Numbering Resources for
M2M/IoT Connectivity Services
(and other Non-Interpersonal Communications Services (Non-ICS))

Report on Consultation and Decision to update the MCA Decision 'Development of the Numbering Plan'

31st July 2019

MCA/D/19-3645

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1. INTRODUCTION

Due to the potential of a high proliferation of Machine-to-Machine (M2M)/Internet of Things (IoT) connectivity services and other non-interpersonal communications services (Non-ICS), the Malta Communications Authority (MCA) has identified the need to revise the current national numbering framework, which was established back in 2006 prior to this market development, to cater specifically for these technologies.

As a result, the MCA published a consultation paper entitled 'Numbering Resources for M2M/IoT Connectivity Services (and other Non-Interpersonal Communications Services (Non-ICS))' on 29th March 2019 (referred to as 'Consultation Paper' hereinafter) with the scope to provide interested parties with the opportunity to contribute towards this initiative intended to update the MCA decision 'Development of the Numbering Plan' of 2006 to cater for these technologies.

Whilst it has always been the MCA's objective to ensure that the Maltese regulatory framework is conducive to accommodate such emerging technologies, on the other hand it also needs to ensure that this is achieved with the least possible impact on, and in harmony with, existing conventional electronic communications services. This is also the case if foreign numbering resources are utilised for Non-ICS.

The purpose of this document is to summarise the responses received to the Consultation Paper and to present the MCA's decisions on the way forward. In conjunction with the publication of this decision, the Authority is publishing an update to the MCA decision 'Development of the Numbering Plan'. The MCA is also updating the National Numbering Plan Allocations Matrix available on its website, which will continue to be kept updated in real-time in order to include any new numbering allocations. The numbering usage fees found in the Eighth Schedule of the Electronic Communications Networks and Services (General) Regulations (S.L. 399.28) are also envisaged to be updated following this Decision Notice.

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2. RESPONSES TO THE CONSULTATION

The consultation period for the Consultation Paper entitled 'Numbering Resources for M2M/IoT Connectivity Services (and other Non-Interpersonal Communications Services (Non-ICS))' ran from 29th March 2019 until 6th May 2019.

Responses were received from the following:

- GO plc;
- Melita Limited; and
- Vodafone Malta Limited.

The MCA wishes to thank all these parties for their responses.

While all the respondents welcomed the opportunity to provide their comments to the Consultation Paper, one of the respondents requested that its response shall be treated as commercially confidential as the information provided may reveal its commercial strategy. In this respect, the Authority will be refraining from making direct references to particular use-cases mentioned by individual respondents and also from associating particular comments with a specific respondent.

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3. DEFINITIONS

In its Consultation Paper, the MCA proposed a number of definitions to be reproduced in the MCA decision 'Development of the Numbering Plan'.

FEEDBACK RECEIVED FROM RESPONDENTS AND WAY FORWARD

One of the respondents expressed its agreement with the definitions proposed by the MCA in Decision 1 of the Consultation Paper.

Another respondent agreed in general with the proposed definitions and specifically supported the MCA's position to include within the definition of M2M/IoT "*electronic communication which may not involve device-to-device communication but is still provided within a M2M/IoT context*". This respondent also supported the inclusion of a 'voice element' within this definition but requested more clarity that M2M/IoT services shall have merely limited voice capabilities to ensure a clear distinction from Interpersonal Communications Services. The same respondent also expressed its agreement to the proposed individual definitions of M2M/IoT and Non-ICS but suggested that their descriptions require more clarity and possible re-consideration.

The MCA's intention has always been that any 'voice element' within M2M/IoT services would be limited in scope, as otherwise such an electronic communications service would then be considered as an Interpersonal Communications Service. To this effect, the definition of M2M/IoT as part of Decision 1 below is being updated to reflect this. The Authority has also taken into consideration the other comment received, and while it is retaining the proposed definition of Non-ICS and updating the M2M/IoT definition solely to clarify the limited scope of the 'voice element' within Decision 1, it is elaborating further the service description for the '4' range as part of Decision 3 in order to provide more clarity.

Decision 1

The definitions relating to M2M/IoT and Non-ICS found below in this section shall be reproduced *ad verbatim* in Section 14 of the '*Development of the Numbering Plan*' Decision.

