Telefónica

Reply to the consultation on WAPECS

General remarks

The term WAPECS aims to address under one same concept the current plethora of technologies and communications services (as defined by ITU) provided via radioelectric access. The ultimate aim of the introduction of this concept appears to be the establishment of one single "attribution" of frequencies that englobes, amongst others, fixed and mobile broadcasting services, in such a way that any service or technology can be offered, indifferently, through the use of the frequencies within a band that has been identified for WAPECS.

Generally, it can be said that this evolution has both advantages and disadvantages that will have to be evaluated in a timely manner. Special reference has to be made to the transition process from the current system of spectrum management, to one based on the concept of WAPECS.

Amongst the *a priori* benefits is the availability, for operators, of spectrum for new technologies or applications that are beginning to emerge, allowing for a greater flexibility for their development and implantation given the absence of restrictions on the use of the spectrum that could condition a particular technology. In sum, it would be a concept designed to give the attribution of spectrum a flexibility that is presumably necessary and advantageous, in such a way that would allow for an acceleration in the availability and rollout of new services. A current example would be the rollout of new mobile broadcasting services (DVB-H).

Within this context, the so-called "digital dividend" that may result as a consequence of the migration to digital television, is particularly relevant. The greater efficiency in the use of spectrum that this brings about may result in the appearance in certain Member States of empty spectrum, which may be used for the provision of these new services or technologies.

In this way, the basic criteria for the identification of the bands for WAPECS must be the existence of available spectrum, or the possibility of a greater use of the spectrum by new digital technologies that substitute the old analog technologies still in use today. In any case, services of general interest and basic telecommunications services such as broadcasting, emergency services, basic telephone services, Internet access service, national mobile telephony services, etc. must be safeguarded.

On the other hand, it is desirable that the introduction of bands for WAPECS is done in a harmonised manner, so as all players in the different Member States of the EU have the same opportunities.

However, the study of the frequencies that could be identified as being for WAPECS use is not only a source of new advantages and benefits, but rather it also raises problems, which arise from the difficulty of carrying out a transition from a framework of spectrum management in which the frequencies were attributed to certain concrete services and technologies, to a new model with minimum restrictions in the use of spectrum. Basically, these problems are those

that derive from a flexible attribution of spectrum, to the point of allowing for a change of use of spectrum. In this respect, it is important to highlight the importance of a gradual and selective transition, given that current technology does not allow for "big bang" approaches without incurring in serious risks with regards to the coexistence of the different technologies used in each band. Because of this, it will be necessary to study the way in which the interference in WAPECS bands can be limited in order to avoid inefficiencies in spectrum use.

Furthermore, it will be necessary to carry out the necessary studies and take the required measures so that WAPECS does not result in the appearance of new players in a certain market with advantageous conditions over those of players already present on the market, in such a way that might induce a distortion of competition.

As a consequence of this, Telefónica considers that, although it is necessary to continue advancing in the study of WAPECS and its implications, its practical implementation will have to be carried out with the necessary caution in order to ensure the maximum benefit and reduction of risks with regards to the provision of services of great economic and social relevance and interest for the EU, such as, amongst others, mobile services.

Furthermore, there is a need to ensure that the necessary balance is struck between flexibility and harmonisation, which is beneficial from the point of view of roaming, the interoperability of systems, and the globality of telecommunications systems. But also because it fosters the development of standards and technologies in Europe, providing a position of technological and industrial leadership, as is currently case with GSM technology and as may occur with UMTS technology in the future. In the same way, harmonisation fosters agreement on common standards, which allow all market players to obtain beneficial economies of scale.

Answers to the consultation questionnaire

Consultation question 1: Do you agree with this operating definition of WAPECS? Do you consider that the WAPECS concept should include spectrum intended for private, as well as public, applications?

