

**BEREC guidelines on common criteria for
the assessment of the ability to manage
numbering resources by undertakings
other than providers of electronic
communications networks or services and
of the risk of exhaustion of numbering
resources if numbers are assigned to such
undertakings**

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1 Introduction

1.1 Legal framework

The demand for numbering resources for public electronic communication services has been dramatically increasing with the spread of the Machine-to-Machine (M2M)¹ and the development of connected devices and products equipping wearables, cars, homes, buildings, etc. The intensity of that growth is such that it could trigger, in the medium term, the scarcity of some numbering resources. A key feature of this very high demand for numbers, for the M2M service providers, is that a significant proportion of these connected devices and products should be able to freely circulate, and hence be able to connect locally to public communication networks with a suitable numbering resource. The growth and innovative potential of the M2M relies on the setting of competitive market entry conditions associated with the granting of numbering resources matching the scale of the Single Market.

Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (hereinafter, the European Electronic Communications Code) aims to:

- i) allow the possibility to assign numbers to undertakings other than providers of electronic communications networks or services;
- ii) enable an extraterritorial use of non-geographic numbers within the EU for the provision of non-interpersonal communications services;
- iii) promote, where technically feasible, the over-the-air (OTA) provisioning of numbers for easier switching;
- (iv) ensure the efficient use of numbering resources.

The European Electronic Communications Code lays down the possibility for Members States (MS) to grant rights of use for numbering resources on a non-discriminatory basis to undertakings other than providers of electronic communications networks or services (hereinafter, non-ECN/ECS entities) (article 93.2)², if adequate numbering resources are available to satisfy current and foreseeable future demand.

This possibility of assignment is also to support the development of cross-border services in the case of non-interpersonal communications services (Recitals 246 and Article 93(4)).

Non-ECN/ECS entities shall demonstrate their ability to manage the numbering resources and to comply with any relevant requirements set out pursuant to Article 94. These conditions are, in fact, pre-conditions that non-ECN/ECS entities have to meet in order to be eligible to receive the right to use numbering resources.

This will allow non-ECN/ECS entities (e.g. providers of connected homes services, eHealth services, truck fleets or connected cars services, i.e. with potentially a huge customer base)

¹ Includes also the Internet of Things (IoT).

² This is not an obligation, MS are still free to restrict the assignment of numbering resources to non-ECN/ECS entities nationally as they see fit.

to be assigned numbers directly by the National regulatory or other competent authorities (NRAs/CAs) independently of any ECN/ECS providers and will facilitate the development of cross border services, in particular new M2M services, and thus support the general objective related to the contribution to the development of the internal market set out in Article 3(2.c) of the European Electronic Communications Code.

NRAs/CAs have to evaluate if it is necessary to grant individual rights of use for numbering resources, in accordance with Article 94(1), and may also suspend further granting of rights of use for numbering resources to such undertakings if it is demonstrated that there is a risk of exhaustion of numbering resources.

As mentioned, NRAs/CAs shall ensure that national numbering plans and procedures are applied in a manner that ensures equal treatment to all providers of publicly available electronic communications services and non-ECN/ECS entities, when this latter is applicable. In particular, MS shall ensure that an undertaking to which the right of use for numbering resources has been granted is not discriminated against other providers of ECS as regards the numbering resources used to give access to their services (article 93(3)).

In order to achieve a consistent implementation of these new provisions and application across the European Union, BEREC shall adopt, after consulting stakeholders and in close cooperation with the Commission, guidelines on common criteria for the assessment of the ability to manage numbering resources by non-ECN/ECS entities and on the risk of exhaustion of numbering resources if numbering resources are assigned to such undertakings by 21 June 2020.

1.2 Objective

Accordingly, the BEREC Work Programme 2019 includes the delivery of BEREC Guidelines on common criteria for the assessment of the ability of undertakings other than providers of ECN or ECS to manage numbering resources and of the risk of exhaustion of numbering resources when a Member State opts to allow the assignment of numbers to non-ECN/ECS entities with the adoption of public consultation at Plenary 2 2019 and the adoption of final Guidelines for publication at Plenary 1 2020.