DEFINITIONS OF TERMS FOUND IN THIS DOCUMENT

Machine-to-Machine (M2M)/Internet of Things (IoT)

Interpretations on the distinctions between these two terms within the industry are varied, however in this document 'M2M' refers to device-to-device communication generally not involving any human intervention. On the other hand the term 'IoT' denotes a service which includes a higher complexity of applications involving data analysis and resulting action, possibly emanating from a network of 'M2M' devices. In fact 'M2M' is often referred to as a subset of 'IoT'.

For clarity, the term M2M/IoT within this document may also include electronic communication which may not involve device-to-device communication but is still provided within a M2M/IoT context, such as in the case of communication with autonomous devices (e.g. remote setting of devices, etc.). Some M2M/IoT services may also incorporate a limited 'voice element' to enable voice communication solely for a specific purpose and not all the voice services generally associated with conventional telephony, such as in the case of eCall, autonomous calls from security systems, etc.

Non-Interpersonal Communications Services (Non-ICS)

Non-ICS encompass those electronic communications services which are not of an Interpersonal Communications Services nature (such as in the case of conventional fixed and mobile telephony, SMS services, Over-The-Top (OTT) telephony and messaging services, etc.). Such Non-ICS include Internet Access Services and services consisting wholly or mainly in the conveyance of signals such as transmission services used for the provision of M2M/IoT services and for broadcasting.

ITU-T Recommendation Numbering Resources

E.118 – used for the integrated circuit card identifier (ICCID) which is utilised as a unique identifier of the physical SIM in conventional SIMs. In the case of embedded SIMs (eSIMs), the ICCID is associated with a SIM profile that is stored logically on the eSIM. The ICCID contains a maximum of 19 digits including an Issuer Identification Number (maximum of 7 digits with prefix 89 for the telecom industry, followed by 1-3 digits with the E.164 country code and the last 1-4 digits with the Issuer Identifier Number), the next digits before the last are the Individual Account Identification Number and the final digit is a Luhn check digit.

E.164 – used in numbering plans for public telephone systems including a 1-3 digit country code (e.g. 356 in the case of Malta) and a subscriber number (maximum 12-14 digits), up to a maximum of 15 digits in total.

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E.212 – used for the International Mobile Subscription Identity (IMSI) which is associated with a SIM profile and uniquely identifies a subscription in mobile networks. The IMSI is utilised for various mobile network procedures including when the user equipment attaches to the mobile network. It includes a 3 digit Mobile Country Code (e.g. 278 in the case of Malta), a 2-3 digit Mobile Network Code (e.g. 2 digit in the case of European countries) and a Mobile Subscription Identification Number (maximum 10 digits), up to a maximum of 15 digits in total.

Publicly Available Telephony Service (PATS)

An electronic communications service made available to the public for originating and receiving, directly and indirectly, national or national and international calls through a number or numbers in a national or international telephone numbering plan.

Subscriber Identity Module (SIM)

An integrated circuit which securely stores different information including IMSI, ICCID and authentication key in order to provide secure, identifiable and authenticated access to mobile networks. While a conventional SIM is a piece of hardware that the end-user can easily remove from the user equipment, an embedded SIM is physically integrated into a device and cannot be removed from the device. The term 'SIM' is being used throughout this document to refer to both conventional and embedded SIMs unless specifically stated otherwise.

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4. BACKGROUND AND PROPOSED APPROACH

4.1 GENERAL

As mentioned earlier, M2M/IoT connectivity services are considered as Non-ICS which encompass different types of services including Internet Access Services through various means (e.g. fixed broadband connection, WiFi, SIMs providing internet, etc.), M2M/IoT services, and other services also provided within a M2M/IoT context such as in the case of communication with autonomous devices (e.g. remote setting of devices, etc.). Some M2M/IoT services may also incorporate a limited 'voice element' to enable voice communication solely for a specific purpose and not all the voice services generally associated with conventional telephony, such as in the case of eCall, autonomous calls from security systems, etc.

In the case of M2M/IoT connectivity services and other Non-ICS, the requirement for numbering resources may vary depending on the services and/or the provider in question. Whilst some Non-ICS would require the entire numbering resource types generally utilised by conventional telephony providers, others might only require specific numbering resources (e.g. an E.212 Mobile Country/Network Code) or possibly not requiring any type of numbering resources whatsoever.

Every effort has been made to take into consideration the contents of the new European Electronic Communications Code (EECC), however on the date of the publication of this Decision document this Code has not as yet been transposed into national legislation. Accordingly, besides updating the 'Development of the Numbering Plan' Decision, the MCA reserves the right to update and/or replace any other decision emanating from this Decision Notice in the future if deemed necessary.

