

BEREC Report on the current accessibility of numbering resources pursuant to art. 28.1 USD

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Executive summary

The 2009 EU legislative framework has introduced a new version of article 28 of the Universal Service Directive (hereinafter referred to as “USD”). The provision requiring MS to ensure that all numbers in use in the EU, geographic and non-geographic, should be accessible from any network in the EU with the only exception of technical and economic feasibility, and to commercial considerations on the part of the called subscriber was reinforced, succeeding the provision in the 2002 Directive, with the goal of ensuring enhanced protection of end-users interests and rights. Furthermore, the 2009 amendment introduced provisions to deal with fraud or misuse. In February 2011, BEREC reported¹ on this latter aspect, and has looked into the extent to which cross-border fraud and misuse of numbers might occur in the future. As part of the 2011 Work Programme, BEREC undertook to address the question of enabling access to numbers in accordance with Article 28(1) of the USD. The subject of fraud and misuse of numbers is the subject of further work done by BEREC.

The goal of this report is to review and analyse the current situation regarding cross-border accessibility of numbers within the European Union. The term “cross-border communication” refers to a call from a subscriber from any network in any EU Member State to a subscriber accessible through a number range according to the numbering plan of any other Member State. “Inaccessibility” in cross-border communication refers to the situation that, regardless of the reason, cross-border communication is not achieved.

Based on NRA feedback and stakeholder responses to a BEREC questionnaire, cross-border accessibility is predominately an issue with number ranges regarding special rate services (premium rate, shared cost, directory enquiry services and free services). To a lesser extent, inaccessibility issues can also be present in other types of numbers, including personal numbers, internet dialling, public utility numbers and emergency services numbers. While geographic and mobile numbers are typically

¹ BoR (10) 62 Rev 1 BEREC report on cross-border issues under Article 28(2) USD, available at http://berec.europa.eu/doc/berec/bor_10_62Rev1.pdf. Last accessed on April 17th, 2012.

accessible, problems can occur when new ranges are opened due to the time lag in all numbering administrations being informed of these.

The most important reasons perceived for inaccessibility of numbers are:

- lack of market demand by end users or service providers for the cross-border accessibility of numbers;
- difficulties in ensuring pricing transparency for the end users;
- charging model on retail and wholesale level causing technical and operational obstacles;
- end user (and service operator) protection from fraud and misuse of numbering, along with specific national requirements for premium rate services;
- sufficient available alternatives for premium rate services (geographical numbers for calling from abroad, e-mail, internet, ITU-number premium rate numbers).

Both consumers and business users have generally not complained about the situation that certain number ranges are not accessible on a cross-border basis. That doesn't exclude that some calling or called parties experience problems, but there seems to be acceptance of a status quo with alternative solutions, or those users are simply too few to gain a momentum that drives changes in the market.

Suppliers of telephony services, when asked for the opportunities in an open-access framework for special rate services, have indicated that they do not regard improving the cross-border accessibility of numbers as a high priority. The prevailing view is that there needs to be sufficient market demand for cross-border accessibility to provide an economic case for ensuring access and interconnection. Overall, telephony services suppliers accept that the existing situation regarding inaccessibility of some number ranges remain unchanged.

Given the technical aspects necessary to facilitate greater cross-border accessibility of numbers, BEREC considers that there needs to be reliable and transparent

interconnection models along with multilateral arrangements. In addition, the diffuse national framework of consumer protection measures, including those for Premium Rate Services, would need to be taken into account.

Taking in consideration what our research so far has brought up, BEREC finds that:

- inaccessibility of number ranges based solely on the perceived lack of demand may overlook the policy decisions underlying the Directive;
- an appropriate dialogue among stakeholders concerning the policy objectives of article 28(1) could improve cross-border accessibility;
- further efforts could be made by market players, to improve technical and economical feasibility;
 - o including developing alternative cross-border interconnection arrangements;
 - o a more transparent approach on the availability of information on certain rates, charging models and accessibility (or the lack thereof), when appropriate, in order to reduce information and transaction cost;
 - o and additional or alternative instruments for distributing information about numbers and tariffs, and facilities on both technical and organizational level, may remove barriers.
- problems like fraud, misuse of numbering, an increase in disputes and bill shock handling in an international environment as well as price transparency for the end user should be dealt with;
- alternative approaches could be introduced by service providers using service numbers which are currently not accessible from abroad, e.g. to make parallel alternative numbers available and to inform their customers that the alternative numbers can be used for reaching their service when abroad;
- any possible further work on the issue of accessibility of non-geographic numbers should be undertaken with regard to two other work streams which deal with numbering issues: guidelines on article 28.2 USD (FR IMPL WG, forthcoming 2013) and the report on SRS (CEA WG, forthcoming 2012).

1. Introduction

The 2009 EU regulatory framework has introduced a new version of article 28 of the Universal Service Directive. The general principle that all numbers in use in the EU, geographic and non-geographic, should be accessible from any network in the EU subject only to technical and economic feasibility and to commercial considerations on the part of the called subscriber was reinforced from the provision in the 2002 Directive with the goal of ensuring enhanced protection of end-users interests and rights. Furthermore, the 2009 amendment introduced provisions to deal with fraud or misuse. In February 2011, BEREC reported² on this latter aspect and has looked into the extent to which cross-border fraud and misuse of numbers might occur in the future as well as reviewing current national practices in this respect according to information provided by NRAs. Based on the report BEREC observed concern about the issue of accessibility of numbers and services, related to Article 28(1) of the revised USD. As part of the 2011 Work Programme, BEREC undertook to address the question of enabling access to numbers in accordance with Article 28(1) of the USD.

In this report the term “cross-border communication” refers to a call from any network in any EU Member State to a number range according to the numbering plan of any other Member State. “Inaccessibility” in cross-border communication refers to the situation that, regardless of the reason, cross-border communication is not currently realized.

1.1 Objective of this report

The goal of this report is to review and draw a problem analysis on the current situation regarding cross-border accessibility to numbering resources within the EU and the exceptions based on the technical and economic feasibility conditions and commercial choices by service providers.

1.2 Methodology

The research on the implementation of article 28, paragraph 1 of the USD has looked into the current situation regarding the stated general accessibility to

²http://berec.europa.eu/doc/berec/bor_10_62Rev1.pdf

numbering resources within the EU and the relevant actual application of the exceptions based on the technical and economic feasibility conditions.

The methodology for the research contained two elements. The first element was an in-depth analysis of the legal framework, combining both desk (including NRA responses on cross-border fraud and misuse of numbers in 2010) and field research (in cooperation with European Commission representatives). The insight obtained through this research is incorporated throughout the report.

The second element was a public call for contributions to the questionnaires on cross-border accessibility of phone numbers. Two questionnaires were sent out: one to stakeholders, one to NRAs. The questionnaires applied three main research questions:

- Which number range(s) are inaccessible in cross-border communication?
- Due to which reasons are these numbers inaccessible?
- To what extent is inaccessibility perceived as a problem?

The questionnaire responses have been evaluated and assessed with the legal framework, which has resulted in reflections on answers from the questionnaire.

2. Legal framework of article 28(1)

2.1 Background

As mentioned before, the scope of this work is limited to the workings of article 28(1) of the USD. The article was revised by Directive 2009/136/EC of the European Parliament and of the Council of 25 November 2009, amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services. The full article establishes the following:

"1. Member States shall ensure that, where technically and economically feasible, and except where a called subscriber has chosen for commercial reasons to limit access by calling parties located in specific geographical areas, relevant national authorities take all necessary steps to ensure that end-users are able to:

(a) access and use services using non-geographic numbers within the Community;
and

(b) access all numbers provided in the Community, regardless of the technology and devices used by the operator, including those in the national numbering plans of

Member States, those from the ETNS and Universal International Freephone Numbers (UIFN).

With regard to this article Recital 46 of Directive 2009/136/EC states:

“A single market implies that end-users are able to access all numbers included in the national numbering plans of other Member States and to access services using non-geographic numbers within the Community, including, among others, Freephone and premium rate numbers. End-users should also be able to access numbers from the European Telephone Numbering Space (ETNS) and Universal International Freephone Numbers (UIFN). Cross-border access to numbering resources and associated services should not be prevented, except in objectively justified cases, for example to combat fraud or abuse (e.g. in connection with certain premium-rate services), when the number is defined as having a national scope only (e.g. a national short code) or when it is technically or economically unfeasible. Users should be fully informed in advance and in a clear manner of any charges applicable to Freephone numbers, such as international call charges for numbers accessible through standard international dialling codes.”

The article contains a general obligation, and specific goals to be achieved. The general obligation established by the article requires Member States to ensure that relevant authorities take all necessary measures to ensure that the specific goals are attained. Whereas the revised provision contains a reinforced general obligation, it also refers to specific exemptions to this general obligation. Firstly, access must be technically and economically feasible, and, secondly, a called subscriber (i.e. a service provider using a numbering resource to provide a service to the public) may choose for commercial reasons to limit access to specific geographic areas. Access may also be blocked, on a case-by-case basis, in the case of fraud or misuse.

The specific goals are designed to achieve different results. Subparagraph (a) requires that all end-users are able to access and use services using non-geographic numbers within the Community. This serves the underlying purpose of

the framework, in developing the single-market.³ In this regard, BEREC notes that the wording of subparagraph (a) not only requires that end-users are enabled to access services, but also to use them. By way of contrast, subparagraph (b) does not concern itself with access to services but only requires access to all numbers (including ETNS and UIFN). Subparagraph (a) emphasises the rights of EU citizens to access services, irrespective of where in the EU those services are provided.

Subparagraph (b) represents an interconnection obligation on network operators. It elaborates the obligation of network operators to provide access across all numbers provided in the Community and specifies the obligation to be technology neutral.

2.2 Exemptions

Whereas the obligation is to be read as general, the exemptions are to be applied differently depending on whether there is an issue causing either general or specific inaccessibility.

The Directive has attached high priority to end-users' interests and rights and their ability to access service providers. It therefore requires Member States to take measures to pursue the requirements established in article 28(1) with the objective to meet the policy goals. When number ranges or individual numbers are inaccessible from other Member States, responsibility lies with the relevant Member States and national authorities to determine that accessibility would not be technically and economically feasible. Market players should cooperate with the relevant authority when it is investigating inaccessibility.

An example of an NRA determining that accessibility would not be economically feasible is the investigation which ComReg conducted in 2011. This concerned the inaccessibility from abroad of Irish non-geographic numbers because of a clash with

³ In this sense also note the BEREC report on cross-border issues under Article 28(2) USD (2011), available at (http://berec.europa.eu/doc/berec/bor_10_62Rev1.pdf), page 11: "Concerning the electronic communications sector, BEREC considers that the implementation of the revised USD, by giving end-users the ability to access and use, where technically and economically feasible, services using non-geographic numbers within the Community, as well as accessing all numbers provided in the Community, may contribute to EU internal market to be more integrated and to enhance end-users' awareness of cross-border opportunities. It may also contribute to end-users in general not being treated differently on grounds of their nationality or place of residence."

the area code (01) for Dublin. ComReg commissioned a cost-benefit analysis on the economic feasibility of opening access to Irish non-geographic numbers commencing with the digit “1”. The report considered six different approaches to how a numbering clash might be averted and describes the implications of each approach. All approaches carry prohibitive cost and a detailed cost benefit analysis was conducted on the most promising options. In all cases the cost of ensuring access significantly outweighed the benefits. The report is available on the ComReg website⁴.

Service providers (called subscribers) can decide for commercial reasons not to provide their service in a given geographic area and therefore not to make their telephone number accessible in that area. In such cases, the relevant authorities do not need to investigate the question of cross border inaccessibility.

2.3 Current application of 28(1) in Member States

Regarding transposition⁵ in Member States of article 28(1) of the USD, twelve out of twenty NRAs indicated that in their Member State the implementation has been completed. Eight NRAs indicated that transposition was in progress (some were to be completed soon). One NRA stressed that, despite the article was not yet transposed, the ratio from article 28(1) of the USD, establishing that any consumer should be able to access any number in the European Union, is effectively already in force in its national law both in primary and in secondary legislation.

Generally, NRAs consider that the requirements for most number ranges are being met. Accessibility is ensured, except for a limited number of ranges. For these ranges, the exemptions may apply. With regard to those exemptions, most NRAs expect feasibility evaluation to be conducted on an ex-post basis, particularly in response to complaints. Nevertheless, there are some NRAs which consider that feasibility evaluation could also be made on an ex-ante basis. One NRA said that

⁴ Information Notice and Report - <http://www.comreg.ie/fileupload/publications/ComReg1168.pdf>
<http://www.comreg.ie/fileupload/publications/ComReg1168a.pdf>

⁵ This is the situation per February 2012.

both ex-ante and ex-post approaches could be considered. In general NRAs indicated that the approach regarding feasibility evaluation is yet to be defined.

3. Overview of Questionnaire Responses

3.1 Public call for contributions

On 26th August the questionnaire addressed to stakeholders was published on BERECs website. The following nine organisations responded to this public call for contributions⁶:

- British Telecom
- ETNO: The European Telecommunications Network Operators' Association) is the principal policy group for European electronic network operators and has 40 members companies in 35 countries.
- INTUG: International Association of Business Users of Telecommunications (brings together national and multinational user associations throughout the world)
- Portugal Telecom
- The Number: directory enquiries provider based in the UK
- Verizon
- vzbv: Federation of German Consumer Organisations
- Vodafone
- VON Europe: Voice on the Net Coalition Europe (iBasis, Google, Microsoft, Skype and Voxbone – to create an authoritative voice for the Internet-enabled communications industry)

BEREC welcomes this feedback and thanks the respondents for their submissions. The full text of these documents is available on the BEREC website.

3.2 Conclusions from the Stakeholder Questionnaire

General tenor of answers

Nine organisations in total, representing network providers (incumbents and alternative operators), service providers and end users⁷, submitted their answers to

⁶ BEREC informed on the questionnaire publication via e-mail to a list of about 2,000 stakeholders (organisations and individuals) .