These guidelines will not apply either to the assignment of numbering resources to ECN/ECS providers or the secondary assignment to end users for the provision of ECS. These guidelines are applicable only to those MS opting to assign numbering resources to non-ECN/ECS entities.

2 Terminology

The terms and abbreviations used in these guidelines are understood as follows:

non-ECN/ECS entity: undertaking other than provider of public electronic communications networks or publicly available electronic communication services;

ECN/ECS provider: undertaking providing public electronic communications network or publicly available electronic communications services;

M2M service: M2M is a service involving an automated transfer of data and information between devices or software-based applications with limited or no human interaction; it also includes IoT;

M2M user: user that purchases an M2M service for the products that it sells (e.g. connected devices, car) or that are used by its clients (e.g. car manufacturer, electricity provider using smart meters); it also includes the IoT user;

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

Direct assignment: assignment of numbering resources by the NRA/CA to an eligible end-user with a contract (i.e. subscriber) who gets the right of use of the resources under specified conditions in an administrative decision;

Primary assignment: assignment of numbering resources by the NRA/CA to an eligible applicant (i.e. primary assignee) who gets the right of use of the resources under specified conditions in an administrative decision;

Secondary assignment: assignment of numbering resources by the primary or sub-assignee to an end-user who gets the right of use of the resources under specified conditions in a contract with the primary or sub-assignee;

Sub-assignment: assignment of numbering resources by the primary assignee to another assignee that is not an end-user, according to the agreement with the primary assignee and/or legal obligation for sub-assignment set up by the NRA/CA.

3 Status Quo of assignments and use cases

In January 2019, BEREC sent an internal questionnaire to all BEREC members in order to have an overview of the current state of play in such countries concerning the assignment of numbering resources to non-ECN/ECS entities. By the end of January 2019, 27 countries participated in the survey.

The direct assignment of numbering resources to non-ECN/ECS entities can refer to specific services (e.g. Freephone service) or to M2M services.

In general, the public numbering resources that an NRA/CA assigns are numbers defined in accordance with the ITU-T Recommendations ITU-T E.164³, E.212⁴ and E.118⁵ as well as Signalling Point Codes (Q.708⁶) and Operator identifiers (e.g. M.1400⁷).

³ E.164 : The international public telecommunication numbering plan.

⁴ E.212 : The international identification plan for public networks and subscriptions.

⁵ E.118 : The international telecommunication charge card.

⁶ Q.708 : Assignment procedures for international signalling point codes

⁷ M.1400: Designations for interconnections among operators' networks

3.1 Status Quo for services other than M2M

Only 12 of the NRAs participating in the survey are currently assigning (or are planning to assign) numbering resources of their numbering plans to non-ECN/ECS entities.

Among these countries, the assignment to non-ECN/ECS entities concerns mainly some specific categories of numbering resources:

- Special rate services (Freephone, Shared cost numbers, Premium rate numbers);
- Short codes (directory enquiry services, European 116 numbers, public interest numbers);
- Specific services (private network, maritime or aeronautical services, direct dialling or collect call services);
- Personal numbers;
- Technical resources (Mobile network codes (E. 212) - such as private networks with dedicated frequencies or providers of fixed wireless internet access services -, Signalling point codes).

These assignments are done as a rule on the basis of single number or a block of few numbers and refer mostly to E.164 numbering resources. Non-ECN/ECS entities use the directly assigned resources for their own purposes and a sub-assignment to third parties is explicitly forbidden by the conditions attached to the rights of use. The implementation and activation of numbering resources in the network is done by the ECN/ECS providers. The characteristic that the assignment is done on the basis of single number or a block of few numbers implies that there is no need to assess the risk of exhaustion of numbering resources.

3.2 Status Quo for M2M services

From the questionnaire results, it stems that in general, geographic, mobile or M2M numbers are only assigned to ECN/ECS providers. Only few MS foresee the assignment of E.212 numbering resources, also sharing Mobile Network Codes (MNC) for large-scale users of wireless (public) electronic communication services. These specific users are also eligible to national and international signalling point codes.

In case of M2M services, the type of numbering resources (i.e. E.164, E.212, E.118, Signalling Point Codes and Operator identifiers) that may be necessary depends on the use case.

3.3 Considerations to be taken into account and use cases

Based on national experiences so far, BEREC considers the following considerations to be relevant in the context of these guidelines.