4.2 NATIONAL NUMBERING RESOURCES

Article 10 of the Electronic Communications (Regulation) Act (Cap. 399 of the Laws of Malta) specifies that the MCA is responsible to establish and manage the national telephone numbering resources and to control the allocation and assignment of all national numbering resources.

The MCA decision entitled 'Development of the Numbering Plan' published in June 2006 (updated on a number of occasions with minor contributions to reflect developments) covers the various aspects relating to national numbering resources which include and are not limited to, applicable allocation processes, rights of use conditions, charging mechanisms, interconnection obligations, etc.

The Maltese E.164 National Numbering Plan is established in such a way whereby the first digit denotes the type of electronic communications service (ECS). Besides creating a solid base to enable a user-friendly tariff transparency system, it also provides for a clear numbering structure to the benefit of all stakeholders. The decision 'Development of the Numbering Plan' referred to above

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also specifies the service description, allocation criteria, and the rights of use for numbering resources that are applicable for each of the different service type categories in accordance with their respective numbering prefix.

Each first digit prefix, and its corresponding type of electronic communications service, is currently listed in the Maltese National Numbering Plan as follows:

'0' - Intl. Access & NP Routing Prefixes	'5' - Premium Rate
'1' - Short Codes and C/S Codes	'6' - *Free (not utilised)*
'2' - Fixed PATS Telephony	'7' - Mobile PATS Telephony
'3' - Non-PATS ECS	'8' - Freephone
'4' - *Free (not utilised)*	'9' - Mobile PATS Telephony

Since none of the above identified types of electronic communications services are specific to Non-ICS, in its Consultation Paper the MCA proposed to dedicate the '4' number range (which is currently not being utilised) specifically and solely for such use. Such a separate number range for Non-ICS was proposed due to the different nature and regulatory requirements of the services falling under this category, the potentially high demand on numbering resources, and to cater for the potential need of extra-territorial use of numbers some of these services may carry.

In its Consultation Paper the MCA communicated that its objective is to ensure that the availability of numbering resources for Non-ICS is set up in such a way which would result in a negligible or very minimal impact on conventional electronic communications services. Two of the respondents expressed their support to this objective.

For clarity's sake the Authority would like to point out that the 'Non-PATS ECS' number range utilising the first digit prefix '3' is intended for *Interpersonal Communications Services (ICS)* without the rights and obligations generally associated with those services classified as PATS hence the range prefixed '4' is being introduced specifically for M2M/IoT Connectivity Services and other Non-ICS.

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5. NUMBERING RESOURCES FOR M2M/IOT CONNECTIVITY SERVICES AND OTHER NON-ICS

5.1 CURRENT INTERIM NUMBERING SOLUTION FOR M2M/IOT SERVICES

As specified earlier in this document the current National Numbering Plan does not provide for the allocation of national numbering resources specific for M2M/IoT connectivity services.

In order not to stifle any M2M/IoT initiatives requiring local E.164 number ranges until the National Numbering Plan is updated, the MCA had adopted a temporary interim solution by allowing the utilisation of numbering resources for the provision of M2M/IoT connectivity services specifically to users in the Maltese territory from mobile Publicly Available Telephone Services (PATS) number ranges currently allocated to authorised providers. This is subject to the requirement that the provider in question keeps a record of any sub-ranges allocated specifically for M2M/IoT connectivity services, and adheres to the condition that these numbering resources are not utilised on an extra-territorial basis which is being treated in more detail in sub-section 5.3 within this same section.

In order to be exempted from adhering to all PATS obligations, service providers utilising this interim numbering solution may inform the MCA of the sub-ranges they have allocated specifically for M2M/IoT connectivity services. In turn the Authority would indicate the sub-ranges allocated specifically for M2M/IoT connectivity services in its National Numbering Plan Allocations matrix found on the MCA website.

In its Consultation Paper, the MCA proposed that as from the publication of the updated S.L.399.28 the allocation of new numbering resources for M2M/IoT connectivity services from the 7(9) range will not be permitted, and service providers would be required to ensure that any numbering resources allocated from the 7(9) range as an interim solution for M2M/IoT connectivity services are replaced by numbering resources from the 4 range at the earliest possible opportunity and by not later than the 31st December 2024.