BEREC. All in all their general tenor showed that a lack of cross-border accessibility was based on the following reasons:

- Lack of market demand
- Complex technical and operational implementation
- Risk for undertakings of misuse and fraudulent behaviour
- End user protection

Consequently most stakeholders advised BEREC not to prioritise the proactive opening of number ranges across borders indiscriminately, although some measures on numbering harmonisation could be carried out.

Number ranges subject to inaccessibility

According to the answers received by BEREC inaccessibility is not an issue for the most used number ranges such as geographic, mobile or numbers for nomadic use, regardless of the type of access network. Other number ranges (e.g. directory enquiry service numbers, Public Utilities Service numbers, Internet dialling and emergency service numbers) have a specific national use scope and/or a format not defined in ITU Recommendation E.164, thus making them inaccessible when called from abroad. Directory enquiry service numbers, however, could be an issue when it comes to calling them while roaming as some mobile operators allow access to their own services only.

Number ranges that mostly raise an accessibility issue during cross-border communication are those used for SRS as they are subject to the above-mentioned reasons. However, some stakeholders stressed that already established international services use international numbers defined by ITU, such as International Freephone Numbers or International Premium Rate Numbers.

Reasons for inaccessibility

Complex technical and operational implementation

⁷ From the consumers' side, only the Federation of German Consumer Organisations (vzbv) provided feedback to the public call.

Most stakeholders agreed that when inaccessible number ranges, such as those used for PRS or Shared Cost, had to be made accessible across borders, the complexity of necessary negotiations and agreements would not be met by the commercial benefit. Operators would have to conclude interconnection agreements to ensure the technical accessibility, but also had to make sure that a reliable standard for call remuneration is available. Currently the originating model is not implemented cross-border and the reverse money flow cannot be realized; also tariff information – necessary for billing systems – cannot be transmitted. Related work on this area is being undertaken by BEREC, following the 2012 WP.⁸

Perceived lack of market demand

On the other hand, the inaccessibility of these numbers was not perceived as a problem by most customers, and only very few complaints were received by operators, indicating towards low market demand. Thus a low volume of calls would face high costs that had to be borne by the operators for making these number ranges accessible.

Risk of misuse and fraudulent behaviour⁹

Some stakeholders point out that inaccessible number ranges are often subject to misuse and fraud on a national level. On an international level, however, the implementation of measures to reduce the risk of fraudulent behaviour becomes even more difficult as the number of parties involved increases. As operators fear these risks and the costs associated, they decide not to open all number ranges across borders.

End user protection

Although all in all stakeholders were of the opinion that national regulations were not a reason for the lack of accessibility, some of them state that end user protection in several Member States might be an additional factor. In many cases PRS or Shared

⁸ Report from the CEA Expert Working Group on Special Rate Services, forthcoming 2012

⁹ BEREC has reported on this issue before (BoR (10) 62 Rev 1 BEREC report on cross-border issues under Article 28(2) USD, available at http://berec.europa.eu/doc/berec/bor_10_62Rev1.pdf. Last accessed on April 17th, 2012), and is continuing work in 2012.

Cost Services are subject to restrictions such as age limits, price announcement or maximum call duration. Before a successful implementation of these protection measures, which are not harmonised within the European Union, a coordinated approach might be necessary.

Effects on the single European market

Even though no concrete indications were mentioned regarding potential negative effects on the single European market, some stakeholders showed their concern. For example, it could be possible that the low amount of complaints is based on lack of information rather than on the perceived lack of demand. End users might take it as a matter of fact that certain number ranges are inaccessible rather than asking their providers to make them accessible. Thus some stakeholders asked for measures on numbering harmonisation and an increased promotion of the existing ITU number ranges.

3.3 Conclusions from the NRA Questionnaire Responses

Overview of NRAs submitted answers

22 NRAs submitted their answers to BEREC. This created an accurate picture of the situation. However, NRAs are not in the best position to provide a detailed overview of the situation regarding cross-border accessibility. To do so, NRAs would need to have detailed information regarding interconnection agreements.

Overall, the responses show that a lack of cross-border accessibility is based on the following reasons:

- Lack of market demand
- Complex technical implementation (e.g. charging issues)
- Cost, national legislation and end user protection

While some NRAs identified various number ranges, which BEREC might initially focus upon, the majority of NRAs felt that BEREC should not engage on this issue

because of the low level of demand or, if it does so, should adopt a marginal approach.

Number ranges subject to inaccessibility

NRA's responses clearly indicate that a variation of destination network (mobile or fixed) does not impact cross-border accessibility or inaccessibility status. Although some differences appear whether the call is made from fixed or mobile access networks, accessibility or inaccessibility is the same regardless the destination networks in most cases.

The overall answers submitted to BEREC confirm that geographic and mobile numbers are almost fully cross-border accessible whilst the accessibility status for other numbering ranges among Member States differs. Nomadic or VoIP and Personal numbers are mostly accessible (national and cross-border).

Number ranges that are totally or mostly inaccessible for cross-border communications are those used for PRS, whilst these numbers are totally or mostly accessible for national communications. Freephone and shared cost numbers are mostly accessible at a national level, but cross-border situation differs across Member States. In most of the Member States other special tariff numbers are not available or NRAs have no information on the international practice. UIFN, UISCN and other ITU-T International numbers are mostly accessible as well in cross-border communications as for national communications.

Reasons for inaccessibility

Most NRAs agreed on the list of reasons already identified. Some of them highlighted problems both on national and international level that hindered cross-border accessibility that can be summarised in the following aspects:

Perceived lack of market demand

Some NRAs pointed out that there is simply not enough market demand to open all number ranges internationally.

Challenges in technical implementation

Specific reasons for inaccessibility are also to be found in technical and operational limitations of short codes, such as SMS PRS numbers or Directory Enquiry numbers. A specific numbering plan aspect was reported, where a dialling clash is caused, when a certain non-geographic number range is dialled from abroad, as in international format it has the same format as a geographic area code.

Regarding charging models' issues

The majority of respondent NRAs reported that the termination one (i.e. the model where the termination rate is paid) is applied for geographic numbers, mobile numbers, personal numbers and Nomadic or VoIP numbers, whereas for SRS, the origination model is mostly implemented. A correlation can be then identified between the retail pricing charging method used and the status of inaccessibility of certain numbers, particularly with reference to SRS. Other examples of different inter operator price charge models were reported.

As far as the use of national models at international level is concerned, most of the NRAs identified issues in using the origination model at an international level due to its complexity. The necessary bilateral agreements imply indeed a significant level of detail, also in order to regulate the collection of payments and to avoid fraud. They involve furthermore a wide number of operators to interconnect, with the relevant management costs that might prove not justified in case the estimated traffic is limited. In addition, PRS numbers are subject to specific national regulation

concerning the access to certain type of content¹⁰, that might hinder their accessibility conditions at a cross-border level. It is furthermore highlighted that, in case no maximum retail tariffs are imposed in other countries for calling premium rate numbers, these calls will be very expensive and be the source of many user complaints. However, a modification of the origination model applied to non-geographic numbers was put forward by some NRAs, a modification that could be realized by introducing specific rules at EU level.

Cost, national legislation and end user protection

When it comes to costs necessary to implement the accessibility of PRS or Shared Cost, services operators face complex negotiations to conclude interconnection agreements as on an international level the number of players involved increases. NRAs considered that providers fear this complexity as they would have to make investments that might not be covered due to the low demand. So, even if a service can be reached from a technical point of view, the provider of the service might face the problem that the additional value of the service will not be reimbursed due to missing billing schemes, some service providers might chose not to be accessible from foreign countries.

NRAs identified the different Member States specific regulations in force as making cross-border accessibility harder. Indeed, national legislation often stipulates special conditions regarding calls to PRS and Shared Cost Services. Implementing such restrictions on an international level, such as age limitations, content-related, maximum tariffs, tariff transparency or maximum call duration, increases costs even further. Moreover, NRAs considered that operators might have to deal with further financial and organisational risks when it comes to end user protection issues such as fraud protection (to follow cash flows and routing schemes across borders), price transparency (to avoid bill shocks) or increase of disputes and consumer complaints. Limitations sought by called parties due to commercial reasons were reported also in the case of inaccessibility of free and shared cost services.

¹⁰ i.e. access to adult content, gambling services, etc.

Best Practices of cross-border special rate services

In general, NRAs are not in the best position to obtain information regarding special tariff numbers accessible at a cross-border level or the features of any relevant interconnection agreement in force between operators. Cross-border accessibility of some national PRS numbers associated with low retail tariffs was reported as a best practice deriving from specific interconnection agreements. Accessibility, through the use of a dedicated dialling code, to Northern Ireland numbers from the Irish Republic at national rates was also cited as an example of best practice. A practical solution reported was the opening up of geographic numbers parallel to the free one, in order to provide the service to customers abroad.

Other ideas contributing to further accessibility were proposed by NRAs. Relying on a more predictable interconnection model, could promote cross-border accessibility without negatively impacting on the market. Fixing a maximum price for calls to the number ranges accessible from abroad could also potentially help cross-border accessibility. At the same time, some NRAs pointed out that a common regulated pricing policy should not be considered as the first option. Accessibility should rather be made effective through requirements on the assignment and usage of national number ranges, excluding unfair business practices, and supporting bilateral negotiations necessary to allow international accessibility.

Perception of inaccessibility as a problem

Overall, NRAs reported that inaccessibility is not perceived as an issue among stakeholders, as highlighted by the extremely limited number of complaints received. Individual examples of complaints relate to: a service provider using a non-geographic number that was inaccessible from abroad; a corporate commercial decision not to have its contact number accessible from outside the country; occasionally complaints which are due to operation errors which are rectified promptly; because of suspected fraud, some foreign operators temporarily suspended access to mobile numbers in the Member State; in one Member State, a low number of complaints were received because financial institutions were using special tariff numbers not accessible from abroad.

According to NRAs, non-accessibility of PRS numbers did not lead to many problems voiced by stakeholders. The effects of non-accessibility on stakeholders are very limited, as the argument of lost opportunity for providers of services to meet end-users needs would be marginal because of inconsequential use. Although NRAs consider that access to some value added services such as IT support or to central services for enterprises along with some free numbers was important, they considered that adult content PRS should remain strictly nationally controlled. The general inaccessibility of short codes was also commented as having an effect on stakeholders.

Taking into account the influence stakeholders may have on accessibility, some NRAs consider that demand (from end-users or from service providers) could prompt NRAs as well as network and service providers to address the issue. It was recognised, however, that commercial negotiations on a bilateral basis would be necessary. Moreover, the fact that recognised work-around such as the parallel use of geographic numbers and UIFN for cross-border access suggests that there would not be a commercial imperative to respond to stakeholder concerns.

4. BERECs reflections on answers from the questionnaire

Arising from NRA information and feedback from stakeholders, the question of cross-border accessibility is not an issue except for numbers which have complex charging requirements such as premium rate service numbers, shared cost numbers and free numbers. In these cases, charging models apply and a series of bilateral agreements would be necessary to ensure cross-border access. For all such numbers, alternative means (i.e. parallel geographic numbers) of providing access for end-users to the underlying service are available to service providers, should they wish to enable access from outside the territory in which the service is based. According to recital 38 of the 2002 Directive, access by end-users to all numbering resources in the Community is a vital pre-condition for a single market

(notwithstanding commercial considerations). However it also states that tariffs charged to parties calling from outside the Member State concerned need not be the same as for those parties calling from inside that Member State.

Responses by stakeholders indicate that there is a general view that economic feasibility of providing the access and interconnection which Article 28 demands is dependent on the existence of market demand for cross-border access for the services in question. Market demand from consumers/end users is perceived absent as a result of a variety of factors including language differences, relevance of service to end-users outside a geographic area and infrequency of need to contact the service when outside the home country. NRAs reported that service providers have not sought facilities to ensure that special number ranges which they use are accessible from outside the national territory. Again a range of reasons can be involved – such as commercial reasons for not providing the service outside a defined area, alternative means of providing access (e.g. banks who provide a free number and a geographic number for use when abroad), differing consumer requirements in Member States (transparency of costs) and differing regulatory requirements in respect of Premium Rate Services.

Nevertheless, article 28(1) establishes a general obligation, whereby any number (and associated service) must be accessible to end-users from anywhere in the EU, subject only to specific exemptions,. BEREC believes that the perceived lack of demand should not keep the NRAs from doing further work in order to achieve greater accessibility of cross-border number ranges. Such a perception may overlook the policy decisions underlying the Directive.¹¹

BEREC acknowledges that the need for network and service providers to earn a return on the provision of facilities is a relevant factor in assessing the economic feasibility of ensuring cross-border accessibility. However, BEREC considers that this consideration may not, of itself, be sufficient justification for network providers to

¹¹ See 2.1 Background Legal framework of article 28(1)

avoid making efforts to comply with the general obligation to enable cross-border accessibility.

In terms of the market rationale, the economical oriented thinking states that if there was market demand, a solution to enable accessibility would have already materialized itself, assuming that the demand chain would be perfect. In this case demand and supply is a dynamic that corresponds between service provider and the operational chain, as the service provider purchases access to the operational chain with his operator. A simplified model of the demand chain can be seen in the figure below.