The definition of WAPECS is sufficiently broad to fulfil the aim that it sets out to do. However, it deals with concepts that, because of their widespread use, become ambiguous, as is the case with the term "platform", which in its usual terminology is used in several senses/meanings (set of physical equipments that support a technical solution, a technology, a network...). Because of this, we consider that extra work needs to be done in making definitions more concrete. On the other hand, as will be explained below, the existence of one single definition that englobes all these platforms does not imply that the considerations to be given with regards to the management of spectrum in each particular band must be similar.

WAPECS is a concept that should embrace both the spectrum associated to electronic communications services available to the public as well as services of a private nature. Indeed, currently there are bands of frequencies that share the two types of use of spectrum (particularly those that have a common use, e.g. WLAN, DECT).

On the other hand, with the commercialisation of spectrum and flexibility in its use, a modification in the type of use frequencies would be possible, as would be the case with passing frequencies that were previously designated for private use to the provision of services available to the public.

Consultation question 2: Do you consider that the term "platform" should be more closely defined? If so, what definition do you propose?

See the considerations on the term "platform" from the reply above. Telefónica proposes this word be substituted for the term "radio access infrastructure".

Consultation Question 3: What, if any, constraints should there be on the provision of services using spectrum primarily in the broadcast domain?

Currently, the offer of broadcasting services is subject to numerous restrictions because the offer of services is not only subject to spectrum regulation but also subject to political and social goals, which result in technical plans being established that clearly outline the frequencies and channels for services on a national, regional or local basis, and the institutions responsible for the concession of licences for the exploitation of the services[1].

In this context, the change of use of spectrum currently attributed to broadcasting appears to have a difficult interaction with this entire regulatory framework, and would only be feasible if the framework were changed.

On the other hand, the need to make spectrum available for new applications and new broadcasting standards (concretely, for the reception of mobile terminals – DVB-H) calls for the liberation of spectrum within these bands.

In this sense, the coexistence of DVB-H and DVB-T (since DVB-H is a modification introduced on the DVB-T standard to support terminals with batteries) in the same bands does not create problems of inefficiencies in the use of spectrum or of technical incompatibility in one same band, meaning that they could constitute a first and easy step towards the flexibilisation in the use of spectrum.

In this respect, it would be desirable that the availability of spectrum for WAPECS in the bands traditionally assigned to broadcasting services were comparable in the different Member States. Otherwise, there is a real risk of not making use of the opportunities created by the digital dividend produced from the digital switchover from analog broadcasting services, which will result in a broadening and enrichment of the offer of services. In the same way, if only certain Member States made use of this, different opportunities for the development of new services would arise between Member States.

On the other hand, the provision of services within the bands identified for WAPECS may require imposing certain limitations in its use or the conditions that should be taken into account, in order not to endanger past successes. Concretely, it would be important to:

a) **Avoid an inefficient use of spectrum due to interferences or increase in the unused spectrum in the safeguard bands**

The change of use of spectrum may create inefficiencies in its use, derived from the use of different technological systems in the same bands of frequencies. In this respect, in an

[1] In Spain: the Government for national channels; Regional governments for regional channels; town councils for local channels.

environment with interferences, even when the level of these is high, it is possible to make a more efficient use of spectrum as long as they are generated by similar systems.

The necessary imposition of safeguard bands depending on the different uses of frequencies could determine an underuse of spectrum, derived from the establishment of a greater portion of spectrum to safeguard bands, in order to avoid interference from adjacent bands.

One of the most relevant aspects when defining the use of spectrum, bands, channels and sub-channels under the "traditional" management of spectrum has been the minimisation of the safeguard bands between services. However, the lack of previous planning in the uses of spectrum and the possibility that the said uses suffer variations throughout time, does not allow for the management of the safeguard frequency bands; rather, these will be determined by the different uses in a frequency band, transforming it from a parameter of spectrum management to a variable of derived nature.