FEEDBACK AND DECISION ON THE INTERIM SOLUTION

5.1.1 Cut-off date of the interim solution
A respondent supported the MCA's proposed Decision 2 and stated that it believes that the end of 2024 deadline for shifting existing M2M/IoT services from existing interim numbering resources to the dedicated 4 number range is reasonable. It also stated that the 4 number range should be made available as soon as practically possible in order to facilitate early preparation for the shift of existing services.

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Another respondent requested a clarification on the date, or an indicative date, when S.L. 399.28 would be revised.

The other respondent requested the MCA to specify a fixed date, which in its opinion should be at the earliest set for the second half of year 2020, in order to provide service providers with enough time to make the necessary technical preparations given the complexity of such an implementation, associated cost, changes in processes and involvement of personnel. The same respondent agreed with the MCA's proposal to migrate numbering resources allocated from the 7(9) range as an interim solution to the 4 range by the end of 2024, however subject to confirmation of the exceptions listed and referred to under sub-section 5.1.2.

The Authority would like to highlight that it is not the MCA which establishes the date by when the revised S.L. 399.28 would be published, and after taking into consideration the feedback from the interested parties as depicted above, in Decision 3 below it is making available numbering resources from the 4 range as from the publication of the Decision Notice which would take place before the date when the S.L.399.28 is updated. To this effect, number usage fees for numbering resources from the '4' range will be applicable as from the date the S.L.399.28 is updated. Furthermore it is also extending the possibility for undertakings to continue utilising the interim solution up to a maximum of one year from the publication of the Decision Notice, and not up to the date when the S.L. 399.28 is updated as proposed in the Consultation Paper. Local PATS providers shall remain responsible to efficiently manage the utilisation of mobile PATS ranges currently allocated to them, since the MCA does not intend to allocate additional mobile PATS number blocks unless most of their individual numbering usage potential from allocated number ranges has been utilised.

Service providers who have allocated numbering resources from the 7(9) range specifically for the interim solution for M2M/IoT connectivity services and other Non-ICS are to replace them with numbering resources from the 4 range at the earliest possible opportunity and by not later than the 31st December 2024.

5.1.2 Numbering Resources utilised prior to the formal establishment of the interim solution and/or if the service provider was not aware of such a utilisation

One of the respondents requested confirmation that:

a. The interim solution as described under proposed Decision 2 does not refer to those instances when conventional numbers are used for M2M/IoT connectivity services by third parties without the operators' knowledge; and

b. Any legacy numbers for M2M/IoT connectivity services that were allocated prior to the interim solution shall be retained using conventional mobile ranges.

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The same respondent stated that the MCA should not mandate migration of numbering resources from the 7(9) range to the 4 range for the situations listed in (a) and (b) above as such migration would have a negative commercial impact on both operators and customers alike, and would be highly disruptive to customers' service experience. As stated earlier in this document, the respondent agreed with the MCA's proposal to migrate numbering resources allocated from the 7(9) range as an interim solution to the 4 range by the end of 2024, subject to confirmation of the exceptions listed in points (a) and (b) above. The respondent also requested a clarification on whether Decision 2 refers to prohibition from the use of 7(9) range for M2M/IoT connectivity services only or also for other Non-ICS.

The MCA understands that if a service provider is not aware when numbering resources from its allocated 7 or 9 number range are being utilised for M2M/IoT connectivity services and other Non-ICS, it would be beyond its control to action. However, the Authority disagrees that legacy numbers using conventional mobile ranges for M2M/IoT connectivity services allocated prior to the interim solution should be retained, and considers that the long timespan allowed for the migration does not justify retaining the use of conventional mobile number ranges for M2M/IoT connectivity services and other Non-ICS beyond the end of 2024 - obviously in cases where the service provider is aware of such use. Furthermore the Authority is providing for exceptional circumstances to extend even further the migration timeframe, on a case by case basis, subject to evident justification.

The MCA has updated the text in Decision 2 to state that the prohibition of the use of the 7 and 9 number ranges shall apply for M2M/IoT connectivity services and also other Non-ICS.

The following Decision 2 includes the text which will be included in Sections 17 and 19 of the 'Development of the Numbering Plan' Decision.