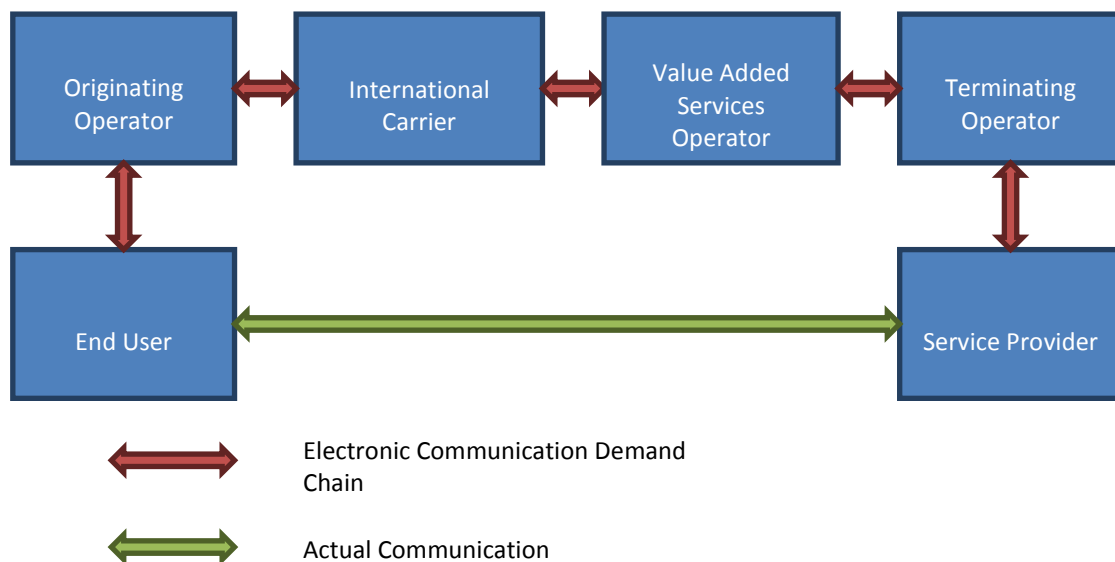


Figure 1 - Simplified model of the demand chain of cross-border communication

Being able to provide their service via non-geographic numbers to end-users temporarily abroad may not be an imperative for service providers. In the absence of accessibility associated with certain number ranges, service providers can utilise alternative means (e.g. geographic numbers as a substitute for free numbers) to provide a service to end-users. Many service providers have done so. This solution is simple to implement and carries minimal cost implications for the service provider.

There are different costs for end-users but the utility value (of accessing the service) outweighs the cost difference. The practicality of such a work-around further reduces demand for opening up accessibility and reinforces the perceived negative economic feasibility of doing so.

Eventually it is the end-user who would most outspokenly require cross-border accessibility, but they are not the demanding party towards the operator. The necessity to be able to access a service provider from abroad could theoretically resonate indirectly from end-user, to service suppliers, to operator. However, that would imply that either end-users *ex-ante* would consider cross-border accessibility of a particular service a key decision criterion when choosing the provider of the service, or they would *ex-post* punish their inaccessible service provider by switching to one who was accessible.

It is important to consider what would be necessary to elevate the accessibility of cross-border number ranges to the next level. The current paradigms in cross-border access may not be best suited to facilitate such interoperability efficiently, especially given the specific challenges that arise around for example payment structures for access to paid services and reversed flows for free services. Those paradigms rely mostly on bilateral agreements.

The retail charge model is a key aspect for the provisioning of the accessibility of number ranges. Calling party charged numbers like geographic and mobile numbers are usually accessible for cross-border communication and, in specific cases, also nomadic and VoIP numbers. For free and shared cost numbers the charged called party might not wish to incur the extra charge related to the international leg of the call. For premium rate service numbers, extra charges, or reduced revenue, to the service provider mitigate against the service provider pursuing the issue of accessibility. Furthermore a cross-border technique to identify number ranges and the applicable tariffs is missing and therefore cost transparency would not be available for end users.

The wholesale charge model (or inter-operator model) is another key aspect for cross-border accessibility. Some stakeholders pointed out that the origination charging model, where the terminating operator fixes the retail price and pays the originating rate to the originating operator, cannot be applied in a cross-border context due to its complexity. This is applicable to all the numbers except geographic, mobile and free numbers. Hence a deep analysis may possibly determine whether a new wholesale model would be able to promote the cross-border accessibility of numbers.¹² In fact, the application of the origination model at European level would imply a huge number of agreements. That can represent a real barrier to the cross-border accessibility of numbers in terms of costs and time to make the necessary agreements. A possibility to overcome this problem could be represented by the definition of an underlying wholesale model at EU level for inter-operator charging purposes. As an indicative example a potential defined EU wholesale model might be the following wholesale charging model. For calls originated from a country different from the destination one, the termination model till the international carrier operating at the destination country could be applied, regardless of the wholesale model applied at national level; then, at national level, the normal wholesale model (i.e. the originating model) could take place.

Moreover, for special rate services, there is a high risk of fraud. For free and shared cost numbers the reverse money flow from the called party appears to be rather complicated to achieve. As a result free calls are, if supported at all, charged as any other international call.

It may be the case that entire pan-European accessibility of numbers on a bilateral basis is economically not feasible, in the absence of a positive business case for the operators. However BEREC believes that prospective pan-European technical solutions for solving the impediments created by tariff transparency difficulties of special rate services may be useful. If supported by an underlying model at EU level

¹² As this deals with the substantive matter of possible remedies for promoting cross-border accessibility, this falls outside the scope of this report.

for inter-operator charging purposes, these solutions may contribute towards turning cross-border accessibility into a viable business case.

Looking at best practices among the Member States on how special rate services are coordinated amongst operators nationally indicates some possibilities for coordination on a pan-European scale. As an example the COIN Association¹³ in The Netherlands can be mentioned. COIN Association maintains a central database (CRDB), which contains all ported numbers, activated service numbers, and their rates. COIN offers telecom providers connection via a website to access this database. This enables them to have daily updated data on ported mobile phone numbers, fixed phone numbers, service numbers, and tariff changes. Translated to a pan-European level, prospective requirements could be a platform facilitating a harmonised payment structure for special rates that could reduce transaction costs.

The development of a pan-European multilateral platform or other facility for exchanging the necessary information and functionality for interoperability might help to achieve a full international accessibility of all number ranges as set out in Article 28(1).

Apart from the possible multilateral solution above, as stakeholders indicated in the questionnaire response regarding difficulties and inertia in the diffusion and implementation of new number ranges (and tariffs), instruments to enforce a time limit for timely implementation might contribute to improvement of accessibility.

While the report has predominantly been talking about *special rate* number ranges, such facilities may also have a positive spin-off effect on more regular rate numbers. BEREC expects that an initiative for a pan European platform would not emerge from the market, given the perceived lack of demand by both network operators and service providers for enabling special rate services on a cross-border basis using a common number for all countries.

¹³ The COIN Association was founded in September 1998, and is a collaboration between a large number of telecom providers in order to meet to the legal obligation of number portability. <https://www.coin.nl/>

Differing national requirements such as age controls for adult entertainment services, general consumer protection measures for premium rate services also mitigate against service providers seeking to ensure the cross-border accessibility of their services. Moreover national end-user protection and national pricing frameworks for certain number ranges among Member States are diverse, as are the obligations, restrictions and burdens attached to number ranges by 27 different regulators.

Taken from a national perspective, non-harmonised legal frameworks for premium rate services make perfect sense, but seen from a pan-European perspective, it is a patchwork that causes many challenges and overheads for service providers. Further European harmonisation on those areas might streamline processes surrounding cross-border accessibility of numbers. BEREC acknowledges that special importance should be attached to national end-user or consumer protection measures, like tariff transparency and protection of minors from access to harmful content, amongst other measures and the importance of such considerations cannot be minimised. Any efforts to seek to improve cross-border accessibility needs to take these into account.

While they have not had as much attention as other dynamics addressed in this report, the exemptions in Article 28(1) are very much enshrined in BEREC's thinking on cross -border accessibility. These exemptions could still be invoked at national level for some number ranges, if they demonstrate that technical or economical feasibility is out of reach. It is even possible to perceive that, despite assessments of the most prudent technical solutions, the conclusion may be reached that, for some types of number ranges, ensuring cross-border accessibility may simply not be a practical proposition.

5. Conclusions and findings

Cross-border accessibility issues of numbers are predominantly seen in number ranges regarding special rate services (premium rate, shared cost and directory enquiry services) and free services. A few accessibility problems are seen for numbers of the national numbering plans that are connected to personal communication services and for nomadic or VoIP numbers, while almost no problems are seen for geographic and mobile numbers. Making new number ranges accessible cross-border requires the announcing of the new range in the ITU's Operational Bulletin (OB). Aside from bilateral information exchange, this is the only instrument for distributing information about numbers and special rates.

Looking at the outcome of cross-border accessibility of number ranges, the results are not substantially different based on the type of access network (fixed, mobile, VoIP, cable). Most accessibility issues do not stem from issues within Member States. There are no substantial differences in the treatment of cross-border calls based on the Member State where the calling end-user is located.

The most important reasons for the inaccessibility of number ranges, based on the questionnaires' responses are:

- perceived lack of market demand for the accessibility of numbers;
- price transparency for the end user;
- charging model on retail and wholesale level causing technical and operational obstacles;
- end user (and service operator) protection from fraud and misuse of numbering;
- litigious resolution and bill shock handling in an international environment;
- combination of retail and wholesale models that implies complicated IC negotiations due to the increased number of international bilateral agreements between origination and termination operators;
- availability of alternatives to access premium rate services (geographical numbers for calling from abroad, e-mail, internet, UIFN).

End users, either residential or non-residential, have generally not complained about the situation that certain number ranges are not accessible on a cross-border basis. This is also confirmed by NRAs' answers, stating that no or a negligible number of complaints were received. Neither groups of stakeholders showed high interest in responding to the questionnaire. Indications for reasons for end users not to complain about inaccessibility are the available alternatives for accessing the services provided by the inaccessible numbers, avoidance of the risk of fraud or misuse and acceptance of the status quo.

The analysis carried out has not led to the identification of adverse effects experienced, like every day barriers and problems, for end users and for suppliers of telephony services as stemming from cross-border inaccessibility of number ranges.

Suppliers of telephony services, when asked for potential opportunities in an open-access framework for special tariff numbers, do not manifest the impression that they are, or will be working on initiatives on a solution to improve the situation of cross-border accessibility of numbers, and consider that further actions on changing the limited situation of inaccessibility are not a priority at a European level. The general obligation, created by article 28(1) of the Universal Service Directive that numbers from the national numbering plans are by default accessible (subject to the exceptions of technical and economical feasibility, and commercial consideration), has led to accessibility in most numbering ranges, but not all. Telephony suppliers share a general view that economic feasibility is dependent on a market demand for cross-border accessibility which is a necessary precondition before measures are to be taken that ensure the access and interconnection which article 28 demands.¹⁴ Overall, telephony services suppliers consider that further actions on changing the limited situation of inaccessibility are not a priority at a European level. Nevertheless, from NRAs' answers, some best practices and ideas can be drawn with respect to cross-border accessibility of certain non-geographic numbers:

¹⁴ In this context, however, taking into account the notions of article 28, these undertakings should be ready to provide information, when requested by NRAs, justifying that accessibility to specific ranges is not economically and/or technically feasible.

- Without having been able to identify the exact cause, accessibility of UIFN services seems to indicate that this range works appropriately in a cross-border environment;
- One NRA reported as a practical solution the opening up of geographic numbers parallel to free ones;
- Some PRS number ranges associated to low retail tariffs seem to be accessible at cross-border level.

Pursuing cross-border accessibility across all number ranges by NRAs could certainly be met with challenges, given the current conditions and limitations this report has identified. It appears that technical and economical infeasibility and commercial considerations not to be accessible are likely to be present to varying extents in the few number ranges that have some inaccessibility issues. It is up to NRAs to decide on the actual merit of the case whether that holds true or not in the specific circumstances. Also, careful consideration should be given to possibilities such as fraud and an increase in disputes, when pursuing accessibility. In the limited cases where there are issues, cross-border accessibility may be improved through: i) the gradual introduction of such accessibility (e.g. only for number ranges/services that would not create further issues); ii) taking in account the circumstances required by new charging models to develop and thrive in the market; iii) working on the available tools to solve any cross-border issues that might arise with respect to the transnational access to numbers and services.

Taking in consideration what our research so far has brought up, BEREC finds that:

- inaccessibility of number ranges based solely on the perceived lack of demand may overlook the policy decisions underlying the Directive;
- an appropriate dialogue among stakeholders concerning the policy objectives of article 28(1) could improve cross-border accessibility;
- further efforts could be made by market players, to improve technical and economical feasibility;

- including developing alternative cross-border interconnection arrangements;
 - a more transparent approach on the availability of information on certain rates, charging models and accessibility (or the lack thereof), when appropriate, in order to reduce information and transaction cost;
 - and additional or alternative instruments for distributing information about numbers and tariffs, and facilities on both technical and organizational level, may remove barriers.
- problems like fraud, misuse of numbering, an increase in disputes and bill shock handling in an international environment as well as price transparency for the end user should be dealt with;
 - alternative approaches could be introduced by service providers using service numbers which are currently not accessible from abroad, e.g. to make parallel alternative numbers available and to inform their customers that the alternative numbers can be used for reaching their service when abroad;
 - any possible further work on the issue of accessibility of non-geographic numbers should be undertaken with regard to two other work streams currently dealt with by BEREC: guidelines on article 28.2 USD (FR IMPL WG, forthcoming 2013) and the report on SRS (CEA WG, forthcoming 2012).

Annex I – Stakeholder Questionnaire Response Summary

1.1. General remarks of stakeholders

According to ETNO and other operators like Verizon and Vodafone there are no problems evident in the EU Member States regarding cross-border accessibility of national numbers, provided that there is a real market need and that customer protection is ensured. ETNO believes that the first paragraph of article 28 should mainly focus on the accessibility of national numbers that are directly assigned to fixed, nomadic or mobile end users for personal communication services.

PT gives in his general comments the remark that there are major differences across Member States in the implementation and commercialization of national non-geographic, deriving from diverse national legislations for special services provision and related users protection. This leads for PT to the conclusion that it is unrealistic to open access to national non-geographic numbers from other countries.

Both ETNO and other operators remark that there are already established international services, which use international numbers defined by ITU¹⁵. By these international numbers end users can recognize what they actually are accessing, decreasing the chances of misuse.

Vodafone remarks that for transparency reasons it would be confusing for end users to deal with hundreds of different prices depending on the specific foreign non-geographic called number, particularly as retail pricing practices differ per country.