One of the most harmful potential effects derived from the combined introduction of the commercialisation of spectrum and the liberalisation of its use is the possibility of an excessive fragmentation of the spectrum. In this sense, the rigidity that on occasions the reservation of some bands for certain services or technologies may imply, can sometimes offer greater benefits than those resulting from a flexibility in the use of the said spectrum. Both aspects will have to be properly evaluated before using the concept of WAPECS for a complete liberalisation of the bands englobed under this concept.

b) Fulfilment of international obligations and cross-border coordination

As is foreseen in the Framework Directive, the use of harmonised frequencies must not be modified.

On the other hand, international coordination is also essential in order to reduce the problems of interference on the borders between different countries. In this respect, it is convenient to recall that the liberalisation in the use of spectrum may make coordination between countries more difficult.

c) Fulfilment of strategic objectives in terms of telecommunications and restriction of competition

Generally speaking, the policy of strategic design of spectrum use carried out by international and national authorities has been responsible for the minimum set of services that citizens should be able to enjoy, in exchange for the concession of the rights of use of public radioelectric domain to certain players.

In this sense, amongst the different aspects that are taken into account in the attributions of frequencies, there are the preferences based on the social aims of the services offered.

In this way, for example, in every European country there are bands of frequencies for links via satellite, fixed radiolinks, satellite navigation systems, satellite broadcasting, terrestrial broadcasting, mobile services, fixed radio-access services, etc. These uses of spectrum are part of the telecommunications strategy at EU and national level that allows Spanish citizens to enjoy different services for each kind of demand and need.

The attribution of certain bands to WAPECS, without specifying any particular service, could give rise to the end of the provision of services which, for their suppliers, earn lower profits than those that could be obtained with other services. More precisely, the suppliers of terrestrial digital broadcasting services could, in theory, chose to offer mobile services, that may lead, in the most extreme of cases, to depriving citizens of the terrestrial digital television services or, somewhere in between, reduce competition in the supply of digital television services.

Consequently, it must be ensured that the identification of bands for WAPECS does not imply a reduction in the offer of services available to citizens and must, in any case, guarantee the persistence of all the types of services contemplated by the Member States in their strategic planning in terms of telecommunications.

d) **Avoid a distortion of competition as a consequence of the different economic valuations of the spectrum**

In the past, the scarce nature of spectrum as a resource for the provision of certain services resulted in the fact that, in some cases, the competences of national authorities included the responsibility of defining the number of players that were to obtain rights of use of spectrum for the provision of a certain service.

The designation of spectrum for other uses, different to those initially foreseen, infers an alteration of the existing competitive framework, since this may result in an increase or decrease in the number of players present on a given market, which may have repercussions on the business plans of these operators and on the viability of services.

On the other hand, these modifications in the competitive environment also entail a modification in the valuation of spectrum, since it can be considered that the "market value" of spectrum is determined by two types of rents: scarcity rents and differential rents. If, on the one hand, differential rents are associated with specific technical characteristics of the band which make it valid for determined services, scarcity rents are the consequence of the relationship between demand and supply in the access to a scarce resource necessary to the provision of a service.

In this sense, as the attribution of the bands of frequencies for WAPECS implies increasing the available spectrum for the supply of a determined service, it appears reasonable for all this spectrum to have the same economic valuation and, in any case, a lower valuation than the one established in the attributed bands to the said service prior to implantation of the possibility of change of the band's original use, in order to avoid creating a competitive disadvantage for operators which accessed the spectrum before the introduction of the flexibalisation in its use.

Consultation Question 4: What specific rules should be introduced or maintained to safeguard the delivery of Services of General Economic Interest in the future? Is it most appropriate to deal with these issues through the regulation of spectrum, or through other instruments such as competition law or state aid

Services of general economic interest differ from ordinary services in that public authorities consider that the former should be offered even when the market may not provide sufficient incentives to do so.

Up until now, the safeguard of the availability of services of general economic interest in the field of electronic communications has not been based on spectrum regulation, but rather on other mechanisms, such as Universal Service obligations (which should be financed with funds to which all market players contribute to) or the use of structural funds for the extension of electronic communications services to areas where these services are not profitable.

Experience to date confirms that competition law and state aids are totally compatible with a high degree of provision of services of general economic interest.