Decision 2

The text found below is being included under Sections 17 and 19 of the *'Development of the Numbering Plan'* Decision as follows:

17.4 (& 19.4) Interim Numbering Solution for M2M/IoT Services

In the absence of a number range dedicated to M2M/IoT services in the National Numbering Plan, in the past years the MCA authorised the utilisation of numbering resources from the 7(9) range for the provision of M2M/IoT connectivity services as an interim solution. This is subject to the requirement that the service provider in question keeps a record of any sub-

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ranges allocated specifically for M2M/IoT connectivity services and adheres to the condition that these numbering resources are not utilised on an extra-territorial basis.

In order to be exempted from adhering to all PATS obligations, those service providers utilising such numbering resources from the 7(9) range as an interim solution specifically for M2M/IoT connectivity services may inform the MCA so it can indicate that such sub-ranges have been allocated specifically for M2M/IoT connectivity services in its National Numbering Plan Allocations matrix found on the MCA website.

As from 1st August 2020, the allocation of new numbering resources for M2M/IoT connectivity services and other Non-ICS from the 7(9) range will not be permitted. Where service providers are aware, they should ensure that any numbering resources allocated from the 7(9) range as an interim solution for M2M/IoT connectivity services and other Non-ICS are replaced by numbering resources from the 4 range at the earliest possible opportunity and by not later than the 31st December 2024.

In the case of exceptional circumstances service providers may request the Authority to extend even further the migration timeframe providing appropriate justification which will be analysed on a case by case basis.

5.2 PROPOSED NUMBERING FRAMEWORK FOR NON-ICS

In its Consultation Paper the MCA had proposed to dedicate the number range prefixed with the number '4' from the National Numbering Plan specifically and solely for M2M/IoT connectivity services and other Non-ICS use.

FEEDBACK AND DECISION ON NUMBERING FRAMEWORK FOR NON-ICS

Respondents supported the MCA's proposal to dedicate the '4' number range specifically and solely for M2M/IoT connectivity services and other Non-ICS. One of the respondents welcomed the MCA's initiative to provide a number range for M2M communications and expressed its opinion that regulation should seek to encourage the provision of M2M services without creating regulatory hurdles for the growth of this new market. Another respondent explained that it considers this approach as appropriate due to the expected growth of M2M/IoT connectivity services and the consequent need for large volumes of addresses/numbers and the different nature of these services. This would also address the concern about potential exhaustion of standard numbering resources. The Authority has also taken into consideration the respondents' preference to make the '4' number range available for usage as soon as practically possible.

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5.2.1   Service Description

While there was a general agreement on the proposed service description, all respondents requested further clarifications on which electronic communications services, besides M2M/IoT connectivity services, are considered as Non-ICS.

One of the respondents stated that this request was intended to ensure a clear demarcation among different service categories in a way that pre-empts any possible ambiguity in the interpretation of the rules.

Another respondent mentioned that this request was made since Section 14.1 of the proposed decision was making reference to different types of services which *"include mobile internet access services"*.

The other respondent expressed its concerns on a possible misinterpretation of the service description in respect of what kind of services shall fall under the Non-ICS category. It also stated that the proposed decision may result in the imposition of restrictions on customers who would like to switch between tariff plans or service providers, choose additional services, etc. and on service providers who would not be able to effectively compete by offering additional Interpersonal Communications Services to customers without changing the utilised numbers. The same respondent also suggested to exclude Internet Access Services from the definition of Non-ICS to prevent potential misuse of numbering resources, referring to Recital 15 of the EECC which states that the definitions should not be purely based on technical parameters but rather built on a functional approach since from an end-user's perspective it is not relevant whether a provider conveys signals itself or whether the communication is delivered via an Internet Access Service.

In this regard, the MCA believes that the text in Section 14.1 of the proposed decision which states *"… the utilisation of numbering resources from the '4' range is subject that they would not be utilised for interpersonal communications services, since this would require the utilisation of numbering resources from number ranges allocated specifically for interpersonal communications services e.g. PATS"* addresses this concern. However to ensure further clarity, the service description in Decision 3 is being elaborated further.

One should note that when an E.164 number is utilised for the purpose of Interpersonal Communications Services (e.g. conventional calls, SMSs, OTT telephony and messaging services, etc.), even in cases when such services are offered in conjunction with Non-ICS services (e.g. Internet Access Services etc.), then the number should not be assigned from the '4' range. To ensure that a functional and a technology neutral approach is adopted, notwithstanding that Internet Access Services are considered as Non-ICS (since by their very nature they are not Interpersonal Communications Services), the respondent's concern is still being addressed taking into consideration that the '4' range E.164 number may be changed to another E.164 number from the

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'7' or '9' range. In this case the service provider is required to ensure that all the PATS obligations are adhered to, including and not limited to Number Portability.