INTUG did not provide a full response to the questionnaire, but gave a short description on the business users' experience of barriers to cross border business related to numbering. INTUG comments that the management of numbering spaces within the Member States is of variable quality. In some cases, the incumbent has retained undesirable competitive advantage through a large supply of numbers, creating shortages followed by number changes at cost of business users. In some occasions the incumbents have denied competitors access to special rate services or frustrated the number portability process. INTUG asks the NRA's individually and

¹⁵ Such as International Freephone numbers +800, International Shared Cost Numbers +808, International Premium Rate Numbers +979, International Personal Numbers for Universal Personal Telecommunications +878.

collectively through BEREC for non-discriminatory allocation of number ranges, while facilitating competition and minimizing number changes.

VON urgently requests BEREC not to focus on cross border accessibility of VoIP or nomadic numbers, due to lack of success of introductions of nomadic numbers. Instead VON ask BEREC to focus on decoupling geographic numbers from their location information (a condition inherited from POTS networks) together with transparent retail prices. VON members are experiencing difficulties in getting numbering blocks (including geographical ranges) accessible on a national basis, resulting in experienced entrance blockades

The Number asks BEREC's attention for making Directory Enquiry Services available during roaming for local visiting country access or home country services access while abroad.

1.2. Which number range(s) are inaccessible in cross-border communication?

This section is aimed to gain a more in depth view on the level of cross-border accessibility for each of the existent number ranges. Some examples of number ranges are: geographical numbers, mobile numbers, personal numbers, nomadic or VoIP numbers, harmonised numbers for harmonised services, numbers for emergency public utilities numbers, customer care services numbers, free phone call numbers, shared cost number, premium rate service numbers, directory enquiry service numbers. Moreover, the section explores whether the level of accessibility varies depending on the Member State or the type of access network, and also whether the cross-border accessibility issue stems from a national scope issue.

1.2.1. Accessibility status per type of number

Regarding **geographic and mobile numbers**, the general response was that no accessibility issue is currently present in cross-border communications. These number ranges are open based on notification and commercial agreements.

Although recognizing that generally geographic numbers are the most accessible from other Member States, VON highlights some important national scope problems causing time consuming and highly expensive constraints that prevent the entrants

to enter the market. In particular, VON refers to the lack of mandatory obligation or code of conduct for the time frame within which routing tables should be adjusted and ensured to provide accessibility to the new numbering blocks from other service provider. VON also refers to the fact that hosting numbering in combination with wholesale transit is not accepted in some Member States, and that numbering plans link usage to a fixed location, which no longer make sense in an “all-IP” world.

INTUG points out blocked access to national mobile number data bases for routing international incoming calls as one barrier to cross border business.

BEREC notes that generally geographic and mobile numbers do not raise an accessibility issue during cross-border communication, because these numbers usually are accessible.

Personal numbers are in principle national wide used non- geographical numbers with specific national tariffs and regulation. ETNO indicates that there is no market need for cross-border access to these number ranges. ETNO and PT consider more appropriate using ITU-T UIPT for this purpose. Verizon and BT refers that no accessibility issue is currently present in cross-border communications regarding personal numbers, because it can be granted by bilateral agreements for commercial and technical conditions. Related to this, Vodafone states that access is sometimes blocked in case of fraud.

Based on the responses, BEREC takes note that personal numbers do not raise an accessibility issue during cross-border communication, due to lack of market demand. Besides, more appropriate ITU-T UPT already exist for personal numbers accessible at international level.

Most of the respondents submitting detailed information on **nomadic or VoIP numbers** say that actually these ranges are accessible for international callers¹⁶. VON urgently requests BEREC not to take actions on cross-border accessibility for these numbers, even though a number of issues exist, but rather focus on lifting

¹⁶ Verizon makes here the same comment to that of personal numbers about the need of a retail charging scheme similar to the one used for geographic numbers calls. Vodafone as well report the fact that cross-border access is sometimes blocked in case of fraud.

barriers for using geographic numbers, ensuring transparent retail prices while decoupling geographic numbers from their location information.

As a general barrier for international accessibility to non-geographic numbers, INTUG indicates the inconsistent implementation of their numbering schemes in the Member States, which is in line with the observations made by other organizations about issues linked to numbering plans for certain types of non-geographic numbers, as detailed below.

BEREC indicates that **nomadic or VoIP numbers** do not raise an accessibility issue during cross-border communication, besides nomadic and VoIP numbers in the most of EU countries are used as geographic or mobile numbers which usually are accessible during cross-border communication.

Concerning **Premium Rate Service (PRS)** numbering ranges, a number of issues were reported: for instance, the complexity of technical and economical agreements (VAT, pricing difference, etc.) is mentioned by BT, and the fraud risk is stated by Verizon and Vodafone. As a consequence, the situation is that they are not generally open for international access. From the data of 7 countries (Spain, Italy, Malta, Portugal, Ireland, Czech Republic and the Netherlands) provided by Vodafone, PRS are totally closed in 5 of them. ETNO considers that there is no market need for cross-border access. ETNO and PT draw the attention to the ITU-T UIPRN availability for cross-border accessibility.

BEREC notes that Premium Rate Service numbers mostly raise an accessibility issue during cross-border communication because of high fraud risk, due to high charges and mainly applied carrier origination model and potentially applied offline charging schemes- no transparent price information for end users. Besides, more appropriate ITU-T UIPRN already exist for Premium Rate Service numbers at international level.

Freephone numbers and **Shared Cost Numbers** are in principle nation-wide non-geographic numbers with specific national tariffs (retail and wholesale). UIFN already exist for free phone services and UISCN for shared cost services accessible at

international level (ETNO and PT). Verizon states that there is no accessibility issue in this case.

Verizon and Vodafone explain that these ranges could be fully accessible across every Member State whether technical and economical bilateral agreements are in place (which ensure interconnection payments), but fraud risk and difficulties to differentiate them from PRS numbers may arise. ETNO considers that there is no market need for cross-border access to this type of numbers.

Regarding **Freephone** numbers and **Shared Cost** numbers BEREC indicates that these numbers mostly raise an accessibility issue during cross-border communication because they are national non-geographic numbers with specific national tariffs (retail and wholesale) and regulations. There is a need of origination charging model and bilateral agreements. Besides, ITU-T UIFN already exist for free phone services and UISCN for shared cost services reachable at the international level.

ETNO, PT and BT refer to the fact that **Public Utilities Service** numbers are not cross-border accessible because they are usually foreseen just for national users and provided through short numbers of national scope. Moreover, aspects such as charging schemes, numbering plan aspects, complexity in call routing are indicated by Vodafone and Verizon as issues that seem to be preventing full accessibility to these numbering resources for callers from abroad. As an example, the data submitted by Vodafone shows that only in 1 of 7 countries public utilities ranges are cross-border accessible. ETNO and PT remark that access to public utilities services usually is provided using short codes (e.g. 1XXX).

Internet dialling numbers are just national accessible service as a specific non-geographic number. Verizon remarks as number types for Internet dialling are not harmonised at all it is very difficult to identify and isolate such numbers or number ranges on a pan-European Union base. ETNO notes that this a service in decline.

BEREC notes that **Public Utilities Service** numbers and **Internet dialling** numbers do not raise an accessibility issue during cross-border communication because of specific national use scope. Besides, usually the number format differs from the number format defined in ITU-T Recommendation E.164 and in that case such numbers shouldn't be accessible to callers abroad.

ETNO and PT indicate that the **directory enquiry service** numbers, service which is imposed by the NRAs, are foreseen just for national users and usually provided using short codes that are national only numbers. (ETNO and PT refer to ITU-T Recommendation E.164) therefore this is not an accessibility issue. BT remarks that these numbers are not accessible in Member States with open dialling plans. Vodafone makes also reference to numbering plan aspects. High fraud risk, interconnection payments and billing issues, among other reasons, are mentioned as well by the respondents. The Number highlights that access from mobile networks whilst roaming is a great cause of concern for them (this includes both the local country and the home country directory enquiry services are not accessible for the roamer user).

Respecting **SMS PRS**, the situation is quite similar to the directory enquiry service numbers explained above.

All the responders remarked that the **emergency service numbers** have national scope only. Numbers like emergency service numbers, are defined in ITU-T Recommendation E.164 (Section A.8), and, as a consequence, should not be accessible to callers abroad.

BEREC indicates that **directory enquiry service** numbers, **SMS PRS** and **emergency service numbers**, in fact, does not raise an accessibility issue during cross-border communication, because of national use scope and definition in ITU-T Recommendation E.164 (Section A.8).

Article 28(1) of the Universal Service Directive Universal directive states that end-users must be able to access **ETNS** and UIFN.ETNO, Verizon, BT and PT have remarked that due to the poor commercial justification and demand met from other numbering ranges (national and global) there was no commercial justification and the ETNS number allocated by the ITU T (+388 3) was withdrawn by the ITU in December 2010.

Finally, with regard to **ITU-T UIFN** number ranges, different views about the situation were found among the responses received:

In the opinion of ETNO, PT and Verizon no issue is arising for these number ranges which are currently accessible and in use. Moreover, ETNO adds that these numbers have been successfully used for years and well known by end users.

BT indicates that notification is an issue, but the numbers are accessible based on notification and commercial agreements.

Vodafone reports some differences among the countries: in some of them, the numbers are open, in others partially open, or in a case-by-case basis, and for some of the countries the ranges are closed. Some issues, such as pricing and billing, interconnection payments ensuring, etc. appear.

INTUG considers that the UIFN numbers are not implemented (not supported by all operators in all countries).

BEREC takes note that the ITU-T UIFN numbers are usually accessible, based on notification and commercial agreements.

A summary of the main findings collected through the detailed answers received to this question regarding number ranges accessibility is presented in the following table:

Type of number range called	Accessibility status (based on the answers)	Summary of comments made by the stakeholders
Geographic number	Mostly accessible	No issue. Numbers are mostly accessible based on bilateral agreements
Mobile number	Mostly accessible	No issue. Numbers are mostly accessible based on bilateral agreements
Personal number	Mostly inaccessible	No issue. National specific use. Unfrequently used. No huge need in the market. ITU-T UPT service available.
Nomadic or VoIP number	Only in specific cases	No issue. Generally accessible if charged as geographic numbers. Sometimes blocked in case of fraud.
Premium Rate Service (PRS) number	Mostly inaccessible	Fraud risk. No harmonised charging model. Bilateral agreements and transparent price information for end users needed. ITU UIPRS available.
Free-phone number	Mostly inaccessible	No harmonised charging model. Interconnection payments. Bilateral agreements needed. ITU UIFN available.
Directory enquiry service number	Mostly inaccessible	No issue. Only national accessibility (format not defined in ITU-T E.164). Specific issue: accessing local/home directory services in roaming.
Shared cost number	Mostly inaccessible	Fraud risk. No harmonised charging model. Bilateral agreements and transparent price information for end users needed. ITU UISCN available.
Internet dialling	Mostly inaccessible	No issue National specific use. Service in decline.
Public utilities number	Not accessible	No issue. Only national accessibility (format not defined in ITU-T E.164).
Emergency services number	Not accessible	No issue. Only national accessibility (format not defined in ITU-T E.164).
SMS PRS number	Mostly inaccessible	No issue. Only national accessibility (format not defined in ITU-T E.164). Not accessible from all mobile operators.
ETNS	Not accessible	No issue. Availability has been stopped
UIFN	Accessible	No issue

1.2.2. Accessibility differences per access network

In general, the stakeholders didn't report substantial differences regarding the cross-border accessibility depending on the access network technology, although Vodafone noted that the main exceptions can be found in free phone and shared cost numbers, where the called party is paying (but the same problem can be found at national level).

Nevertheless, VON highlighted the case of mobile networks stating that for example in Germany, some mobile operators block or degrade access to regular local or national numbers allocated to other carriers without due justification. Also in reference to mobile networks, The Number shows its concern about the availability of directory enquiry numbers for roaming users, which varies according to both the home and roamed network, because it depends on the specific agreements.

BT names the issues related to notification and commercial agreements, there are currently no other mechanism than the ITU's Operational Bulletin (OB), for distributing the information about numbers and charges, which has limited visibility.

Summary: No respondents have identified any differences in cross-border accessibility of number ranges based on the type of access network. If there is an accessibility issue during cross-border communication then in the most cases it is related with the commercial offer or agreement being in place.

1.2.3. Accessibility based on national issue's

Three stakeholders pointed out different issues related to national issues. Vodafone remarked that in fact this is the case for free phone and shared cost numbers.

VON draw attention to its answer to question 1, and moreover the fact that the numbering assignments at a national level are mainly an issue in themselves because of the 27 different procedures, but the main impediments are the different obligations, restrictions and burdens attached to numbers by 27 different regulators.

Finally, in the opinion of The Number the calls to directory enquiry services from traditional lines do not rise issues within the countries, but in migrating to VoIP/VoB

the incumbent is restricting the consumer choice (for example, the consumers in the UK cannot use BT's managed VoB¹⁷ to access services such as 118118).

Summary: No respondent could point out if an inaccessibility issue of the number range stems from an accessibility issue within a Member State (a national call), so it could be considered that cross-border inaccessibility of number ranges stems from the bilateral relationships which usually are agreed on the free agency principle.

1.2.4. Accessibility differences per member state

The general answer to this question was that there might be some differences depending on the specific agreements reached between the international carriers, although it is not possible to determine a clear pattern. In particular, Vodafone stated previous cases of fraud that forced operators to close certain numbers as another source of cross-country variation.

Summary: Analysing the submitted answers BEREC can remark that there are no significant differences in the treatment of cross-border calls depending on the MS where the calling/called parties are located. The differences in treatment are not linked to the geographic location of the users, but to the different numbering ranges like special tariff numbers (PRS, Shared Cost numbers, Personal Numbers etc.) – the absence of clear tariff transparency makes operators aware of fraud issues and access to these numbers is closed.