In this sense, the reservation of certain bands of frequencies for the supply of services of general economic interest, which would condition the general policy towards spectrum management, should be generally avoided, and should only be a valid option when a there is no less stringent alternative to guarantee the availability of these services.

Consultation Question 5: How do you think changes in spectrum policy will impact on the requirement for standardisation? What policy will best ensure the timely availability of standards?

The ultimate aim desired by the changes in spectrum policy is the improvement of the efficiency of the management and, consequently, in the use of spectrum. Changes appear to come principally marked by two premises: the flexibility (or liberalisation) in the use of spectrum and the possibility to commercialise the said scarce resource.

The greatest impact for standardisation will come from the liberalisation of the use of spectrum, i.e. the possibility of modifying the conditions of use currently associated to a determined band of spectrum, although the Framework Directive does not allow the modification in the use of harmonised frequencies at the EU level.

On the other hand, standardisation has traditionally been a way of ensuring economies of scale and a generalised access to services. However, a spectrum policy based on the complete liberalisation of the spectrum opens other possibilities to achieve the first aim, which could imply in practice the end of standardisation. In this way, the definition of technical solutions could shift towards industrial groups sufficiently strong so as to define their own solutions and acquire the sufficient spectrum across the globe so as to face its development with certain guarantees of success. This could derive into commercial wars amongst different types of solutions, in much the same way as has occurred with video and, more recently, with future DVD systems. All this with the resulting damage for consumers who opt for non-successful solutions or who have been forced to using these in the absence of coverage in their area.

Standardisation has brought about great advantages to the EU, as has been recognised by the RSPG[2], which - after a public consultation - presented its conclusions in November 2004, in which it states that the flexibilisation in the use of frequencies can be beneficial, although this must not be to the detriment of the continuity of harmonisation policies, particularly through the CEPT, a key element to ensure the greatest economic and social benefits possible, as long as this harmonisation is sufficiently flexible and dynamic enough so as to foster innovation and competition on the European single market.

Amongst the numerous advantages that have been brought about by standardisation and harmonisation in the use of spectrum, the following are worth mentioning:

[2] Radio Spectrum Policy Group

- Limitation of the risks of interferences;
- Ease in the cross-border coordination;
- Ease the achievement of economies of scale: the absence of harmonised standards makes the achievement of economies of scale more difficult, given that technological fragmentation is likely to produce a fall in the volume of production of equipment as well as in the volume of sales and, consequently, more costly production of terminals and the provision of services;
- Offer of a safe environment for the efforts undertaken by manufacturers in the development of new technologies and services: in general, undertaking these investments requires a certain guarantee of return that, at the same time, depends on a relative security that these technologies are effectively going to be implemented in the market. In this way, the contribution to harmonising trends is evidently a stabililising factor in the technological framework in which manufacturers operate. Otherwise, GSM or UMTS would not have become technologies available to the vast majority of citizens.
- Development of open standards with a high number of manufacturers involved in their design. Otherwise, competition between standards inevitably leads to proprietary standards, which have the great disadvantage of tying an operator to one single manufacturer;
- Possibilities of international roaming: the possibility of continuing to offer services beyond the borders of each Member State, providing large benefits to European productivity, by making interoperable and "pan-European services" available.

Consequently, the implications derived from the new policy of spectrum management can be very diverse, but they must allow for the benefits that have been acquired through standardisation to be maintained.

Consequently, a cautious approach appears to be the most adequate way of proceeding, taking into account, on the one hand, the great real risks that arise, and on the other, that all benefits are based on a premise that (in a framework of greater flexibility in spectrum use, the market will itself channel the use of spectrum towards those activities of greater economic value) may not turn out to be true in practice[3].

Therefore, beyond general considerations and given the fact that the implications do not coincide, necessarily, for the different bands of spectrum, the most convenient approach appears to be an in-depth analysis of each band with the aim of achieving partial conclusions, with regards to each individual band and in each individual case that arises.

