT 2000.

It can be concluded from this that the new category of licences will again be determined by the adopted air interface standard and by the use of frequencies which have been harmonised on an international level and not by the possible applications.

It is foreseen that the number of operators will be limited by the available spectrum, which implies the organisation of selection procedures. This will be examined more closely in 5.3.3.

While the right to use frequencies and to operate services will be granted to network operators, it is very likely that more competition will emerge from the side of independent service providers and content providers. In this respect the licensing of UMTS will require that regulators consider the rights and obligations of actors on different levels and take action to foster opportunities for innovative service development by newcomers. This will be elaborated further in 5.3.4.

In the majority of the countries concerned, the granting of UMTS licences will require the adoption of a legal framework for the selection-procedure. Furthermore, it is probable that the licensing conditions applied to existing operators will have to be reviewed. In this way the licensing regime takes into account the particularities of each category (eg scarcity of frequencies, technology...) as well as the influence the new licensee will have on the competitive market situation. The latter could relate to competition between different categories of mobile systems, competition between operators of the same mobile technology and competition between different access technologies (mobile, fixed, satellite). This will be also dealt with in greater detail in 5.3.4.

5.3.3 Licensing procedures

It would be beneficial for competition, nationally as well as internationally if the criteria for selecting operators were similar throughout different countries. Furthermore, for reasons of fair competition on the national mobile markets, the criteria for qualification and selection of third generation operators should not differ substantially from those applied in previous licensing procedures.

However, NRAs are eager to find more market-based methods for assigning spectrum. Hence, auctions look as if they will be a growing trend. Mobile operators, however, express concern with regard to the impact of auctions on the cost of licences and the influence this could have on the business plan. Different studies from ERC⁴² and ITU⁴³ on this subject have not resulted in any recommendation on the matter. A Task Group for Licensing Cost and Spectrum Pricing, formed by the UMTS Forum, is currently working on a report concerning the *impact of licence cost levels on the UMTS business case*. In 1998 ETO will prepare a study concerning licensing fees for the European Commission which will analyse in greater depth the effect of the procedure used on the cost of a licence.

On the basis of the trends found in second generation mobile licences, ETO will therefore formulate recommendations for harmonised qualification and selection criteria rather than recommendations concerning the procedure itself. The proposal for qualification criteria is valid for comparative bidding procedures as well as for auction but the proposed selection criteria will only apply in the event of comparative bidding.

5.3.4 Licensing conditions

⁴² Document RR8(97)44 of 5.9.1997 of ERC, Draft Report on the introduction of economic criteria in spectrum management and the principle of fees and charging in the CEPT.

⁴³ Document 1B/TEMP/14-E, Draft Report ITU-R (1/53), Economic aspects of spectrum management.

The five licensing conditions identified in section 4.2 and repeated in the introduction as being specific to mobile communications can be considered of key importance for the development of third generation systems.

The comments the Commission received from the mobile sector on the Commission's Communication on the further development of mobile and wireless communications⁴⁴ gave particular attention to fair competition (including entry of independent service providers), roaming and interconnection. In addition it was urged that there should be a co-ordinated introduction of UMTS. In the report of the UMTS Forum⁴⁵ the same issues were found:

- fair competition and provision of services
- roaming/facility sharing and coverage
- interconnection.
- selection process.

Fair competition

Although the entities providing mobile services are generally identical to the ones operating the network, and competition from independent service providers offering value added services is only developing, most countries have in place the necessary safeguards to avoid unfair cross subsidies and abuse of dominance by the operator.

It is foreseen that with UMTS a new market will emerge for service providers and content providers. It is important that NRAs stimulate that development because existing operators hold a competitive advantage towards new service providers in terms of their network and database. This includes making sure that the existing incumbent operators give access to their networks and database on a non-discriminatory basis both to service providers which they own and to independent ones. Operators are of the opinion that infrastructure competition between facilities-based providers is far more important for consumers than encouraging competition on the level of service provision. It must be taken into account that network operators face huge risks and uncertainties and fear that non-discriminatory access for service providers would deter investment in infrastructure.

Roaming and facility sharing/ Coverage and roll-out

Distinction must be made between international and national roaming.

Concerning international roaming the main difference with existing systems is that for UMTS international roaming agreements will also be needed with other access networks, typically satellite networks. Until now international interoperability was achieved through market forces and self-regulation by industry. There seems no reason to assume that specific regulation would be needed in the future beyond the level of the interconnection directive.