The BEREC Report on Enabling the Internet of Things, BoR (16) 39 (IoT-Report) provided some conclusions with regard to the use of numbering resources for IoT.

In particular, the IoT-Report concluded that

- “Firstly, the alleged scarcity of E.164 numbers does not seem to be a barrier or a problem to be solved to foster the development of IoT. Anyway, the issue of possible scarcity of E.164 numbering resources should be analysed and solved by NRAs at national level, e.g. **introducing a new numbering range for IoT services or increasing the mobile number resources.**

- Secondly, the current national regulation in several countries does not allow IoT users **to be assignees of MNCs although this may be a way to ease change of connectivity provider – besides over-the-air provisioning of SIM – without having to physically swap the SIM** (cf. section 3.3.). On this issue CEPT⁸ suggests the relaxation of the assignment criteria. **Still, broadening the circle of assignees might lead to a scarcity of E.212 MNC resources since in many countries only 100 MNCs are available.** A flexible approach at national level on how to solve this issue might be appropriate.
- **Thirdly, the permissibility of the extra-territorial use of national E.164 and E.212 numbers and/or the actual possibility to develop IoT solutions based on global resources appear to be key for IoT services to be economically viable.** Still, it must be ensured that public interests like security, national sovereignty etc. are not compromised. (...omission ...)⁹.

Moreover, the IoT-Report concluded that

- “If a customer intends to change connectivity service provider, it is currently necessary that the SIM is replaced physically. **The costs of doing so might prevent switching the connectivity service provider, thus generating the “lock-in” effect.** Both MNC assignment to IoT users as well as over-the-air provisioning of SIM could mitigate the lock-in issue of the IoT value chain by dropping the cost of dispatching technician to upgrade IoT devices. BEREC understands that there seem to be pros and cons for both methods which can co-exist, certainly in a market as IoT, which is very diverse in terms of applications and market actors. **The assignment of MNCs to IoT users may introduce challenges in the administration of MNCs and carry the risk of scarcity of MNCs while the OTA switching process is appealing under the condition that it is designed in an open, transparent and non-discriminatory manner in order to avoid competition problems and ensure the needed security measures.** NRAs could have good reasons to consider introducing more flexibility in MNC assignment and also to become active in the OTA provisioning of SIM if connectivity service providers do not introduce it themselves in a timely manner. Overall, BEREC sees the need for flexible solutions at national level. **A new approach might be appropriate, both in view of facilitating a provider switch as well as of the number portability obligation, taking into account the nature of IoT services, which differs considerably from voice communications services and where in many instances a B2B or B2B2C business model is applied”**¹⁰.

From BEREC previous works, it seems that, in case of services provided over a mobile network, assigning E.212 numbering resources or OTA provisioning could mitigate the lock-in issue for M2M services. However, the assignment of E.212 numbering resources (i.e. MNC) to non-ECN/ECS entities may determine a risk of scarcity. Consequently, the assignment of MNC to non-ECN/ECS entities should be carefully analysed by NRAs/CAs. One possible alternative is allowing the sharing of MNC.

⁸ CEPT/ ECC Report 212 and CEPT/ECC Recommendation (17)02.

⁹ BoR (16) 39, p. 18/19.

¹⁰ BoR (16) 39, p. 32/33.

The use of extra-territorial numbers is covered by the European Electronic Communications Code, article 93(4), which states that each MS shall ensure that NRAs/CAs make available a range of non-geographic numbering resources for use outside the territory of the assigning MS (but still within the EU) for non-interpersonal communication services. Non-geographic numbers are numbers not linked to a specific geographic area, e.g. through an area code. Undertakings benefitting from such rights of extraterritorial use of numbers have to comply with the relevant consumer protection rules and other number-related rules applicable in any Member State where those numbers are used (Article 94.6). The NRA/CA assigning the numbers has to ensure such compliance, including by means of conditions attached to rights of use, and shall act on the request of the NRA/CA of the country where the number is actually used. At the same time, this is without prejudice to the enforcement powers of the NRA/CA of the country of use.

The proposed right of extraterritorial use will benefit M2M communications services in particular. In order to ensure an effective coordination at EU level, BEREC will establish a central registry of numbers with rights of extraterritorial use. Information exchange between NRAs is also enhanced.