In light of this, Telefónica believes that the study that is currently being carried out by PT8 of CEPT on harmonisation and the introduction of flexibility in spectrum regulation (the conclusions of which are expected by the end of 2005) will prove particularly useful and help clarify these issues.

[3] The fragmentation of technologies will surely focus competition not on the greater efficiency of these, but rather on their economies of scale, because surely this is what will lead to a fall in prices and costs for consumers, and will decide its implantation. And one thing is not sinonimous with another. It is very possible that the benefits of a slightly higher efficiency of a technology in the short run are absorbed by a higher popularity of another (historical examples of these include Windows OS). Economies of scale of a technologuy can be achieved via its introduction in larger, non-European markets (such as China, India, etc.). In this sense, positions of dominance in these markets - out of European control - could result in a position of dominance in Europe, which would surely become an importer of mobile technologies rather than an exporter, as was the case with GSM.

Consultation question 6: Are there any other challenges that the RSPG should consider?

Generally, all these aims and challenges to be addressed are dealt within the consultation document. However, Telefónica considers it is particularly important to analyse the way in which the transition between the previous and the new policy of spectrum management is going to be carried out, and that this should probably be studied in greater detail.

As has been previously stated, the issue of compatibilising the benefits of liberalisation with those of harmonisation in the use of frequencies appears to be particularly relevant, avoiding negative effects such as the distortions of competition or the appearance of uncontrolled interferences.

In this sense, considering that a break with the current framework is not desirable, Telefónica believes that the best way to address this transition is to identify the bands of frequencies in which, on balance, there are clear benefits, derived from a early flexibalisation of the conditions of use (although they may not, in principle, be generally attributed to any service, so they would be bands, within the WAPECS category, but with restrictions on their use).

This is the case in which the bands attributed to GSM, which poses few problems for the modification of use for third generation mobile services but which, however, should not be allowed to be used for other content services within the WAPECS category (broadcasting, fixed links, etc.), in order not to put at risks the durability of mobile services and the features that have prompted their success in Europe (principally, interoperability and international roaming features).

Currently, the harmonised bands for the provision supply of mobile GSM services are also identified by the WRC-2000 as extension bands for the provision of mobile UMTS services, making it reasonable to suppose that, as operators increase their needs of spectrum for UMTS, they may also have the spectrum in the GSM bands available to them.

There are several factors that would make the transition from 2G/3G technologies relatively easy:

- Although the European Commission decided on a coordinated introduction of GSM, it should not be opposed to a change in use that would allow for the availability of spectrum for a use of greater features.
- Almost all operators, with rights for the provision of GSM services, also offer UMTS services, making it probable that they will show a good disposition towards negotiating amongst themselves the conditions of the migration of the use of GSM bands that prevent interferences.

This example highlights that the options put forward for the management of a concrete band of frequencies must not be limited to two options (define it for WAPECS, without any restriction on its use and the services that may be provided over it, or maintain the current attributions) but rather that the possibility of advancing towards flexibilisation, although this may be softer, must also be analysed and studied.

Consultation question 7: What is your view on the above-mentioned issues and more specifically on how to achieve the right balance between "minimising and harmonising constraints" presented above?

The long-term political goal of technological neutrality that the European Commission has set itself is still an 'idealised' aim that, as has been previously indicated, should be studied in depth in order to understand the way in which flexibalisation can be maximised without having to renounce to other benefits such as interoperability, roaming and the efficient use of spectrum.

In this context, the definition of WAPECS, under which different technologies and services that use spectrum would be englobed, should not imply that the frequencies for broadcasting, fixed services, mobile services and even the bands of spectrum for common use can be used, indistinctly, for the provision of any technology and service, notwithstanding current attributions and uses.

Consequently, the best way to reconcile flexibility and harmonisation is to carry out a progressive evolution in spectrum management, avoiding, as far as possible, sudden substantial changes.

The progressive introduction of the liberalisation of spectrum use should be articulated on two levels:

a) **Flexibilisation in the attribution of frequencies**

The attribution of frequencies constitutes the first key element of spectrum management, given that this is the mechanism that enables the association between bands of frequencies and the services likely to be provided in each one of them.