It could be concluded that in the countries which actively encourage national roaming this serves the purpose of easing compliance with licensing conditions related to coverage and roll-out. These items are therefore treated together.

On the assumption that future UMTS licences will set minimum requirements concerning coverage and roll-out, national roaming between UMTS operators is an absolutely key issue for operators who do not have mobile access facilities. It is a fact that the network and infrastructure of the existing operators constitutes a facility which cannot be readily duplicated by a complete newcomer. Therefore, these operators benefit from a considerable competitive

⁴⁴ Communication from the Commission, Strategy and Policy orientations with regard to the further Development of Mobile and Wireless Communications (UMTS), document COM (97) 513 Final of 15.10.1997.

⁴⁵ see note 27

advantage. This applies not only to the ability to fulfil the coverage obligation but also to the changes in the process of obtaining a licence, since coverage is one of the most common selection criteria.

UMTS is intended to provide a truly universal service, meaning that it will be accessible through several access networks. The dual band/dual mode or even multi-band/multi-mode terminals necessary to realise this can only function if national roaming agreements have been concluded.

Unlike the case of the second generation mobile systems, interoperability between different systems licensed on a national basis here becomes an issue.

Another difference with national roaming in second generation mobile communications is that NRAs need to be prepared to consider national roaming not only for operators but also for service providers. This is due to the development of intelligent networks together with the fact that it is likely that service providers and content providers will play a major role in the development of UMTS.

On the other hand, it appears that the business case for UMTS is weaker than was the case for GSM and DCS-1800. NRAs therefore need to be careful not to discourage investment in infrastructure.

Interconnection

Recommendation 14 of the UMTS Forum Report⁴⁶ states: *The UMTS Forum considers that no further regulation for UMTS interconnection is required.*

It seems, therefore, that third generation mobile communications systems present no specific interconnection requirement that cannot be dealt with under the terms of the Interconnection Directive. Member States should however take the necessary measures to implement the Interconnection Directive.

Duration of the licence

Licences in Europe grant, besides the right to set up a network and provide service, the right to use frequencies. Frequencies are not sold and operators do not have proprietary rights over them which would allow them for example to sell the resource. In all countries, furthermore, the right is only granted for a limited time. This allows the NRA to re-claim the frequencies and re-allocate them to ensure the most efficient use.

The licensing of UMTS brings up the discussion concerning ownership of frequencies, specifically in relation to the use of auctions as a selection procedure. Furthermore, refarming of frequencies becomes an issue. It is foreseen that additional spectrum will need to be made available to respond to market demand after full commercialisation of the service. This will imply, for the first time since the liberalisation of the mobile sector, withdrawal of resources from existing operators.

A proposal which takes into account the interests of the operators and the policy goals of the regulator is therefore appropriate.

⁴⁶ see note 27

5.4 Overview

On the basis of the analysis of the general characteristics, the licensing procedures and the licensing conditions applied to the existing mobile operators and the review of the findings in the perspective of the licensing of UMTS, ETO will propose in the following section recommendations which could be a first step to a co-ordinated introduction of UMTS. These proposals will relate to

General

- identification of issues where harmonisation beyond the level of the Licensing Directive is feasible

Licensing procedures and criteria for qualification and selection

- clarification of the distinction between qualification and selection criteria
- recommended qualification criteria in the event of auctions and comparative bidding procedures
- recommended selection criteria in the event of comparative bidding procedures
- action to protect the interests of the consumer

Ensuring fair competition

- encouragement of the development of independent service providers
- avoiding abuse of dominant position by service providers owned by an operator towards independent service providers
- licensing of existing operators
- convergence fixed/mobile networks and services
- licensing of DECT and wireless local loop

Roaming and facility sharing/ coverage and roll-out

- encouraging of service provision by independent service providers
- interoperability of second and third generation mobile communications systems

Interconnection

- implementation of Interconnection Directive by national authorities

Duration of licence

- consideration of interests of operators and governments

It must be taken into account that at the moment many uncertainties exist concerning UMTS and the kind of future services it will enable. Furthermore, it is impossible to make detailed recommendations concerning UMTS only on the basis of the analysis of the licensing of mobile communications systems. Convergence with fixed and satellite systems should be taken into account as well. This was, however, outside of the scope of this study. On several issues further study therefore needs to be recommended.

6 Proposals

In this section a number of proposals will be formulated, harmonising and clarifying certain issues important for mobile communications which could be included in future licensing regimes, in particular for UMTS.