As for the E.118 numbering resources¹¹, it has to be noted that the current version of recommendation E.118 allows the assignment of these SIM numbering resources only to the ECN/ECS providers, more precisely to Operating Agencies (OAs)¹². The recommendation E.118 has been opened by SG2 of July 2018 for review, mainly for how embedded SIMs (eSIMs) have been defined by GSMA and consequently for the assignment of these numbering resources to eSIM manufacturers (EUM) for generating the EID, taking into account GSMA specification for M2M services¹³.

Some considerations around the advantages and disadvantages in the scenarios where the numbering resources are assigned to ECN/ECS providers or to non-ECN/ECS entities are contained in Section 5 of CEPT/ECC Report 274 “Regulatory Analysis of Over-The-Air Provisioning of SIM profiles including its impact on Number Portability” (<https://www.ecodocdb.dk/document/8209>), in case of the use of Over-The-Air, i.e. in case of use of eSIM.

On the basis of article 94(1)¹⁴, the NRA/CA has to evaluate the necessity of assigning the requested numbering resources including the type of numbering resources. Consequently, the

¹¹ The E.118 numbering resources are used to generate ICCID (i.e. the serial number of the SIM) and, in case of eSIM, the relative GSMA specifications state that the ICCIDs are used as identifiers of the profiles contained in the eSIMs.

¹² Operating Agencies (OAs) is defined by ITU in the constitution of the International Telecommunication Union (<https://www.itu.int/council/pd/constitution.html>) as “Any individual, company, corporation or governmental agency which **operates a telecommunication installation** intended for an international telecommunication service or capable of causing harmful interference with such a service”

¹³ The current version of draft text is TD-GEN459GEN_rev1 (So far, this text is not agreed - <https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG02-180704-TD-GEN-0459>).

¹⁴ CEPT/ECC Recommendation (11)03 (for E.164 numbers) and CEPT/ECC Recommendation (17)02 (for E.212 numbering resources).

applicant in accordance with Annex 1, part E, point 1 (European Electronic Communications Code), has to describe what the requested types of numbering resources will be used for.

The assignment of numbering resources to a non-ECN/ECS entity should not lead to a situation in which such non-ECN/ECS entity, actually, does not operate as an end-user but it provides an ECN/ECS service and consequently it should be considered an ECN/ECS provider. As in paragraph 1.2, these guidelines will not apply to the assignment of numbering resources to ECN/ECS providers.

Considering the previous work carried out by BEREC in this field, the following questions are presented in two alternative scenarios:

- a) Use of the assigned resources in a scenario where OTA is used;
- b) Use of the assigned resources in a scenario where OTA is not used.

The following questions relate to the two different scenarios, since the request of the market in terms of type of numbering resources may depend on whether the numbering resources will be used in a scenario where OTA provisioning is used or not. In fact, in the first scenario (OTA) the lock-in issue may be already mitigated and the assignment of E.212 numbering resources may be not relevant, while in the second scenario (non-OTA), the assignment of E.212 may be requested in order to mitigate lock-in issues.

BEREC believes that it is quite relevant to know the position of the market on the present guidelines and also in which use cases the assignment of numbering resources to non-ECN/ECS entities could be useful. In particular, it is relevant to know what types of numbering resources (i.e. E.164, E.212, E.118, Signalling Point Codes and Operator identifiers) are necessary for the non-ECN/ECS entities and what is the non-ECN/ECS entities' involvement in the handling of such numbering resources.

Questions

1. In your opinion, what could be the use cases in which a non-ECN/ECS entity manages the numbering resources by itself without becoming an ECN/ECS provider and without a support of an ECN/ECS provider in the two alternative scenarios a) and b) above?
2. In your opinion, what could be the use cases in which a non-ECN/ECS entity manages only certain aspects of the numbering resources without becoming an ECN/ECS provider and relies on the help of an ECN/ECS for the remaining management, based on a contractual agreement, in the two alternative scenarios a) and b) above?
3. Please also indicate, for the presented use cases, what types of numbering resources (i.e. E.164, E.212, E.118, Signalling Point Codes (Q.708) and Operator identifiers (e.g. M.1400)) should be assigned to non-ECN/ECS entities. If possible, explain why or why not.