5.2.2   Numbering Format

Two of the respondents expressed their concern on the transition of the numbering format from an 8-digit format to a 10-digit or 12-digit format mainly due to the implications on a number of mobile nodes, in terms of costs, configuration and the implementation time required.

One of these respondents also mentioned that the introduction of a new range is not a straightforward exercise as it would require significant regression testing. The same respondent suggested that the transition to 10 or 12 digit numbers is done gradually and enquired whether the MCA is envisaging providing financial aid to operators to cover the undertakings' capital costs to achieve this.

The other respondent stated that a new number range and in particular increasing the number of digits requires modifications to various support systems, especially for provisioning and billing that require time and significant investment to implement. To this effect, while expressing its agreement in principle with the proposed number length, it recommended that the Authority either opens the '4' range with 8 digits and then extends the length of unallocated sub-ranges to 10 digits at a later stage or alternatively maintains the interim solution for a longer transitional period. The latter respondent also stated that the possible extension of the '4' range from 10 to 12 digits would require more system modifications, and so demand projections would be important prior to the increase of the number digit format due to time considerations. It also mentioned that a further study to examine the implications may be required.

While the MCA takes note of the comments received, it believes that due to the potential high demand for numbering resources for M2M/IoT connectivity services and other Non-ICS which do not typically require human intervention, the numbering format of the '4' range should be extended to 10 digits. In order to address the concerns raised in the feedback to the Consultation Paper, the MCA is extending the interim solution up to one year from the publication of the Decision Notice, while at the same time ensuring more efficient use of the '4' number range.

The Authority is responsible to ensure that adequate numbering resources are provided for all publicly available electronic communications services, as stipulated in Article 10 of the Electronic Communications (Regulation) Act (Cap. 399 of the Laws of Malta), and considers that this change in the numbering format is required to mitigate the risk of exhaustion of numbering resources from the '4' range.

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The MCA shall also notify the ITU-T Secretariat of any number block allocations from the '4' range to enable foreign service providers to convey traffic towards numbers within these blocks appropriately.

The Authority shall not be providing any financial aid to those undertakings who may incur costs in order to be in a position to cater for the '4' number range. It considers that the introduction of national numbering resources for M2M/IoT connectivity services and other Non-ICS would facilitate matters since local authorised undertakings may tap on new business opportunities. However, it is up to each undertaking to carry out a cost-benefit analysis on whether to enter the Non-ICS market and, if yes, whether to rely on the utilisation of numbering resources from the '4' range or other alternatives such as global numbering resources.

The MCA would be monitoring the utilisation of the '4' number range on a regular basis and would only consider increasing the number of digits for unallocated sub-ranges from the '4' range up to a maximum of 12 digits if it identifies a risk of exhaustion of numbering resources from this range and following a broad consultation with stakeholders.

5.2.3   Allocation Method

One of the respondents suggested the allocation of blocks larger than 100,000 numbers.

The MCA considers that a ten-fold increase in the block size when compared to that used in the case of numbering resources for Interpersonal Communications Services reflects the potential high demand for numbering resources for M2M/IoT connectivity services and other Non-ICS. However, the Authority also needs to safeguard the efficient and effective use of numbering resources and, to this effect, shall adopt a block size of 100,000 numbers when allocating numbering resources from the '4' range as originally proposed.

5.2.4   Criteria for the Range

Commercial General Authorisation Requirements

One of the respondents requested clarification on the Commercial General Authorisation required by undertakings to provide Non-ICS within the Maltese territory and urged the MCA to ensure that existing authorised undertakings are not subject to extra regulatory financial burdens.

Another respondent requested a clarification on the last bullet listed in the criteria for the '4' range which requires authorised undertakings allocated numbers from the '4' range to utilise the infrastructural and/or technical connectivity solutions of authorised '*Public Communications Network*' providers.

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The same respondent also requested a definition or a clarification of the term "*service providers*" in the criterion "*Undertakings may not sub-allocate numbers in this range to other operators and/or service providers*".