The proposals are based on the findings of the analysis of licensing procedures and conditions of second generation mobile communications systems included in sections 3 and 4.

It must, however, be taken into account that the analysis of licensing conditions applied to the operators of current mobile systems is not a perfect starting point in order to make recommendations for the future generation. One needs to be aware of the difficulty of comparing the second and third generation, mainly because the exact scope of UMTS is not known at this juncture. Indeed, although UMTS will also cover the type of services offered by second generation mobile systems, innovative services are likely to emerge and this might require specific licensing conditions. There still exists, however, quite significant uncertainty as to what sort of services will actually be offered. Therefore, for certain aspects additional study is required. On the other hand, the characteristics of UMTS on which a consensus exist, as described in section 5.3, have been taken into account. These relate mainly to :

- co-ordination of frequency bands and standards, respectively by ERC and ETSI
- emergence of service and content providers which are independent from the operator of the network
- existing operators having significant market power because their networks can be considered to be essential facilities which cannot be readily duplicated by newcomers
- the converged environment (e.g. landmobile/satellite or fixed/mobile)

In order to identify the scope for harmonisation an examination was made of how the licensing conditions valid for the different mobile systems (in particular for GSM and DCS-1800) relate to the conditions contained in the annex of the licensing directive. This exercise is useful because in terms of harmonisation of licensing conditions, the conditions enumerated in the annex of the licensing directive can be considered to be at a high level and Member States are reticent about going further.

It was found in section 4.3 that all licensing conditions imposed on mobile communications covered in this report could be related to the categories of the licensing directive with the exception of certain commercial aspects used as qualification conditions. The scope for harmonisation is, therefore, not very large.

However, certain issues were identified where ETO could study whether it is feasible to make recommendations exceeding the level of harmonisation existing in the licensing directive.

The following issues were analysed in detail in order to identify common tendencies and differences between various countries :

1. conditions for qualification and selection, used in different licensing procedures
2. conditions related to ensuring fair competition, including access to additional frequency bands
3. roaming and site sharing
4. interconnection
5. coverage and roll-out
6. duration of the licence

“Fees” and “information requested for confirmation” were also identified as items which require further attention. They are, however, not part of this study, which concentrates more on the “traditional licensing conditions”. Furthermore, it seems more appropriate to study each of these subjects, which are vast in themselves, in a separate report where they can be placed in a broader framework than that of the mobile sector alone.

ETO considers the licensing directive to be a first level of harmonisation. All licensing conditions found for the public landmobile communications networks and services covered in this study could be related to conditions included in the annex of that directive. Six issues were however identified as areas where harmonisation beyond the level of the licensing directive might prove feasible.

The proposals which will be formulated in greater detail in this section will relate to the issues mentioned above and follow the structure set out in section 5.4. Depending on the level of communality found between different countries in sections 3 and 4, the proposals will take the form of recommendations for a common approach or identification of areas where it was not feasible to exceed the level of harmonisation found in the licensing directive.

As set out before, the proposals relate to conditions which are specific for mobile networks and services in general and take into account, where possible, the specificity for UMTS.

It is important to observe that the issues listed above are found to be identical to those reflected in the report of the UMTS-forum. It can be assumed therefore that they coincide with the concerns of administrations, operators, service providers and manufacturers following the development of third generation mobile systems and UMTS. The findings of this report could therefore contribute to the debate on the licensing of UMTS. A second reason for orienting the proposals towards UMTS is that the recommendations are unlikely to lead to a change in the licensing conditions applicable for the second generation mobile systems. It can therefore be considered as a preparatory input to the future process of defining mandates to be given to CEPT in the UMTS context on the basis of the UMTS decision once adopted.

6.1 Conditions for qualification and selection used in different licensing procedures

From section 3 it was concluded that limitation of the number of operators and selection of winners if the number of candidates exceeds the number of licences is the main difference between the fixed and the mobile sector. It was concluded in section 5.3.3 that it would be beneficial for competition, nationally as well as internationally, if the criteria for selecting mobile operators were based on common grounds.

Not all the criteria with which a candidate has to comply have the same value. A distinction should be made between criteria for qualification and criteria for selection.

An initial evaluation is made on the basis of a number of minimum qualification criteria in order to screen the candidates on their seriousness. At this stage no ranking between the candidates is made; the bids of all candidates who live up to the stipulated minimum are considered to be of equal worth. Qualification criteria are afterwards not reflected in the operating conditions stated in the individual licence of the operator.