4 Criteria for the assessment of the ability to manage numbering resources for non-ECN/ECS entities

Through the questionnaire, BEREC collected information about the criteria currently used by the NRAs to assign numbering resources to ECN/ECS providers and whether any NRA/CA

assigns numbering resources to non-ECN/ECS entities. The criteria currently used for the assignment of numbering resources to ECN/ECS providers and non-ECN/ECS undertakings according to the current legal framework are described in Annex 1, section 1 of these Guidelines and served as a basis for the work on these guidelines.

As a result from the questionnaire, BEREC notes that a few MS allow the assignment of specific categories of numbering resources to non-ECN/ECS entities and follow formal criteria such as: (i) having a low amount of annual turn-over or having a limited amount of end-users and, (ii) the applicant must show proof that it intends to use the numbers in order to perform a service for the public benefit. However, no more detailed information has been provided to BEREC in this respect.

According to the European Electronic Communications Code, the assignment of numbering resources to non-ECN/ECS entities falls under each MS own consideration and could be specifically included in its own telecom national framework. BEREC therefore understands that national numbering plans must include the possibility to assign numbering resources to non-ECN/ECS entities in the case when a Member State opts to allow such an assignment.

To that extent, NRA/CA might consider if it is necessary:

1. to identify new ranges of numbering resources for the assignment to ECN/ECS providers and non-ECN/ECS entities, when this latter is applicable, also taking into account that such resources may have extraterritorial rights of use;
2. to review the length and/or the dimension of the allocated numbering resources, in particular for the assignment to non-ECN/ECS entities, when this latter is applicable.

Moreover, these NRAs/CAs should consider how the non-ECN/ECS entities, as assignees, can cooperate in case of fraud or numbering misuse.

For the sake of these guidelines, BEREC considers the term “*ability to manage*” to mean the physical or mental power or skill needed to perform a specific task, such as the management of numbering resources. This numbering management includes all necessary steps to activate and use the numbering resources, such as requesting an ECN/ECS provider to host the number, to enable interconnection with other numbering resources’ assignees so that, where economically feasible, “*end-users are able to (...) access all numbers provided in the Union*” (Article 97(1)) and providing a service corresponding to the intended purpose of use of that number. In addition, “management” should comprise the effective actual use of the assigned numbering resources, thus minimising the amount of unused numbering resources.

In addition, the undertaking must also ensure compliance with any relevant requirements set out pursuant to Article 94 of the European Electronic Communications Code.

The criteria that are proposed below mainly stem from those already applied for ECN/ECS providers, with some further elaboration and the identification of some additional ones, taking into account what is reported in section 3 above and that the applicants are non-ECN/ECS entities. Such criteria shall be non-discriminatory, proportionate and transparent.

The basic information that a non-ECN/ECS entity applicant should provide and which should be evaluated by the NRA/CA with respect to the rules as assignment criteria are:

Information to be provided by the applicant:

- Description of service, for what and how the assigned numbering resources will be used;
On the basis of the article 94(1), the NRA/CA has to evaluate the necessity of assigning the requested numbering resources including the type of numbering resources. Consequently, the applicant in accordance with Annex 1, part E, point 1, EECR has to describe for what the requested types of numbering resources will be used, this can include a description of the business model. The NRA/CA has to verify whether the conditions for assignment, in particular those concerning the intended purpose of use, are met. This applies also where there is reason to suspect misuse.
- Technical implementation details of intended service that demonstrate the capacity of the applicant to comply with numbering usage conditions;
The NRA/CA must be capable of verifying the technical realisation of the service and whether it enables the applicant to comply with numbering utilisation conditions. This is only possible if the relevant technical implementation details are provided by the applicant.
- Information on the desired numbering resources: category and, where applicable, period for assignment as well as geographical area of use;
Numbers may only be used in accordance with their intended and defined purpose. The provision of the planned period for assignment serves the effective use of resources. Also this information enables the NRA/CA to check the availability and scarcity of the desired numbering resources.
- Usage projection within a predefined time period;
The usage projection enables the NRA/CA to better monitor the future usage of numbering resources and plan ahead in its assignments of numbering resources. It also provides a starting point for the ex post evaluation if the actual usage complied with the envisioned usage from the application.
- Provision of the identification of the applicant, address (own residential or business address in the country or address of an authorised recipient in the country) and contact information, including a proof of identity as well as updates where necessary;
The applicant must provide an address. This can be the residential or business address. If the applicant is a legal entity, the legal representative has to be named as well. Applicants with an address in another country could be required to specify an authorised recipient with an address for service in the country of the request. This allows NRA/CA to contact the applicant and to deliver legally effective orders and for addressing possible fraud and/or misuse of numbering resources. Furthermore, assignees must inform the NRA/CA, without delay and on their own initiative, of any change in their name, their address for service or their legal representative. The provision of contact information includes also a proof of identity (eg copy of their identity card, passport or similar official identity document or business registration).
- ECN/ECS provider(s) that will host the numbering resources;
The assignment of a numbering resource requires that the number will be technically realised. Applicants must request a telecommunications network operator either directly or indirectly through a service provider to activate their number and must use the number within a specific deadline.
- Declarations that the information provided is accurate and that the numbers will be used in accordance with regulations, including what is foreseen in Annex I, Part E, of the European Electronic Communications Code;