The Authority would like to clarify that, under the current regulatory framework, an undertaking who intends to market and/or offer M2M/IoT connectivity services and/or other Non-ICS specifically (not necessarily exclusively) for the Maltese market where the undertaking would enter into an electronic communications services contractual agreement with Non-ICS users within the Maltese territory is required to notify as a provider of *'Other Publicly Available Electronic Communications Services'*. Furthermore, as currently the case, whenever a publicly available electronic communications service is provided, a corresponding '*Public Communications Network'* commercial general authorisation would be required by the undertaking(s) providing all or partially the infrastructural and/or technical connectivity solutions which is not necessarily the same undertaking as the Non-ICS provider. The MCA has already communicated this position with local PATS providers in November 2018 as part of the guidelines on commercial general authorisation for M2M/IoT services, which are also being included in Annex A to facilitate comprehension, and is including this principle once again in the criteria for the '4' range.

Those undertakings who already hold commercial general authorisations which include the applicable electronic communications services and/or network categories are only required to send an update to the notification form if the service and/or network descriptions provided in their latest form do not yet reflect the provision of Non-ICS and/or the infrastructural and/or technical connectivity solutions for Non-ICS provision.

As specified in the guidelines on commercial general authorisation for M2M/IoT services which were distributed to all authorised PATS providers in November 2018 and which are being included in Annex A, the term "service provider" in this context refers to an undertaking entering into an electronic communications services contractual agreement with Non-ICS users, which include M2M/IoT Business Users and/or M2M/IoT End-Users.

Extra-Territorial Use of Numbers

With reference to the text found in the Consultation Paper stating that the MCA may authorise the extra-territorial use of numbers from the '4' range in other EU/EEA Member States, one of the respondents commented that the use of the word "*may*" creates an element of subjectivity and should be qualified further. It also stated that this should not be limited to EU/EEA Member States only and should be enabled on a permanent basis.

The MCA has considered the above feedback, however it appears that the definition of extra-territorial use of numbers is being confused with international roaming. While the Authority would

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be providing further clarifications on this aspect in sub-section 5.3 of this document, the use of the word *"may"* in Decision 3 is being retained.

The Authority has taken into consideration the comment received regarding the restriction of the extra-territorial use of numbers to EU/EEA Member States and agrees that this may hinder certain business opportunities especially due to the global nature of some M2M/IoT connectivity services and other Non-ICS. To this effect, while the MCA is maintaining the principle that any extra-territorial use of numbers from the '4' range shall be subject to the Authority's authorisation depending on the circumstances, it is removing the restriction as originally proposed in the Consultation Paper that such extra-territorial use of numbers may only take place in other EU/EEA Member States. However, the MCA is likely to undertake a more rigorous assessment when undertakings request the extra-territorial use of numbers from the '4' range outside EU/EEA Member States.

Number Portability

Since the Consultation Paper mentioned that the number portability obligation would not be applicable in the case of the '4' range, one of the respondents assumed that it would be in a position to reject a request to port in or out a number from the '4' range. It also enquired on whether the existing Mobile Number Portability (MNP) ordering process would apply for those undertakings who accept to port in or out numbers from the '4' range on a voluntarily basis.

While the MCA confirms that an undertaking may reject any requests to port in or out numbers from the '4' range, in the eventuality that a donor operator and a recipient operator voluntarily agree to process a porting request, although it is likely that they will opt for the existing ordering process since both parties would have the system in place, they are free to agree in adopting a different process subject that traffic emanating from third parties is terminated to the recipient operator.

Emergency, Legal Interception and Calling Line Identification Obligations

Since some SIMs utilising numbers from the '4' range might not have access to calls or SMS, one of the respondents requested a better understanding on the implications of the criteria related to access to emergency services and the provision of location information for emergency services, legal interception and calling line identification obligations in the case of the '4' range.

The same respondent also stated that it is unclear whether an operator would be requested to provide localisation for IoT numbers both for outbound and inbound roaming, and if/when applicable, it suggested that minimum requirements would be established for these criteria while

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taking into account that it would be difficult for an operator to guarantee the availability of localisation of numbers given the extra-territorial use and various use-cases. The said respondent also commented that it is not aware if it or the competent authorities would require additional modifications to existing platforms in order to comply with these propositions.

While taking note of the comments received, the MCA considers that the referred criteria found in the Consultation Paper, which are taken into consideration in the decision below, should be sufficiently clear especially when considering that they cannot be too prescriptive in order to cater for the variety of use-cases which may constitute M2M/IoT connectivity services and other Non-ICS. No major impacts on the local Public Safety Answering Point (PSAP) and Legal Interception solutions through the introduction of the 10-digit '4' range are envisaged, however for assurance purposes, the MCA still informed the respective competent authorities.