The flexibilisation of the attribution of spectrum consists in defining, in the most general way possible, the uses of each band of spectrum, in order to make room for all the services and technologies that can be implemented in each segment of spectrum.

In the harmonised frequency bands, the processes by which a determined part of the spectrum are attributed are complicated and conditioned by the decisions of several bodies, amongst them the ITU, CEPT, the European Commission and each Member State[4].

The future attribution of frequencies are less difficult, a priori, implying that the application of the principles of technological neutrality in the new attributions, which suppose not

[4] In the first place, the work on harmonisation belongs to the ITU, which, in its Radiocommunications Regulation, defines, in a general manner, the types of services to which they are destined and, in the European case, to CEPT, responsible for elaborating decisions or recommendations, more detailed and concrete, of the technologies and uses that must be given to each frequency band. Furthermore, the European Commission can adopt decisions about the implementation of certain technologies or services, with the aim to guarantee the fulfilment of political, economic, social or cultural objectives.

Taking into consideration the guidelines defined by international authorities, it is up to each Member State to approve a national framework of attribution of frequencies and technical plans, establishing present and future use of the spectrum, and indicating, in the majority of cases, the concrete technology to be implanted and the technical characteristics to verify (e.g.: power and bandwidth of the channels).

linking certain frequencies to a specific technology, are beginning to be studied in some cases.

Flexibility in the attributions, could be done in two ways:

- By applying categories to generic services (instead of concrete technologies) that are compatible with ITU regulation and European Directives.
- Fostering technological neutrality, as long as it is compatible with the restriction on interferences and European harmonisation.

b) Flexibility in assigning frequencies

The flexibilisation of the conditions of assigning spectrum can be applied in the frequency bands in which, in the attribution, the use of spectrum has not been specified in every detail. This relaxation in the conditions could affect all or some of the following characteristics:

- Nature of service for which spectrum will be destined to (e.g. fixed radio-links, broadcasting services, mobile communications services).
- Technologies to be implanted (e.g. in the case of mobile services, could be GSM, UMTS, CDMA,...).
- Channelling.
- Geographic environment in which the use of this band of spectrum is authorised.
- Emission power.

Taking into account that, currently, a large part of the spectrum is assigned to several players, the liberalisation in the use of spectrum would require not only to take into account the flexibility of future assignation (technologically neutral assignations), but also the revision of the current authorisations for use of spectrum.

Any change in the use of spectrum must be preceded by a viability study by the authorities responsible for spectrum management. Notwithstanding this, given the numerous risks posed by liberalisation, it appears recommendable that, at least in principle, modification in the assignation of spectrum is prompted by a specific request to do so by players with rights of use over the spectrum, in which the services and technologies that are going to be used in the spectrum, are specified. This option opens the possibility of a more detailed analysis of the implications that, in every moment, are derived from the change of the uses initially attributed to a certain segment of spectrum, and offers greater security over the suitability of a final decision by the competent authority on the convenience to allow or forbid a change in the use of the spectrum.

On the other hand, the future assignation of technologically neutral frequencies will have to continue having a number of minimum restrictions on the conditions of spectrum use. These must include an emission mask, in order to ensure that the use of these bands will not cause damage to the other spectrum users. In this sense, it must be taken into account that emission masks must vary according to the nature of the services and the concrete technology used in the adjacent frequency bands.

In conclusion, the flexibility in the use of spectrum must be implemented in a progressive manner, starting with the bands and uses that present lesser problems and then move towards other bands on the basis of the experience acquired.

Consultation question 8: Are there any other long term policy goals that the RSPG should consider?

Consultation Question 9: Do you think that these steps form an adequate basis for achievement of the European objectives in this area? Are there any other steps that are required?

Additionally to Member States, operators should also be granted the possibility to put forward their opinions as progress is made on the identification of the frequency bands for WAPECS and the conditions of their use.