1.3. Due to what reasons are these numbers inaccessible?

A brief scan, before the call for contributions, of possible reason for cross-border inaccessibility of number ranges has resulted in the following list of reasons:

- Technical and operational limitations, (for example signalling and online/prepaid charging)
- Pricing and billing issues (offline charging)
- Numbering plan aspects
- Aspects linked to access and transit wholesale interconnection services

¹⁷BT Broadband Talk.

- Legal issues linked to the definition of services, (for example VAT, age for adult entertainment)
- End user protection from fraud and misuse of numbering
- Called subscriber has chosen not to be accessible from another Member State
- Differences in language
- No market demand

1.3.1. Additional reasons for cross border inaccessibility

When asked for additional reasons for why numbers cannot be accessed across borders, two stakeholders (ETNO, PT) comment that principally there was no reason that numbers should not be accessible across borders. Geographic or mobile numbers could usually be reached without any problems. They argue that there might be some obstacles as the services provided had to be compatible with international standards. For this reason e.g. emergency services were not able to be accessed across borders as this would by itself not make any sense.

Three stakeholders (ETNO, PT, BT) stress that an important reason for cross-border inaccessibility of special rate or premium rate services was the missing market demand for such services. For those services that show some market demand, however, ITU-T global numbering resources could be and were used.

ETNO, PT and Verizon Business refer to the agreements operators had to close to guarantee call remuneration. In cases of missing market demand the commercial benefit did not exceed the complexity – regarding both technical and operational issues –, time and cost of implementation, so there was no reason for operators to close the agreements needed.

ETNO, PT and Verizon Business also state that regulatory compliance, customer protection and fraud were an issue regarding such services. Also vzbv agrees on that end user protection on a national level, such as extensive price transparency, was a reason for inaccessibility across borders. In addition to consumer protection reasons, Verizon Business adds that also the carriers' protection from fraud and misuse of numbers had to be taken into account.

VON suggests that also in-country inaccessibility should be mentioned. In some countries there was a requirement to enter into individual interconnection agreements with each access network because there was no practice of transit routing calls through the incumbent's network. In addition transit tables might not be updated regularly or there might not be any rules regarding the time frame to make numbering ranges accessible for calling parties. Even in cases where such rules existed, there often was no penalty for a delayed implementation.

The Number mentions that especially directory enquiry (DQ) services could not be reached across borders as mobile operators gave their customers access to their own DQ numbers only when they were roaming in other countries. Even in cases where DQ services, that were not those of the mobile operators, were accessible, charges were set at a prohibitive level which finally kept customers from using the competitor's services.

Summary: The following additional reasons can be distinguished:

- Incompatibility with international standards
- Complex agreements for call remuneration
- Blocking of competitors' numbers
- Lack of proper implementation of technical agreements on national levels

1.3.2. Most important reasons for inaccessibility

When referring to the specific reasons for why a number range is inaccessible from other countries, two stakeholders (ETNO and PT) comment that for many services, such as personal numbers, (SMS) premium rate services or shared cost, there was not any market demand from end-users that justified the investments needed to ensure cross-border accessibility. Furthermore the little demand, that might be in the market, could be covered by already existing numbering ranges managed by ITU-T (e.g. for free-phone, shared cost or premium rate services).

Based on the missing market demand by end-users, two stakeholders (Vodafone, Verizon Business) point at the complex technical and operational costs that came up with the introduction of cross-border accessibility of numbers. Due to the challenging dynamic routing of cross-border calls a large amount of contracts had to be closed

with all potentially involved operators. Furthermore additional work would arise because of handling complaints that would bind substantial resources. All these expenses of the operators were not counterbalanced by the little revenues achieved.

Verizon Business, BT and Vodafone stress that fraud and the blocking in case of fraud had to be considered important reasons for cross-border inaccessibility. Because of high wholesale prices premium rate numbers as well as other non-geographic numbers were very attractive to be worked with to commit fraud. Unlike in national markets direct connections between providers of premium content services and operators in order to limit fraud and guarantee consumer protection were currently technically impossible on a cross-border level. Furthermore Verizon Business points at the problem that providers committing fraud could easily again and again change their numbers to continue their abusive behaviour.

Verizon Business mentions issues based on the high degree of freedom regarding the charging of non-geographic calls. On the one hand it was difficult to identify the tariff that had to be applied for a specific number range, on the other hand frequent tariff changes would have to be applied by all the relevant operators. Furthermore different charging patterns made a correct charging regime difficult. In addition to such problems national regulatory requirements for consumer protection, e.g. free tariff announcements when setting up a call to premium rate services, were not feasible on an international resp. cross-border level.

Summary: Missing demand from end-users as well as complex billing agreements combined with, for some ranges, a high risk of fraud and misuse keep operators from opening all number ranges across borders.

1.3.3. Most important issues regarding national regulations

Most of the stakeholders participating in the BEREC call for input did not actually provide any contribution with specific reference to the impact of national regulations on the cross-border accessibility of numbering resources and did not therefore identify any regulatory harmonization issue in this field.

According to Verizon, cross border accessibility issues are not mainly caused by missing or unreasonable national regulations; the reasons are rather to find in the

historically grown charging methods for calls to non-geographic numbers (e.g. PRS charging model) that are particularly complex.

ETNO, PT, VON, vzbv and Vodafone identify instead end-users' protection - related reasons and highlight that it would be very difficult to protect them from fraud and overly high tariffs related to access to non-geographic numbers at an international level.

As a matter of fact, VON Europe and vzbv point out some differences related to national conditions concerning pricing issues and end-user protection regulations, challenging the possibility for a cross-border provision of services; also the relevant complexity of the billing models implemented at national level is considered by VON to impact over accessibility, especially with regard to PRS numbers.

Along the same lines, Vodafone points out pricing transparency towards end-users together with technical and operational complexities among the issues hindering cross-border accessibility of number ranges.

BT holds instead that the most significant issue impacting over accessibility regards the suitability to notify all CPs that a number range has been allocated by a Member State, together with the relevant price settings. Such a notification would make the implementation of the number range concerned just a commercial decision.

In this respect, BT notes that there is currently no other mechanism than the ITU's Operational Bulletin (OB) for disseminating this information. Although the OB is free, knowledge of its existence or of its role has limited visibility; ensuring that the latest information is used would support the adoption of the appropriate commercial decisions.

The Number - in addition to the blocking of the access to certain non-geographic numbers by access operators (particularly mobile ones) - identifies the issue of the high prices charged to end-users on mobile networks as a factor impacting over accessibility. Such prices are considered to deter people from using non-geographic numbers, thus resulting into the same effect of an actual block.

This stakeholder also raises the issue of the opportunity of a relevant intervention by NRAs in this respect.

Lastly, ETNO and PT suggest not to open up indiscriminately entire ranges of non-geographic numbers for access from other countries, but instead to look into the

possibility of opening up services to non-geographic numbers of another country, on a one-by-one basis, after a real market demand is proven.

As a matter of fact, PT, ETNO and Vodafone believe that it is the lack of customers' demand for such a cross-border access which results into inaccessibility.

Summary: All in all, it can be concluded that, on the background of the contributions received from the stakeholders, there does not seem to be an accessibility issue as related to national regulations' features.

The only regulation-related aspects impacting on accessibility conditions are considered to be national end-user protection rules as well as pricing issues, with respect to which some harmonization action could possibly be beneficial to cross-border accessibility.

1.3.4. Retail price charge model

It should be preliminarily clarified that, as regards the retail price charge model, the following models can be distinguished:

- Calling party charged numbers (no value added service): typically geographical numbers, mobile numbers, personal numbers, nomadic or VoIP numbers.
- Free of charge for the caller: typically emergency services, public utilities numbers, free phone call numbers and harmonized numbers for harmonized services (116)¹⁸.
- Shared cost numbers
- Premium rate service numbers

When asked to identify any relationship between the retail pricing charging method adopted and issues of inaccessibility of certain numbers¹⁹, some of the respondent stakeholders did find a correlation with reference to specific number types, particularly those associated to non-standard charging schemes.

¹⁸ National number, only national accessibility (format not defined in ITU-T E.164).

¹⁹ **The question asked is Question 7.** "For which number ranges an inaccessibility issue could be related to the retail priced charge model (e.g., due to limitations asked by the user of free phone or shared cost numbers or for premium rate service and the related difficulty in complying with the regulation of the Member States?"

This is the case of BT and Verizon, providing the example of free phone numbers, (where it is important to ensure that the recipient receives only the calls that they want) and PRS numbers (where variance of the costs to make the call and need to ensure that calls are not fraudulent do impact on accessibility).

More in detail, Verizon explains that calling party charged numbers (no value added services) are generally unproblematic, as long as they can easily and unambiguously be identified by the first few digits of the dialled number; the applied tariffs are identical for the whole number range to a certain Member State (e.g. one tariff for calls to geo numbers, one tariff for calls to mobile numbers) and the carriers can apply the inter-operator termination model.

According to the same stakeholder, as regards free of charge, PRS and shared cost numbers, some difficulties arise instead. In particular, for services that are free of charge for the caller as well as for PRS, difficulties refer to the features of the relevant money flow, which is generally shaped according to an inter-operator originating model at a national level; being such a model neither defined nor implemented in a cross-border inter-carrier context, the reverse money flow cannot be realized; as a result such calls are, if supported at all, charged as international calls (normally like a call to a geographic number in the same destination country).

In addition, Verizon also stresses that for PRS type of calls, the PRS provider fixes the retail rate to be charged by the originating operator according to different national methods, implying technical, administrative and contractual arrangements between the actors, thus resulting into the unfeasibility to implement a cross-border accessibility of such numbers due to the inconsistencies of the retail price charge schemes.

Along the same lines, Vodafone points out that many specific free phone and shared cost numbers are inaccessible from abroad because the charged called party is unwilling to cover the extra-charge related to the international leg of the call.

On the contrary, ETNO and PT, with reference to all national non-geographic numbers for special services (free phone, shared cost, premium rate, personal numbers, directory numbers, short codes, etc.) hold that inaccessibility is only due to the lack of market demand; they hence state that no market need for cross-border

accessibility of such numbers has emerged so far and that ITU-T global numbering is already normally used to that purpose.

ETNO also believes that for business users interested in operating in an international commercial context, a more recognizable global number is needed (e.g. ITU-T global numbers as +800, etc.); business users would indeed want to clearly define the associated economic conditions and/or the appropriate revenue sharing scenarios for the value chain remuneration.

Summary: According to the overall input received, problems of number inaccessibility as linked to the retail price charging method used, seem to arise with reference to PRS, DQ Services, short codes, personal and shared cost numbers. The main reasons are: i) the originating models not implemented cross-border and the reverse money flow cannot be realized; ii) a simple cross-border technique to identify numbers and tariffs is needed, like whole number range; iii) for freephone and shared cost numbers the charged called party could not will to cover the extra-charge related to the international leg of the call²⁰; iv) uncertain lack of market demand.

1.3.5. Inter operator price charge model

Concerning inter-operator price charging, two different models can be distinguished:

- termination model (originating operator fixes the retail price and pays the termination rate to the terminating operator)
- origination model (terminating operator fixes the retail price and pays the originating rate to the originating operator)

In line with what highlighted above with respect to the retail price charging methods, some stakeholders identified a relationship also between inaccessibility conditions and inter-operator charging schemes.

As a matter of fact, BT states that the reason for cross-border inaccessibility of PRS numbers (the most inaccessible) lies with the inter-operator pricing scheme applied,

²⁰Recital 38 of the 2002 Directive clarifies that tariffs charged to parties calling from outside the Member State concerned need not be the same as for those parties calling from inside that Member State.

i.e. the revenue share model associated with PRS. In fact, this model makes such numbers a target for fraud. Furthermore, the number as well as the range of charge is varied and implemented differently across CPs.

Also according to Verizon's views, the inter-operator model applied does impact over the accessibility conditions of numbering resources.

As a matter of fact, inter-operator charging models for calls to geographic and mobile numbers are simple terminating schemes, where the relevant money flow goes towards the call destination. On the contrary, for calls to PRS and shared cost - like numbers, the more complex origination charging model is generally implemented at a national level. This latter is not applied in a cross-border context due to its complexity and exposure to fraud, thus determining inaccessibility issues.

Lastly, VON points out that the involved number ranges are all the numbers other than fixed geographical numbers and mobile numbers, while ETNO and PT hold that the price charging model is not related per se to inaccessibility issues.

Summary: Overall, based on the few contributions received, some problems of number inaccessibility are considered to be linked to the inter-operator price charging model used (origination charging model is not applied in a cross-border context due to its complexity and exposure to fraud); problems seem to arise with reference to PRS, DQ Services, short codes, personal and shared cost numbers.

1.3.6. Best Practices of cross-border special tariff services

The International Services defined and managed by ITU-T (e.g. Universal International Free phone Service) are identified by ETNO and PT as cross-border special tariff services that have successfully worked for many years.

BT adds that ITU-T has several Recommendations on options that can support the delivery of special tariff services using both national E.164 and global numbers.

A further best practice related to cross-border accessibility is identified by the Number, reporting the example of UK MNOs, that mostly permit their customers roaming abroad to call 118 (The Number's UK DQ number), thus allowing them to access DQ services of their country instead of local ones; according to this stakeholder, when dialling a DQ number without international code, it should be

addressed to that of their home country; in order to access to a different one, the country code should be dialled.

Verizon provides the case of cross-border national free phone calls as an example of cross-border best practice. Where such calls are supported, they must indeed be dialled with the country code of the destination country and they are treated (e.g. charged) like a regular international call to this country. In case there would be a requirement to support cross border calls to national free phone numbers free of charge, an originating or intermediate carrier would most probably not be able to recover its transport costs.

Lastly, Vodafone reports how access to non-geographic numbers be ensured in the international roaming context; this stakeholder refers indeed to the example of the Virtual Home concept, according to which a roaming customer shall have access to the majority of numbers that are available in his/her home country, such as short codes for customer care and voice mail.

Conclusion: ITU-T global numbers and Virtual Home concept within the roaming environment can overall be highlighted as significant best practices put forward by respondent stakeholders.