Selection criteria are those which are decisive for the choice of the winner. While for qualification it was sufficient to comply with a minimum level, candidates should try to perform better than competitors on the selection criteria. The individual licence granted to the winner of the selection process will reflect in its operating conditions the bid made with regard to each criterion.

1. ETO recommends that NRAs distinguish clearly between qualification and selection criteria.

In all licensing procedures the **qualification** phase is useful to screen the candidates before proceeding to the actual selection. In this way, the seriousness of the candidates is ensured. Dummy applications are not compatible with efficient use of frequencies. The qualification phase thus results in defining the number of valuable candidates. If it appears at the end of this phase that the number of interested parties does not exceed the number of licenses to be attributed, no selection has to be organised. This speeds up the licensing process.

It was found in section 3.1.2 that commercial and technical as well as financial criteria are used in different countries. In a mature, competitive market it can, however, be assumed that the commercial competence of the candidates does not need to be verified by the NRA. This proposal furthermore brings the licensing conditions for mobile communications in line with the terms of the Annex of the Licensing Directive, which does not include commercial experience either.

2. ETO recommends that candidates for mobile licences should be screened as to their financial and technical capabilities prior to the actual process of selection.

Competitive bidding appeared to be by far the most popular procedure for selecting mobile operators.

A wide range of **selection criteria** is used throughout the member states. Selecting winners appeared in section 3 to be a difficult process due to the fact that it is not clear which of the different criteria is decisive and which have relatively less importance for determining the ranking of the different candidates. In order to make the procedure more transparent and uniform, ETO proposes a list of prevailing criteria.

The aim of the primary selection criteria is to select operators offering a wide range of mobile services, within a short period, to as many customers as possible, at attractive prices,

using the spectrum efficiently. For these criteria, the overall offers made by the candidates should be considered. There would be no ranking between these primary criteria.

If candidates make offers judged equal according to these five primary selection criteria, it is proposed that other factors relevant to the general policy in a certain country, such as employment and protection of the environment, become decisive.

During the workshop, an operator suggested including reference to the innovative aspect of the service in addition to the quality of the service. ETO agreed that for UMTS the offer of innovative services should be considered as an important element. Therefore, it was agreed to highlight this aspect in recommendation 3.

3. ETO proposes that the primary selection criteria in procedures of comparative bidding should be the following:

tariffs, price structure

coverage

time for roll-out

quality and range of services (in particular their innovative aspect)

efficient use of frequencies

If candidates make offers judged equal according to the primary selection criteria, the final selection may be made taking into account other relevant factors in a particular country and notably employment and environmental issues.

Except for efficient use of frequencies, all these criteria are important commercial issues for the operator. In a competitive market, criteria should therefore not be set in a-priori legislation in a rigid way. On the other hand, NRAs may prefer to set detailed requirements with the aim of guaranteeing the availability of mobile services throughout the country and protecting the consumer. Making available a wide range of mobile services over the whole territory at attractive prices and with a high quality is a goal many governments want to achieve by imposing specific rates in the operating conditions included in the regulation.

If prices, coverage, roll-out and quality are not regulated in a rigid way but put forward as selection criteria, these matters are left to the judgement of the candidate operator. The licences are then granted to the operators who make the best offer.

The interests of the consumer can be promoted by setting common parameters which take into account the specificities of the underlying technology and by publishing the results of the survey carried out to verify the compliance of the actual performance of each operator with the terms of the individual licence.

It was concluded from the workshop that it should be clear from the recommendation that in a competitive market the level of performance should not be regulated.

4. ETO proposes that the interests of the consumer be promoted by publication of data on the actual performance records regarding the primary selection criteria of all operators in comparable form on a regular basis by the NRA.

6.2 Fair level of competition and access to other frequency bands

Distinctions should be made between ensuring fair competition

- between independent mobile service providers and service providers tied to an operator
- between different mobile technologies
- between fixed and mobile operators

Fair competition between independent service operators and service providers which are owned by a mobile or fixed operator.

First of all, it became apparent from section 2.4 that the mobile sector (compared to the fixed sector) is characterised by a high degree of vertical integration and a less developed offer of alternative value added services by independent service providers. In this situation there is a real danger of unfair cross subsidies and anti-competitive activities (like subsidising only the own retail or terminals) which could put independent service providers at a disadvantage. Development of service and content providers which are independent from the operator of the network is thought to be crucial for UMTS. However, the mobile market can be considered as a competitive market where normal competition is sufficient to solve possible misuse of dominant position or unfair commercial practices by service providers belonging to mobile or fixed operators. No a-priori, sector specific licensing conditions should be set for service providers concerning their commercial behaviour.