The applicant has to ensure that the assigned numbering resource will be used legitimately. By providing a declaration the responsibility of the assignee will be emphasized, especially when no evidence and additional documents have been provided.

Based on the information provided by the applicant, the NRA/CA should analyse case by case the request concerning whether the non-ECN/ECS applicant complies with the rules, including the guarantee of efficient use.

Evaluations to be made by the NRA/CA:

- If there are early justified signs to assume that the applicant is not able to ensure the appropriate use of the numbering resources as set out in the national numbering plan; *Among other cases, this can be a result of missing or fragmentary information in the request for the assignment of numbering resources which is not remedied or if the information provided indicates the inability to ensure appropriate use.*
- If the applicant does not comply or has not complied with the legal provisions or ordered obligations in current or previous assignments; *These cases strongly indicate that the applicant is unable to comply with legal provisions and/or ordered measures and is therefore unable to ensure the appropriate use of numbering resources.*
- If the thresholds of minimal usage over time for the assignment of numbering resources is respected; *In order to avoid waste of numbering resources, this practice enables the ex post control of assignees (No 13). This may be necessary where a greater amount of numbering resources is assigned.*
- If there is a risk of exhaustion of numbering resources; *The NRA/CA needs to check its national threshold indicating the risk of exhaustion of numbering resources. This also enables Member States to keep a reserve of numbering resources to be assigned only in cases for the public benefit or emergencies.*

After the assignment of numbering resources, the NRA/CA should monitor if:

- the assigned numbering resources are activated and used within a specified period of time; *With regard to effective use of numbering resources, this prevents non-ECN/ECS from requesting numbering resources that will remain unused.*

Questions

4. Please describe your opinion on this section and in particular with respect to the proposed criteria for the assessment of the ability to manage numbering resources.

5 Criteria for the assessment of the risk of exhaustion of numbering resources for non-ECN/ECS entities

Annex I, section 2 summarises the criteria currently used by NRAs for the assessment of the risk of exhaustion of numbering resources.

However, as mentioned by BEREC in its previous Report on IoT and taking into account CEPT Recommendations¹⁵, the NRAs/CAs when assessing the risk of exhaustion of numbering resources may consider:

- The length and/or the dimension of the allocated numbering resources for E.164 numbers,
- The assignment and/or sub-assignment regulation in particular for E.212, but also for E.164 numbers if the dimension of assigned block is relevant.

The criteria/procedure that could be applied after the assignment could be as follows:

NRAs should come to a conclusion on the assessment of the risk of exhaustion of numbering resources based on:

- monitoring on the actual use of assigned numbering resources,
- analysing the past development of assignments and
- generating a forecast on the development of future requests

The monitoring allows collecting sufficient data to analyse past and current requests and deduce a forecast on future request in order to compare it with the available numbering resources and analyse whether there is a risk of exhaustion, based on relevant national thresholds. This activity is carried out in advance of a possible exhaustion in order to take proper actions for continuing the assignment, when possible.