1.4. To what extent is inaccessibility perceived as a problem?

1.4.1. Stakeholder complaints about inaccessibility

VON Europe replied that their members are receiving complaints mainly from business customers for whom accessibility from all networks (fixed, mobile, national and international) is crucial for their business. The perception is that the service provider is not reliable.

The remaining replies received stated that there have been few or no complaints at all on cross border accessibility.

ETNO and PT replied that they did not receive complaints from stakeholders on cross-border accessibility.

Verizon said they hardly receive any complaints from stakeholders. Some companies ask for their shared cost number (airline bookings, hotel bookings, service hotline) to be made accessible in another member country. Verizon is not

aware of complaints regarding revenue share type of numbers (Premium rate services, Directory Services).

Verizon also informed that there are services available from internationally operating carriers which can be used as a substitute for direct cross-border calls. These services provide access with e.g. a national shared cost number, limiting the risk of fraud to a national level, and forward the call as regular call to a foreign geographic number.

BT responded that they have had very few complaints seeking information on whether a specific numbering range is open in a specific country. The answer is usually “yes” but full supply chain must be addressed (international carrier, individual CP or SP and individual switchboards).

vzbv said that they did not receive any complaints on cross border inaccessibility of (specific) foreign telephone numbers from their members up to now.

The Number answered that they generally do not receive many complaints of this nature. They added that consumers might not expect cross-border access to DQ services to be available. The Number has been very cautious in advertising their number to roamers due to the lack of clarity (accessibility and tariffs) – which also explains the limited number of complaints.

Summary: BEREC notes that in spite of the fact that the majority of stakeholders answered that there have been few complaints or no complaints at all (let alone the possibility of alternative/substitute services, which may even lessen the risk of fraud), some work can still be done as regards transparency, namely as far as accessibility and tariffs are concerned so as to increase consumers’ empowerment and reliability on service providers. In fact, the reduced number of complaints may be the result of, up to some extent, lack of information.

1.4.2. Barriers and problems derived from of cross border inaccessibility

When asked *“From your point of view, which are the most important barriers and problems derived from cross-border inaccessibility?²¹”*, Verizon said that they are not aware of issues which could not be solved by using geographic numbers to overcome the problem.

BT referred fraud, commercial choice and taking commercial decisions based on incorrect knowledge associated with overseas number ranges as the biggest problems.

ETNO and PT answered that with the International Services defined and managed by ITU-T, there are no inaccessibility problems. Additionally, PT referred that when there is an effective need, a cross-border solution may be found, after a case-by-case analysis, and, in any event, the predictably most frequently used services are already covered by the International Services defined and managed by ITU-T.

Summary: BEREC notes that the majority of the respondents did not specify barriers and/or problems derived from cross-border inaccessibility.

1.4.3. Stakeholder influence on accessibility

When replying to the question *“Please describe which stakeholders in your opinion are most affected by the cross-border inaccessibility of number ranges. How are these stakeholders impacted by the inaccessibility? Do these stakeholders have any influence on the accessibility of the number?”*, Verizon said that cross-border accessibility for non-geographical calls is not of broad interest due to few complaints, not being priority from an end-user’s perspective.

BT answered that there are benefits in opening up international access to non-geographic ranges where commercially justified. However barriers exist: complex

²¹The following examples of stakeholders that have an interest in cross-border communication are:

- Consumers (in home country or abroad like travellers)
- Companies (customer service departments, helpdesks, sales, business travellers, expats etc.),
- Network Services providers (access, transit and terminating, inbound services),
- Content service providers,
- Public bodies and governmental organizations

rates and charging models. Notwithstanding the issue of possible fraud, which would need to be addressed in opening up of any numbering range that had higher than geographic charging rates associated with it, would be the need for CPs to easily and simply verify the information associated with a specific numbering range. BT also mentioned that BEREC should consider what role they might have in facilitating access to this information, upon which commercial decisions can be taken.

Vodafone answered that the inaccessibility of certain number ranges has limited impact on content providers (in the case of premium rate services) or companies (in the case of free phone or shared cost numbers). The related costs (frauds, additional charges, technical complexity) are higher than the potential benefits (increased revenues or additional foreign customers). In the case of enterprises, accessibility issues are, in some cases, overcome by alternatives such as Universal Free phone numbers (i.e. number assigned by the ITU) and the use of normal geographic numbers to be used by foreign customers. Other communications alternatives such as emails or corporate website are also widely used for cross-border communications (most e-commerce companies operating on a cross-border basis use these as their main communications tools).

ETNO and PT both responded that with the International Services defined and managed by ITU-T, there are no inaccessibility problems.

For The Number, end-users (consumers and business) are the ones that would benefit most from cross-border access to directory enquiry numbers. If such accessibility were guaranteed, this would mean that users travelling abroad in Europe with their mobile would be able to obtain local directory (and other enhanced) information from a live operator back home in their own native language at a price they know and understand.

Summary: BEREC takes note of the existing barriers, such as complex rates and charging models, and of the suggested role that BEREC might have in facilitating access to this information, upon which commercial decisions can be taken. No specific (group of) stakeholder(s) is most affected by cross border inaccessibility of number ranges. Based on the questionnaire responses no clarity could be obtained if

the stakeholders that do experience problems derived from accessibility issues have sufficient influential power to change the accessibility of a desired number.

Future developments on cross border accessibility of numbers

The vision on this subject is different among the organizations. On one side, ETNO, PT, and Vodafone are of the opinion that the needs are currently covered and they do not see new opportunities likely to be created. The position of BT and Verizon is that the benefits should be always carefully weighed against the efforts and risks.

On the other hand, VON, vzbv and The Number see advantages and opportunities in fostering cross-border accessibility. The Number focus the importance for end users, who would be the ones benefited from this because users travelling abroad in Europe with their mobile phone would enjoy the huge benefit of being able to obtain local and home directory information. VON highlights the important opportunities for new services and applications created by Internet, and the advantage that a well-designed and progressive numbering plan would bring in terms of growing usage, consumer benefits and promoting competition. Vzbv draws the attention to the fact that, in their comments to the Telecommunication Act in Germany they have already urged to ensure "any-to-any-communication" regarding to the national and ETNS numbers.

Summary: Although some of the respondents mentioned the goodness of promoting cross-border accessibility, no concrete product, service or business was described in detail.

1.4.4. Accessibility effect on European Union's Internal Market

BT considers that the issue of inaccessibility cannot be a raised equally against all number ranges. BEREC should give consideration to supporting the introduction of the relevant ITU-T recommendations.

ETNO is of the view that the ITU-T international services satisfy the needs, also taking into consideration that they have global scope, not only EU. Vodafone indicates that all numbers that are important for business and users are already available on a cross-border basis, so the issue has no obvious economic

significance. In the same line, Verizon does not see the fact that specific number ranges are only accessible on a national scope as a barrier, and again, draws the attention towards the need to balance carefully potential economical advantages against the increased threat through fraud, money laundering, etc.

In contrast, VON points out that Member States should unconditionally grant European users access to the numbering ranges from the national numbering plan without restrictions as set forth in art. 28.1 (b) USD. VON also mentions article 10.4 of the revised FD about harmonisation of numbers. This stakeholder sees a parallelism between “.eu” domain and the access to all national telephone numbers throughout Europe irrespective of borders.

Summary: From the information received no concrete indications were found regarding potential threats for the EU's Internal market. Nevertheless, BEREC takes note that some of the respondents reflected their concerns on the matter.

1.4.5. Advise to the European Commission and/or BEREC on accessibility

ETNO considers that ITU-T international services numbers are sufficient to cover all European needs. BT believes that notification of appropriate number ranges to all CP's in all Member States in a clear and concise manner is the cornerstone for promoting cross-border access. For certain number ranges, supplementary information on commercial arrangements that are possible could be also made available.

Vodafone advises to take no action on this matter, because the current level of accessibility is the indirect result of a cost-benefit analysis by all involved parties.

The Number remarks that access to directory enquiry services is part of the universal service scope. As an example, the number mentions that in Netherlands, when interpreting art 28 USD, OPTA explicitly considered that accessibility to numbers can be jeopardized by operators setting excessive communication tariffs. Such an approach should be undertaken by all regulators and clarified at pan-European level by BEREC.

Verizon suggests that it could be considered defining and harmonising a shared cost number range with tariffs identical to the ones for geographic numbers. On the other hand, BEREC could work on promoting ITU-T's well defined international service numbers. But one could as well argue that the so far very low demand for numbers out of these ranges should be an alert to be considered carefully when thinking of opening calls to national service numbers with much more fraud potential in a cross-border way.

Summary: BEREC notes that the overall response on further actions was not to enforce opening indiscriminately number ranges in an indiscriminate, although some stakeholders asked for measures on numbering harmonisation and fostering ITU global numbers.

Annex II – NRA Questionnaire Response Summary

1.1. NRAs contributions

The questionnaire on CBA intended to NRAs has been send via the list of CN BEREC contacts. The following 22 NRAs have answered the questionnaire:

- AGCOM, Italy
- ARCEP, France
- ANACOM, Portugal
- BNetzA, Germany
- BIPT, Belgium
- CTU, Czech Republic
- CMT, Spain
- ComReg, Ireland
- DBA, Denmark
- ECA, Estonia
- EETT, Greece
- FICORA, Finland
- HAKOM, Croatia
- MCA, Malta
- NPT, Norway
- NMHH, Hungary
- OPTA, The Netherlands
- RRT, Lithuania
- RTR, Austria
- SPRK, Latvia
- TU SR, Slovak Republic
- UKE, Poland

1.2. Questionnaire response

1.2.1. General remarks

According to their answers, NRAs seem not to be in position of providing a complete and accurate picture of the situation, as this would require to have a low level detail information about interconnection agreements of every operator across EU, an exercise that has not been carried out.

Moreover, as a general comment, some of NRAs remarked that international interconnection agreements are not regulated, which explains why several NRA have pointed answers as n/a or don't know.

1.2.2. How article 28(1) is transposed into national law

1.2.2.1. What is the status regarding the transposition into national law of article 28 (1) of the USD? Is it fully transposed?

As regards transposition into national law of article 28(1) of the USD, twelve out of twenty two answers received from NRAs informed that its member states have fully transposed it whereas eight informed that it was not yet fully transposed (though some were to complete the process soon). Despite not being transposed, one NRA stressed out that the provision ruled in article 28(1) of the USD which establishes that any consumer should be able to access any number in the European Union is in force in its national law both in primary and in secondary legislation.

1.2.2.2. Please provide your country's text of the legal act (in English) where this article is transposed (including both primary and secondary legislation). The EWG will use this information to have an overview of the various legal provisions

As regards each country's text of the legal act where article 28(1) is transposed (including both primary and secondary legislation) the majority sliiced to the text in the directive. Some, despite using a slightly different text, kept its essential meaning.

Also to refer that some countries went further with the transposition of this article, by including references such as:

- Operator of publicly available telephone services has the right to the compensation of costs for the routing of calls on its own public communications network, being comparable to costs related to calls to other member States of the European Union;
- Undertakings are required to transmit all calls to and from the European Telephony Numbering Space for a similar charge which it applies to calls made to other Member States and from other Member States;
- Undertakings must ensure the transmitting of a call originated by a subscriber to the pan-European harmonized short number beginning with 116;
- NRAs must issue further orders on technical measures to meet the obligation, namely by imposing obligations on public telecommunications network operators controlling access to end-users to interconnect, upon request, their networks with those of other public telecommunications network operators, as far as may be necessary to secure user communication, the provision of services and service interoperability. It may also impose further access obligations on public telecommunications network operators controlling access to end-users as far as it may be necessary to secure end-to-end connectivity;
- NRAs may require public telecommunications network operators controlling access to end-users not to treat particular requesting public telecommunications network operators differently, directly or indirectly, without objectively justifiable reason, from other requesting public telecommunications network operators with regard to the availability and billing. Measures should be objective, transparent and non-discriminatory;
- Public telephone network operators have to ensure users the possibility to perform calls to European telephone numbering area numbers for a tariff which is equivalent to the tariff specified for calls from and to other European Union Member States;

- The tariff applicable to calls for non-geographic numbers may be differentiated according to whether such calls originate from within or from outside the national territory;
- Undertakings to which the right of use for a range of numbers has been allocated shall not discriminate against other providers of electronic communications services as regards the numbers sequences used to access to their services;
- NRA will enforce equal treatment of the interconnection conditions between both national and international network operators.

1.2.2.3. NRA interpretation of the article

a) What has your NRA done to assure execution of the obligations arising from article 28(1)?

Typically, NRAs have not been taking any measures to assure execution of the obligations arising from article 28(1) mainly because the number of complaints received is not considered relevant, apart from the fact that in some cases there is yet no legal basis for it nor specific regulation on it. Besides, most NRAs consider that the requirements of this article are being met and accessibility is allowed where it is appropriate.

One NRA is of the opinion that additional measures should only be taken when there is a demonstrated failure for end-users to access services within the Community combined with sufficient market demand for cross-border accessibility if it is technically and economically feasible, since it may put an unnecessary burden on the industry.

Another NRA mentioned that despite there is no specific regulation on the subject, its Electronic Communications Act empowers the regulator to investigate complaints of end-users and to order corrective measures. The same will be valid for those NRAs that will be able to control the fulfillment of the obligations regarding accessibility of

numbers after the amendment of the Electronic Communications Act comes into force in the scope of the transposition of article 28(1) of the USD.

b) What are the future plans to assure the execution?

As for future plans to assure execution of the obligations arising from article 28(1), the majority of the answers pointed out that for the time being nothing is foreseen.

One NRA mentioned the likely need for a European coordination as implementation patterns should be similar in all countries, taking into account that problems such as fraud and litigious resolutions should be carefully considered before adopting new rules. According to its answer, ensuring cross-border accessibility could be made through: i) the gradual introduction of such accessibility (e.g. only for number ranges/services that would not create problems); ii) limiting the impact of potential new rules only for international carriers operating in the country, so as to avoid any impact on the rules currently in force in each country. A new wholesale model is proposed.