ETO considers that competition on the level of service providers is in the interests of users. It encourages innovative services and a better price/quality relation. This can be done by encouraging network operators to give all financially and technically sound service providers access to the network and to the directory inquiry information from the customer data base in a non-discriminatory way. The price and conditions of access could be left to the market. Operators could refuse service providers which are deemed not suitable because e.g. their financial basis is not sufficient.

During the workshop it became apparent that some existing operators strongly oppose a recommendation to encourage the development of independent service providers by ensuring non-discriminatory access on the basis of commercial negotiations. It was argued that this might discourage investment in the network. Two operators doubted in general the positive effect, for consumers, of competition at the level of services. Another operator argued that the matter should be solved through standardisation rather than through licensing.

On the other hand, a service provider of the new generation made it clear that the possibility of dealing with operators is of prime importance.

As was concluded from the workshop (see annex 11) ETO reconsidered its original proposal in order to

- make it more explicit that “access to the database” meant “access to directory information” and not to sensitive commercial information concerning the customers
- clarify that the purpose of the recommendation is to encourage the conclusion of commercial deals between operators and service providers and ensure non-discrimination between tied and independent service providers.

As the issue seems to need further reflection, ETO will propose to conduct an in-depth study of the subject, analysing the needs of different kinds of service providers and the impact of open access on the competitiveness of operators.

5. ETO recommends that operators enter into commercial negotiations with financially and technically sound service providers. The principle of non-discrimination should be observed for the commercial agreements giving access to the network and directory inquiry information.

6. Apart from the above, ETO recommends that no *a priori* “sector specific regulation” - further than the obligations flowing from the interconnection directive - should be imposed for the purpose of avoiding abuse of dominant position or anti-competitive activities of service providers owned by a fixed or mobile operator. Normal competition law is believed to be sufficient to guarantee fair competition.

Fair level of competition between different mobile technologies

When distinguishing between categories of mobile services and networks, it was found that licensing is technology-oriented. When new frequency bands are made available, decisions are made on a case-by-case basis as to whether existing operators will be allowed to compete for the new licence, depending on the objectives of the authorities.

Particularly when granting DCS-1800 licences it was found not unusual to exclude the existing GSM operators from participation in the selection. The countries where this was the case considered that DCS-1800 allows the provision of the same services as GSM, only using another frequency band. The goal was therefore to attract a new entrant to an existing market.

Alongside the exclusion of existing operators, there are also examples of operators being granted the licence automatically before the market was liberalised. In a competitive market however, licences should be granted in a non-discriminatory way. The only limits are set by the provisions of article 86 of the EU Treaty concerning associations of undertakings.

In exceptional cases, depending on the competitive situation on the national market, there might, however, be reasons to consider the existing market not as being a "level playing field". Countries granting a third or fourth licence for second generation systems close to the date of granting forthcoming UMTS licences, might consider giving these operators an incentive to invest in a network by promising them certain preference rights in the next UMTS licensing procedure. On the other hand, countries with a restricted competition in second generation systems might opt to stimulate the entry of a new operator.

7. ETO recommends that no licences for third generation mobile systems should be automatically granted to existing operators. On the other hand, those operators should not be excluded either. Exceptions can only be made for reasons of maintaining effective competition between different mobile services and networks.

Fair level of competition between mobile and fixed operators

Under their existing licences, operators of mobile communications are usually not allowed to provide transmission capacity for purposes other than the mobile services mentioned in the licence. They can, however, apply for a new licence that would allow them to provide fixed services. There is at first sight no regulatory barrier to fixed/mobile convergence. In certain countries there could however arise specific licensing problems. This is for example the case where fixed and mobile services and networks are subject to different licensing procedures.

It became apparent from section 2.4, comparing licensing in the fixed and mobile sectors, that the following divergences exist between the fixed and mobile sectors:

- the scope of mobile licences in all countries covers the infrastructure, the services and the frequencies needed and no distinction is made between service provision and the running of the underlying infrastructure
- mobile voice is not subject to a specific licensing regime in any of the countries concerned while fixed voice is often subject to an individual licence.
- mobile operators are subject to fewer obligations resulting from the Interconnection Directive than are fixed operators.

In the context of UMTS it is foreseen that the third generation mobile services will provide real substitutes to the fixed services and that interoperability with different transmission networks is necessary.