Questions

5. Please describe your opinion on this section and in particular with respect to the proposed criteria for the assessment of the risk of exhaustion of numbering resources

Annex I - Criteria currently used both for providers of electronic communications networks or services and for other undertakings (i.e. non-ECN/ECS entities)

¹⁵ CEPT/ECC Recommendation (11)03 (for E.164 numbers) and CEPT/ECC Recommendation (17)02 (for E.212 numbering resources).

1. Criteria for the assessment of the ability to manage numbering resources

In the questionnaire, MS were asked about their evaluation criteria for the assessment of the ability to manage numbering resources.

Among the 27 responses received, there are 10 countries that have not defined any formal evaluation criteria other than to provide general information under the general authorisation regime. Responses to the questionnaire show that the majority of MS do not assign numbering resources to non-ECN/ECS entities at all.

Looking at the criteria for assessment that are currently applied in the MS, there are two overlapping information criteria which are applied in several countries:

- having a contact, that may be national (residential or business address) or the address of an authorised recipient;
- providing a description of the intended service.

Apart from the abovementioned common criteria, NRAs/CAs follow different approaches on how to assess the ability to manage numbering resources. Currently, most of the NRAs/CAs assign numbering resource only to undertakings that are ECN/ECS providers and use a wide range of different criteria, such as:

- the applicant is an ECS/ECN (in most of the MS);
- provision of the documentation regarding the operational need that justifies the assignment of the numbering resources;
- declaration that the information provided is accurate and that the numbering resources will be used in accordance with regulations. Concerning numbers for fixed and mobile services, this includes that the applicant must ensure that number portability is possible;
- an application for the assignment of a number may be refused if there are justified indications to assume that the applicant cannot ensure the appropriate use of the number as it is set out in the national numbering plan;
- provision of proof that previously assigned numbering resources have been actually activated in the network and are in use;
- the applicant has a carrier portability code assigned.

The MS that do assign numbering resources to non-ECN/ECS entities have envisaged this only for specific categories of numbering resources; none of these MS assigns all categories of numbering resources to non-ECN/ECS entities. Only in a very limited number of MS assigning certain numbering resources to non-ECN/ECS entities, formal criteria for the assignment exist. In some of them, criteria only applying to non-ECN/ECS entities exist, such as:

- having a low amount of annual turn-over or having a limited amount of end-users;
- applicant must show proof that it intends to use the numbers in order to perform a service for the public benefit.

2. Criteria for the assessment of the risk of exhaustion of numbering resources

On the basis of the internal BEREC questionnaire about the criteria for the assessment of the risk of exhaustion of numbering resources, it can be stated that the main criterion applied by the NRAs/CAs for assessing the risk of exhaustion of numbering resources consists of the monitoring of the assigned resources. Other answers refer to the justification of the request and, in case of a successive request, to a check that the assigned resources have been actually used. Such aspects have been already considered with a view to the criteria for the assessment of the ability to manage numbering resources by the non-ECN/ECS entities and they are not repeated here.

From the answers received, it appears that different approaches have been used for the monitoring of the assigned resources.

This latter is typically carried out in order to verify the situation and, should the need arise, to modify the rules regarding the assignment, e.g. through allocating other numbering resources for the same service and/or reducing the size of the assigned numbering resources.

Some examples from the answers received on how the monitoring can be performed are the following:

- in order to lower the administrative burden and charges for ECN/ECS providers, statistical data from ECN/ECS providers on their occupation rates of the different numbering ranges are asked on a regular/systematic basis;
- periodically (semi-annually or annually), for each separate category of numbers, a check is made on the use of the assigned numbering resources based on data provided by the assignee (e.g. evaluation of the percentage of numbers in use with respect to the assigned ones);
- periodically, or when new requests are submitted, the share of numbers that have been assigned from a particular range are compared to the share of numbers from that particular range that are still available for assignment. If the assigned numbering resources exceed a percentage (e.g. 65%) of the numbering resources allocated for the single service, then the numbering resources should be considered at risk of exhaustion;
- for every type of numbering resource, an estimation is made of the date of exhaustion according to the number of resources still available for the assignment and the assignment trends;
- a forecast on the demand models should be used to predict number exhaustion based on historical demand levels, as well as potential 'demand shocks' from new providers entering the market and new types of service provision.