One NRA mentioned that it would consider the developments carried out by BEREC before drafting its policies regarding the execution of the obligations arising from article 28(1).

c) Is the feasibility evaluation done ex-ante or ex-post?"

Most NRAs expect feasibility evaluation to be done ex-post, especially as regards complaints. Nevertheless, there are some NRAs which consider that feasibility evaluation could be made ex-ante. One NRA said that both ex-ante and ex-post approaches could be considered. No note that in general it is said that the approach regarding feasibility evaluation is yet to be defined.

1.2.3. Which number range(s) are inaccessible in cross-border communication?

This section is aimed to gain a more in depth view on the level of cross-border accessibility for each of the existent number ranges. Some examples of number ranges are: geographical numbers, mobile numbers, personal numbers, nomadic or VoIP numbers, harmonised numbers for harmonised services, numbers for emergency public utilities numbers, customer care services numbers, free phone call numbers, shared cost number, premium rate service numbers, directory enquiry service numbers. Moreover, the section explores whether the level of accessibility varies depending on the Member State or the type of access network, and also whether the cross-border accessibility issue stems from a national scope issue.

1.2.3.1. Current status of cross border accessibility according to the NRAs

NRAs were asked to indicate the current status of cross-border accessibility, stating whether a number range raises an accessibility issue during cross-border communication. Also, NRAs were asked to identify whether inaccessibility issues of number ranges stem from accessibility issues at a national level, meaning that the ranges are already inaccessible in national communications.

The answers of NRA's show a clear view that variation of destination network (mobile or fixed) doesn't impact cross border accessibility or inaccessibility status. In most cases, accessibility or inaccessibility is the same regardless the destination networks. Some slight differences appear whether the call is made from fixed or mobile access network.

The overall responses from NRAs confirm that geographic and mobile numbers are fully cross-border accessible whilst the accessibility status for other numbering ranges among MS differs.

PRS numbers are totally or mostly inaccessible (around 80%) for cross-border communications whilst PRS numbers are totally or mostly accessible (80-90%) for national communications. The accessibility status for communications (both national and cross-border) is totally or mostly accessible for geographic and mobile numbers

(around 85%), as well as for Nomadic or VoIP and Personal numbers (although around 50% of “not apply” or “no info available” responses were received on the latter). Free-phone and shared cost number are mostly accessible at a national level, but cross-border the situation is unclear.

Other special tariff numbers in most of the MS (55%) are not available or NRAs have no information on the international practice. Excluding cases whether NRAs don't know the international practice UIFN, UISCN and other ITU-T International numbers are totally or mostly accessible as well in cross-border communications as for national communications. One NRA reports that from the ITU-T web site, you can find that currently 47 UISCN and 17 UIPRSN result as assigned and the numbers of Countries with UISCN and UIPRSN Service Providers are 3 and 5, respectively.

See more detailed data in the table hereunder:

Table 1 - Accessibility status

Type of number range called	Accessibility status to caller from your country (A) to other Member State (B)	Accessibility status to caller from other Member State (B) to your country (A) ⁽¹⁾	Accessibility status for national communications
Geographic number	Totally accessible (85%)	Totally accessible (85%)	Totally accessible (85%)
Mobile number	Totally accessible (85%)	Totally accessible (85%)	Totally accessible (85%)
Personal number	Mostly accessible (50%); n/a or don't know (50%)	Mostly accessible (50%); n/a or don't know (50%)	Mostly accessible (50%); n/a or don't know (50%)
Nomadic or VoIP number	Totally accessible (30-40%); n/a or don't know (40%)	Totally accessible (40-50%); n/a or don't know (30-40%)	Totally accessible (70%); n/a or don't know (30%)
Premium Rate Service (PRS) number	Mostly inaccessible or Totally inaccessible (70-75%)	Mostly inaccessible or Totally inaccessible (85-90%)	Totally accessible or Mostly accessible (80-90%)
Free-phone number	Totally accessible or Mostly accessible (45-50%); Mostly inaccessible or Totally inaccessible (40%)	Totally accessible or Mostly accessible (40-45%); Mostly inaccessible or Totally inaccessible (40-45%)	Totally accessible or Mostly accessible (80-85%)
Shared cost number	Totally accessible or Mostly accessible (30-40%); n/a or don't know (35-40%)	Totally accessible or Mostly accessible (35-40%); n/a or don't know (35%)	Totally accessible or Mostly accessible (60%-65%)
Other special tariff number ⁽²⁾	Totally accessible or Mostly accessible (30%); n/a or don't know (55%)	Totally accessible or Mostly accessible (25%) for fixed access network; Mostly inaccessible or Totally inaccessible (25%) for mobile access network; n/a or don't know (55%)	Totally accessible or Mostly accessible (40%-45%); n/a or don't know (50-55%)
UIFN, UISCN and other ITU-T International numbers	Totally accessible or Mostly accessible (55-65%)	Totally accessible or Mostly accessible (50%-55%); n/a or don't know (30-35%)	Totally accessible or Mostly accessible (45%-50%); n/a or don't know (45-50%)

(1) Including the case of mobile users from MS B roaming in MS A.

(2) For instance, calling party charged non-geographic numbers for business and undertakings

1.2.4. Due to which reasons are these numbers inaccessible?

A quick scan of possible reason for cross-border inaccessibility of number ranges has resulted in the following list of reasons:

- *Technical and operational limitations, (for example signalling and online/prepaid charging)*
- *Pricing and billing issues (offline charging)*
- *Numbering plan aspects*
- *Aspects linked to access and transit wholesale interconnection services (e.g., complicated IC negotiations due to increased number of players, charging and retention rate issues, etc.)*
- *Legal issues linked to the definition of services, (for example VAT, age for adult entertainment)*
- *End user protection from fraud and misuse of numbering*
- *Called subscriber has chosen not to be accessible from another Member State*
- *Differences in language*
- *No market demand*
- *Other*

1.2.4.1. Additional reasons for cross-border inaccessibility

When asked for (additional) reasons for cross-border inaccessibility most NRAs agreed on the list of reasons that had already been identified such as end user protection, complicated IC negotiations, pricing and billing issues or problems concerning charging.

However, some NRAs highlighted problems both on national and international level that hindered cross-border accessibility. One NRA referred to a specific numbering plan aspect where a dialling clash is caused when a certain non-geographic number range is dialled from abroad as in international format it has the same format as a geographic area code. Any economically feasible solution could not be introduced before the beginning of the next decade.

Also in this context, some NRAs pointed out that there simply is not enough market demand to open all number ranges internationally. On the other hand international negotiations, which are necessary for IC agreements to make numbers accessible, are usually complex and difficult as on an international level the number of players

involved increases. Providers fear this complexity as they would have to make investments that might not be covered due to the low demand. In addition to that, operators might have to deal with further financial and organisational risks when it comes to end user protection issues such as fraud protection, price transparency or litigious resolution. Already difficult for national numbers, it becomes much harder to keep customers informed on prices for a vast amount of international numbers to avoid bill shocks and, in case of fraudulent behaviour, to follow cash flows and routing schemes across borders.

Summary: NRAs agreed on the list of reasons already identified as reasons of inaccessibility. Some of reasons remarked were the followings:

- A specific numbering plan aspect where a dialling clash is caused
- Not enough market demand to open all number ranges internationally.
- Complex international negotiations necessary for IC agreements
- End user protection issues as fraud protection, price transparency or litigious resolution.

1.2.4.2. Specific reasons for inaccessibility

As regards to specific reasons why certain number ranges are (at least partly) inaccessible, one NRA refers to technical and operational limitations of short codes, such as SMS PRS numbers or Directory Enquiry numbers.

Most NRAs, however, mention concrete barriers which hinder customers to access PRS or less expensive Shared Cost Services. There is a broad agreement that this specific inaccessibility is based, apart from minor issues such as differences in language, on two reasons: Costs and end user protection.

When it comes to costs necessary to implement the accessibility of PRS or Shared Cost, services operators face complex negotiations to close IC agreements. These expensive investments are not likely to be covered by an expected low volume of calls. Even if a service can be reached from a technical point of view, in some cases, however, the provider of the service might face the problem that the additional value

of the service will not be reimbursed due to missing billing schemes, e.g. in cases of offline billing. Thus, despite a general accessibility enabled by operators, some service providers might chose by themselves not to be accessible from foreign countries.

In addition, national legislation often stipulated special conditions regarding calls to PRS and Shared Costs Services. Implementing such restrictions, such as age limitations, maximum tariffs, or maximum call duration, on an international level increases costs even further. Nevertheless end users could face the risk that unreliable PRS providers offer their services from countries which only have very low levels of consumer protection. The question arises according to which legislation such consumer complaints would have to be treated in these cases.

Summary: Specific reasons for inaccessibility reported by NRAs are the following ones:

- Technical and operational limitations of short codes
- Cost: expensive investments to implement accessibility
- Lack of demand: expected low volume of calls
- Complex negotiations to close IC agreements
- End user protection
- Potential increase of number complains based on a low volume of calls

1.2.4.3. Retail price charge model

For retail price charge model, the following models can be distinguished:

- *Calling party charged numbers (no value added service): typically geographical numbers, mobile numbers, personal numbers, nomadic or VoIP numbers.*
- *Free of charge for the caller: typically emergency services, public utilities numbers, free phone call numbers and harmonized numbers for harmonized services (116).*
- *Shared cost numbers*

- Premium rate service numbers

Concerning any connection between the retail pricing charging method used and the status of inaccessibility of certain numbers, according to the input overall provided by the NRAs that contributed to the BEREC Questionnaire, a relationship can be identified particularly with reference to premium rate service, free phone and shared cost numbers.

According to NRAs' views, for such numbers inaccessibility could indeed be related to the retail price method implemented, contrary to what occurs for geographic and mobile numbers where accessibility issues do not arise.

Reasons for such inaccessibility are connected by some NRAs to different national regulations in force in the callers' country, also with reference to the diverse rules on tariffs charged by service providers, that might result into higher retail tariffs than the nationally predefined ones when in a cross-border context, with relevant harm for the consumers.

Further reasons for inaccessibility underlined, in addition to tariff transparency, also relate to litigious resolution and bill shocking handling in an international environment, fraud, wholesale charging models implemented, interconnection negotiations featured by a wide number of players as well as charging and retention rate problems.

With reference to free-phone and shared cost numbers, one of the underlying reasons put forward for cross-border inaccessibility relates also to limitations asked by the users due to commercial reasons; nevertheless, additional reasons for inaccessibility should be looked into in this respect, since market demand for free-phone international services is currently met via UIFN numbers instead of national ones.

Summary: A connection can be identified between the retail pricing charging method used and the status of inaccessibility of certain numbers, particularly with reference to premium rate service, free phone and shared cost numbers.

1.2.4.4. Inter operator price charge model

In order to understand possible problems in cross border accessibility due to the retail and wholesale models used to charge calls directed to different types of numbers, it seems relevant to know what models are used at national level for the different types of numbers. Two typical combinations of retail and wholesale models²² are:

originating operator fixes the retail price and pays the termination rate to the terminating operator;

terminating operator fixes the retail price and pays the originating rate to the originating operator.

Combinations of retail and wholesale models applied.

Regarding the wholesale models used, the majority of respondent NRAs reported that the termination one (i.e. the model where the termination rate is paid) is applied for geographic numbers, mobile numbers, personal numbers and Nomadic or VoIP numbers, whereas for Premium Rate Service, Shared cost, free-phone universal numbers, the origination model is mostly implemented, meaning that the termination operator fixes a retail price and pays the originating rate to the originating operator; mobile operators can also fix an additional retail “access” charge.

In other cases, it is up to the service provider and not the termination operator to fix the retail price of the PRS; the originating operator then invoices the terminating operator for the whole service; due to specific regulation, operators charge for premium rate numbers in name of the service provider. If customers ask, service providers are obliged to deliver an invoice.

²² For details on typical retail and wholesale models reference can be made to the BEREC report on Special Rate Services (BoR (11) 68).

For such services numbers, retail prices must comply with thresholds that can be regulated at national level; for instance, in one Country such prices are made of a premium part (regulated at retail level) whose the originating operator retains a regulated share, and a conveyance element (standard retail price for a fixed call as set by the originating operator).

In one Country, in the event of calls to free-phone numbers originating from mobile networks, it is reported that fixed telephony retail tariffs may apply to the caller, while in other Countries the retail tariff is zero also for calls originated in mobile networks.

In cases where the origination model is used, the termination operator owning the rights of use of a non-geographic number generally chooses from a list of applicable retail prices that are defined by the originating operator according to the service; this is done via the Reference Offer as regards the incumbent operators.

One NRA reported that wholesale payment models are established through the incumbent's Reference Offer.

A differentiation was furthermore reported within the origination model, with reference to the origination network concerned: in case of a fixed originating network, the terminating operator would fix and charge the retail price (the same for all fixed networks) and accordingly pay the origination rate to the originating operator; in the case of a mobile origination network, the retail price would instead be agreed by terminating and originating operators (differences are hence possible amongst various originating mobile networks).

In one Country the termination model seems to find very wide application compared to the origination one.

The existence of commercially negotiated inter-network PRS numbers was also reported, where generally the terminating operator sets retail and wholesale (termination) prices as well as a share of the revenues allocated to content provider.

In one Country, the origination model is implemented only in fixed networks and only for PRS and Directory inquiry services, while for all other numbers and for calls from mobile networks the termination model is used.

Summary: Regarding the number ranges for which inaccessibility could stem from a combination of the retail and wholesale models implemented, NRAs identified in general, all number ranges where the charging models used envision the payment of an origination rate, the issue actually lying in the interconnection model used instead of the number range.