There should therefore be clarification as to what licensing regimes and conditions are applicable to converged fixed/mobile services and networks.

8. Although in principle no regulatory barriers exist for mobile operators to obtain the right to offer fixed services over their mobile network, ETO proposes that the licensing regimes and conditions for converged fixed/mobile networks should be clarified as soon as possible.

Access to frequencies to offer public DECT or other technologies to realise a wireless local loop is an important issue for mobile operators, in order to achieve fixed/mobile convergence. The regulation concerning DECT and wireless local loop in general however is not clear. This aspect therefore needs further study.

9. The licensing of DECT and wireless local loop should be clarified, as soon as possible, in order to allow a first degree of convergence between fixed and mobile services. Further study of these subjects (fixed/mobile convergence, DECT and wireless local loop) is recommended.

6.3 Roaming and facility sharing

Roaming and facility sharing have not been subject to strong regulation until now. However, for the introduction of third generation mobile systems, it appears that new entrants will be at a disadvantage when entering the market because the existing operators can furnish, from the second generation, the network antennas, transmitters and other facilities required to set up the network to provide third generation services. Moreover the capital investment a new entrant will have to make to set up infrastructure for a third generation network with small cell sizes can be foreseen to be very high. Furthermore, environmental considerations also have to be taken into account.

In order to allow new entrants on the UMTS market to comply with the obligations for roll-out and coverage with a progressive capital investment, national roaming and infrastructure sharing should be encouraged. In a competitive market, the initiative and the contractual terms should be left to the parties involved. NRAs can act as is the case for interconnection - as a last resort, when no deal can be made or if the principle of non-discrimination is not observed, to resolve disputes within six months of being requested to do so by either party.

10. ETO recommends that national roaming and facility sharing between operators should be encouraged in order to ease the roll-out of the network for operators not previously running a mobile access network as well as in order to ensure interoperability between second and third generation systems. In a competitive market, no strong regulation is required and the initiative and contractual terms should be left to the parties involved. NRAs should, however, have the authority to resolve disputes within six months on request by either party and to observe whether the principle of non-discrimination has been respected.

6.4 Coverage and roll-out

The subject of coverage and roll-out was touched upon when formulating proposals under 5.1 for selection criteria and 5.3 in relation to roaming and facility sharing.

Under 5.1 it was recommended to include coverage and roll-out in the list of primary selection criteria. Furthermore, it was proposed that regulation could set minimum criteria and publish the performance of each operator. The minimum criteria have to be determined taking into account the specificities of the underlying technology.

In section 6.3 it was recommended that national roaming and facility sharing should be encouraged in order to allow new entrants to comply with the obligations concerning coverage and roll-out with a progressive capital investment.

No further recommendations need to be formulated.

6.5 Interconnection

Interconnection agreements with fixed networks are of crucial importance for mobile operators in order to terminate calls to and from these fixed networks. The implementation of the provisions of the Interconnection Directive will certainly avoid some of the difficulties encountered before by mobile operators because organisations having significant market power providing leased lines or fixed public telephony networks and/or services have the obligation to

- provide interconnection with public mobile networks
- publish a reference interconnection offer,
- handle unbundled interconnection charges,
- set up a cost accounting system and
- separate accounts for interconnection activities and others.

From the further analysis in section 4.5, it can be concluded that the Interconnection Directive is sufficient as framework. A certain monitoring of the cost for fixed to mobile call termination might, however, be needed.

11. ETO found in section 4.5 that the provisions of the Interconnection Directive are sufficient for the development of third generation mobile systems. These provisions should be implemented, however, as soon as possible by the Member States.

6.6 Duration of licences

In Europe licences give operators only the right to use the spectrum, not full ownership over the spectrum. The duration of the licence is limited in order to be able to recover the frequencies in the eventuality of their being needed for other systems. The extent of the duration of the licence must, however, be long enough to enable the operator to make a reasonable return on the investment.

For cellular licences, 15 years is a very common period and prolongation is often automatically granted from year to year when the initial duration has elapsed. It is however difficult to propose a fixed duration. The investment an operator has to make (e.g. the number of base stations used to roll-out the network) depends to a great extent on the technology used.

12. ETO proposes that the duration of licences be limited in order to enable recovery of the frequencies in the eventuality of their being needed for other systems. The extent of the period must, however, be long enough to enable the operator to make a reasonable return on the investment.

On expiry of the initial period of validity, licences should be automatically renewed until frequencies need to be re-allocated. In the latter case, operators should be given at least two years notice in advance of withdrawal.

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