Possible challenges to use the national models at international level

The majority of respondent NRAs identified issues in using the origination model at an international level due to its complexity; the necessary bilateral agreements based on such model imply indeed a significant level of detail, also in order to regulate the collection of payments and to avoid fraud; they involve furthermore a wide number of operators to interconnect, with the relevant management costs that might prove not justified in case the estimated traffic be limited; bilateral opening of number ranges would therefore be cumbersome, requiring a sophisticated international settlements regime.

In addition, PRS numbers are subject to specific national rules (on age verification, tariff transparency, maximum retail tariffs applicable, service's content...) that might hinder their accessibility conditions at a cross-border level; it is furthermore highlighted that, in case no maximum retail tariffs are imposed in other countries for calling premium rate numbers, these calls will be very expensive and be the source of many users' complaints.

A modification of the origination model applied to non geographic numbers was put forward by some NRAs; it could be realized introducing specific rules at EU level. As a matter of fact, at international level only the termination model is actually used, except for rare cases like UIFN.

A very limited number of NRAs did not identify any issue of cross-border accessibility as related to the wholesale models used at national level.

Summary: Most of NRAs identified issues in using the origination model at an international level due to its complexity. The necessary bilateral agreements imply indeed a significant level of detail, also in order to regulate the collection of payments and to avoid fraud.

Number ranges for which cross border inaccessibility could be related to the combination of retail and wholesale models used

Regarding the number ranges for which inaccessibility could stem from a combination of the retail and wholesale models implemented, NRAs identified all special rate services, particularly PRS, free-phone and shared-cost numbers, as well as ITU international numbers; in general, all number ranges where the charging models used envision the payment of an origination rate result into cross-border accessibility problems, the issue actually lying in the interconnection model used instead of the number range; nevertheless, payment models cannot be considered the only reason for inaccessibility, which is reported to derive also from problems of fraud, litigious resolution and bill shocking handling in an international environment.

In one Country, inaccessibility of non-geographic numbers stems from a specific number range clash.

Summary: Regarding the number ranges for which inaccessibility could stem from a combination of the retail and wholesale models implemented, NRAs identified in general, all number ranges where the charging models used envision the payment of an origination rate, the issue actually lying in the interconnection model used instead of the number range.

1.2.4.5. Best Practices of cross-border special tariff services

As BEREC is interested in best practices of cross-border accessibility for special rate services, NRAs were asked to provide examples of cross-border special tariff services they might be aware of, which are working currently on the basis of cooperation among operators and if the NRA had gained knowledge of such examples, elaborate on the agreements, technical solutions adopted, conditions applied to the calling subscriber, ensuring tariff transparency and any other subject considered relevant.

The majority of respondent NRAs has no information regarding special tariff numbers accessible at a cross-border level and the features of any relevant interconnection agreement in force between operators.

Some NRAs reported that UIFN services work well in a cross-border environment, as well as mobile operators' customer care numbers for their international roaming clients. This latter accessibility outcome stems from bilateral agreements between interested mobile operators.

Also, the cross-border accessibility of some national PRS numbers associated to low retail tariffs was reported as a best practice deriving from specific interconnection agreements, together with the accessibility status of Northern Ireland's numbers, made possible by special arrangements allowing to charge such calls at national rates. The cross-border accessibility of a specific PRS number range (characterised by a low retail price) is also present in another Country.

One NRA reported of the difficulties in allowing cross-border accessibility of special rate numbers due to the national requirements in force on tariff transparency; the national default barring of value-added message-based services might indeed constitute a difficulty in ensuring international accessibility of such services in compliance with national regulations, together with the lack of transparency obligations bearing down on national operators concerning cross-border services tariffs (e.g. tariffs for roaming communications addressed to "premium rate services")

or communications made to non geographic numbers abroad) that impact over actual cross-border accessibility conditions.

Lastly, one NRA reported as practical solutions implemented by operators to overcome the difficulties found in cross-border number accessibility of their special rate services numbers, the opening up of geographic numbers parallel to their free-phone one, in order to be accessible and be able to provide the service to customers abroad.

Summary: Even though the majority of NRAs has no information on best practices implemented, some examples were provided:

- UIFN services work well in a cross-border environment.
- Cross-border accessibility of some national PRS numbers associated to low retail tariffs deriving from specific interconnection agreements
- The accessibility status of Northern Ireland's numbers
- The opening up of geographic numbers parallel to the free-phone one
- To envision accessibility to nomadic numbers through a set of rules providing for the usage of termination model for such numbers
- Fixing a maximum price for calls to the number ranges accessible from abroad
- Promote bilateral negotiations necessary to allow international accessibility.

1.2.4.6. Most important issues regarding national regulations

Asked about the effect national measures do have on cross-border accessibility; about to what extent would be such national measures need to be amended to ensure cross-border accessibility, and about the effect on consumer welfare, NRAs identified the different Country-specific regulations in force (with a focus on consumer protection-related rules) as making cross-border accessibility harder, particularly with reference to content-related, age verification, maximum-tariff and tariff transparency. National regulations, which would require an harmonizing action in order for the consumer to benefit from a uniform level of protection at a cross-border level.

As a matter of fact, it was reported that service providers tend to offer their services abroad via different numbers so as to be able to comply with local legal requirements.

Some measures have been adopted though at national level in this respect that could be considered to foster cross-border accessibility of numbers. For instance, in one case, accessibility to nomadic numbers has been envisioned through a set of rules providing for the usage of the termination model for such numbers, so as to limit the relevant retail price; in this case, it has been explicitly foreseen that with nomadic numbers it is possible to make and receive calls from abroad.

Actions of this type on single national number ranges could promote cross-border accessibility without negatively impacting on the market.

Also, fixing a maximum price for calls to the number ranges accessible from abroad could potentially help cross border accessibility, limiting problems such as fraud and bill shocking without intervening at all on the rules in force for national calls.

Nevertheless, for other NRAs a common regulated pricing policy is not held to be feasible; accessibility should rather be made effective through requirements on the rights of use of national number ranges, hence excluding unfair business practices, which would promote the bilateral negotiations necessary to allow international accessibility.

Lastly, some NRAs stressed that different national regulations on tariffs and content of PRS represent just one aspect of the problem of cross-border accessibility, this latter depending mainly on the complexity of inter-carrier billing, risk of fraud, litigation and service quality.

Summary: Most NRAs identified the different Country-specific regulations in force (with a focus on consumer protection-related rules) as making cross-border accessibility harder, particularly with reference to content-related, age verification,

maximum-tariff and tariff transparency. National regulations, which would require an harmonizing action in order for the consumer to benefit from a uniform level of protection at a cross-border level.

1.2.5. To what extent is inaccessibility perceived as a problem?

NRAs were asked for views on the perception of inaccessibility as a problem which needs to be addressed. In particular, NRAs were asked to provide data on complaints received from individual end users or their representatives; from providers of electronic communications networks and services and from providers of services utilizing non-geographic numbers.

1.2.5.1. Data on complaints

Almost universally, NRAs did not report complaints having been received to any extent that would suggest a problem for any category of stakeholder.

Complaints were noted by one NRA relating to a commercial decision by a corporate entity not to have its contact number accessible from outside the country. Another NRA reported that it occasionally receives complaints which are due to operation errors which are rectified promptly. One NRA reported that, because of suspected fraud, some foreign operators temporarily suspended access to mobile numbers in the Member State. In one MS, a low number of complaints were received because financial institutions were using special tariff numbers not accessible from abroad. Only one NRA reported a complaint by a service provider using a non-geographic number that it was inaccessible from abroad.

Summary: the number of complaints reported was negligible.

1.2.5.2. Effects of non accessibility on stakeholders

NRAs were also asked for views on the effects of non accessibility of certain number ranges on different categories of stakeholders

One NRA considered that non-accessibility of premium rate numbers avoided many problems. It also held the view that any lost business opportunities for other number ranges would be marginal because of inconsequential use. Another NRA considered that access to some value added services such as IT support or other central services for enterprises along with some free-phone numbers was important but that adult content PRS should remain strictly nationally controlled.

One NRA commented that the customary use by some companies of a special rate number for accessibility within the country and a geographic number for use when outside the country did not give rise to any complaints. This was also found to be the case by other NRAs which believed that the use of alternative number ranges met the needs of both end-users and service providers of services.

NRAs noted the lost opportunity for providers of services to meet end-users needs as well as the general inaccessibility of short codes upon as polling/voting in TV programmes is receivable in more than the host country.

Summary: As a general thought, NRAs consider effects of non accessibility on stakeholders are very limited because lost opportunity for SP to meet end-users needs would be marginal due the inconsequential use. Non-accessibility of PRS numbers avoided many problems to stakeholders. Although access to some value added services is important, adult content PRS should remain strictly nationally controlled. The general inaccessibility of short codes was also commented as having an effect on stakeholders.

1.2.5.3. Influence of stakeholders on accessibility

NRAS were also asked for views on the influence which stakeholders have on the question of accessibility.

Responses were mixed with some NRAs considering that demand, from end-users or from providers of services could prompt NRAs and Network and Service Providers

to address the issue. It was recognised however that commercial negotiations on a bilateral basis would be necessary. The fact that recognised work-around such as the parallel use of geographic numbers and UIFN for cross border access suggested to one NRA that there would not be a commercial imperative to respond to stakeholder concerns.

Summary: some NRAs consider that demand could prompt NRAs and Network and SP to address the issue. Negotiations on a bilateral basis would be necessary but, given the current work-around implemented in some cases, suggestion may be done that there would not be a commercial imperative to respond to stakeholder concerns.

1.2.5.4. BEREC focus

NRAS were also asked to identify priority number ranges which BEREC might initially focus upon. While some NRAs identified various number ranges, the majority of NRAs felt that BEREC should not engage on this issue because of the low level of demand or, if it does so, should adopt a 'de minimus' approach.

Glossary of terms

Given the technical nature of some of these topics, the report provides a glossary of English terms and phrases frequently used in this Report to describe different topics, as well as the abbreviations for naming the different organisations:

BEREC: Body of European Regulators for Electronic Communications

BT: British Telecom

Consumer: any natural person who uses or requests a publicly available electronic communications service for certain purposes, which are outside his or her trade, business or profession

COIN: COmmunications Infrastructure

CP: Communications Provider

CRDB: Central Reference Database

End-User: means a user not providing public communications networks or publicly available electronic communications services

ECTA: European Competitive Telecommunications Association

ETNO: European Telecommunications Network Operators' Association

FD: Framework Directive (see “References” chapter)

FEDMA: Federation of European Direct and Interactive Marketing

GSMA: GSM Association

IARN: International Audiotex Regulators Network

IISF: International Inbound Services Forum

Interconnection agreements: are aimed to set prices and conditions for interconnection between networks, including access to special services of fixed network (information numbers, free numbers, call forwarding, etc.)

INTUG: International Association of Business Users of Telecommunications

ITU- T: International Telecommunication Union - Telecommunication Standardization Sector

NRA: National Regulatory Authority

Premium rate services (PRS): refers to services that are accessed by the use of a premium rate telephone number in which the caller pays a special premium rate that is above the normal tariff for voice calls or SMS communication between end-users. Examples of services are sports information services, games, popular voting (as opposed to electoral voting), chat lines and business information services

PT: Portugal Telecom

SP: Service Provider

USD: Universal Service Directive (see “References” chapter)

Verizon: Verizon Business

VoIP (Voice over Internet Protocol): The generic name for the transport of voice traffic using Internet Protocol (IP) technology. VoIP broadly includes Voice over Broadband (VoB), Voice over Digital Subscriber Line (DSL), Voice over Internet (VoI), Voice over Wireless Local Area Network and Internet telephony. The VoIP traffic can be carried on a private managed network or the public Internet (see Internet telephony) or a combination of both. Some organisations use the term 'IP telephony' interchangeably with 'VoIP'.

VON Europe: Voice on the Net Coalition Europe

vzbv: Federation of German Consumer Organisations (Verbraucherzentrale Bundesverband e.V.)

UIFN: Universal International Freephone Numbers

UIPRN: Universal International Premium Rate Numbers

UISCN: Universal International Shared Cost Numbers

UPTN: Universal Personal Telecommunications Numbers. The International Telecommunication Union has allocated the country code +878 and associated digits 10 to VISIONng Association. VisionNG will be the first organization to offer its members a unique Universal Personal Telecommunications Number (UPTN). The UPTN will allow global number portability regardless of geography or telecommunications carrier including those using new IP-based technologies. VisionNG is an international non-profit association that includes ITU-T sector member organizations. Its goal is to promote an open and harmonized architecture for IP based applications.

References

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Directive 2002/22/EC of the European Parliament and the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive)

Directive 2009/140/EC of the European Parliament and of the Council of 25 November 2009 amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services (Better Regulation Directive)

Directive 2009/136/EC of the European Parliament and of the Council of 25 November 2009 amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services, Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector and Regulation (EC) No 2006/2004 on cooperation between national authorities responsible for the enforcement of consumer protection laws (Citizens' Rights Directive)

Regulation (EC) No. 1211/2009 of the European Parliament and of the Council of 25 November 2009 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Office

Work Programme 2011 BEREC Board of Regulators, December 2010. Available at:

http://bereg.europa.eu/doc/bereg/bor_10_43_1.pdf

Public consultation BEREC Board of Regulators held on cross-border issues under Article 28 USD from 9 December 2010 to 13 January 2011.

Draft report submitted to consultation available at:

http://bereg.europa.eu/doc/consult/bor_10_62.pdf

Final report (February 2011) available at:

http://bereg.europa.eu/doc/bereg/bor_10_62Rev1.pdf

BEREC Framework Implementation Expert Working Group Call for contributions to the questionnaire on Cross-border Accessibility of Phone numbers:

http://erg.eu.int/doc/bereg/crossborder_access_call.pdf

ITU, Universal Numbers, available at:

<http://www.itu.int/en/ITU-T/inr/unum/Pages/default.aspx>

ITU, Universal Personal Telecommunications Numbers, available at:

http://www.itu.int/newsroom/press_releases/2001/31.html

ITU, Recommendation E.164 on the international public telecommunication numbering plan, available at:

<http://www.itu.int/rec/T-REC-E.164-201011-I>