The following Decision 3 includes the text which will be included in Section 14 of the 'Development of the Numbering Plan' Decision.

Decision 3

Section 14 of the *'Development of the Numbering Plan'* Decision is being updated as follows:

14 THE 4 RANGE

14.1 Service Description

Dedicated specifically and solely for M2M/IoT connectivity services and other non-interpersonal communications services (Non-ICS) requiring national E.164 numbering resources.

The term Non-ICS encompasses different types of services which include mobile Internet Access Services (SIMs used for the provision of internet access), M2M/IoT services and other services also provided within a M2M/IoT context such as in the case of communication with autonomous devices (e.g. remote setting of devices, etc.). Although M2M/IoT services may also incorporate a limited 'voice element' solely for a specific purpose, and not all the voice services generally associated with conventional telephony (e.g. eCall, autonomous calls from security systems, etc.), the utilisation of numbering resources from the '4' range is applicable however is subject that they would not be utilised also for Interpersonal Communications Services, since this would require the utilisation of numbering resources from number ranges allocated specifically for Interpersonal Communications Services e.g. PATS.

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To this effect, one should note that when an E.164 number is utilised for the purpose of Interpersonal Communications Services (e.g. conventional calls, SMSs, OTT telephony and messaging services etc.), even in cases when such services are offered in conjunction with Non-ICS (e.g. Internet Access Services, etc.), then the number should not be assigned from the '4' range. For clarification purposes, if a SMS is solely used for device configuration purposes, such as for Over-The-Air (OTA) provisioning, it would not be considered as an Interpersonal Communications Service. On the other hand Interpersonal Communications Services may at times be offered in conjunction with M2M/IoT connectivity services providing a limited 'voice element' (e.g. eCalls in the case of connected vehicles or calls to an emergency contact number in the case of wearables) while utilising the same E.164 number. In such a scenario, the E.164 number should not be assigned from the '4' range.

No parameters for termination rates are being set for services utilising numbering resources from this range.

14.2 Numbering format

Due to Malta's population size, the length of a conventional telephone number is limited to 8 digits (excluding country code). However since emerging Non-ICS, such as M2M/IoT services, could potentially require much larger volumes of numbering resources and do not typically require human intervention, the individual number length to be used in this range shall be that of 10 digits (excluding country code) increasing the numbering capacity within this range by a hundred-fold. If it transpires that the utilisation of numbering resources from this range is leading to capacity constraints, the MCA could then consider increasing the number digit format of unallocated sub-ranges from 10 digits to a maximum of 12 digits (excluding country code) in the future following a broad consultation with stakeholders.

14.3 Allocation method

Initially the MCA will allocate blocks of 100,000 numbers solely within 10 digit sub-ranges 40YYY XXXXX to 42YYY XXXXX.

Additional blocks will normally be allocated only when existing allocations have already been used to a reasonable level. In selecting which blocks to allocate, besides taking into consideration the applicant's preferences and their compatibility with the further development of the numbering plan, the MCA will also aim to allow appropriate space for expansion so that an undertaking's allocation can be contiguous and not interleaved. The MCA however cannot guarantee that this will always be possible, and the amount of expansion space that can be allowed will depend on the amount of unallocated numbering capacity remaining.

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Requests for allocations that go beyond an applicant's immediate needs will not be considered unless in evidently justifiable circumstances. As in the case of other number ranges, undertakings will not be able to reserve number blocks from this number range.

The MCA reserves the right to withdraw any allocated but unused number blocks.

14.4 Criteria for the range

The following criteria apply:

- The undertaking is authorised to provide Non-ICS within the Maltese territory.

- No obligation to provide number portability although numbers from the '4' range may be ported subject to a voluntary agreement between the donor and recipient operators.

- Due to the cross-border nature of some M2M/IoT services and other Non-ICS, the MCA may authorise the extra-territorial use of numbers from the '4' range. This would be subject to whether the other country in question permits such use, and that its regulatory requirements and conditions are adhered to, including the requirement for a General Authorisation, consumer protection requirements and other rules related to the use of numbering resources.

- Undertakings may not sub-allocate and/or transfer the rights of use of numbering resources from this range to other operators and/or service providers.

- There could be circumstances when Non-ICS providers will be required to support electronic communications services to the Maltese emergency services when the device with the number from the '4' range is located within the Maltese territory if it is considered technically possible and appropriate by the competent authorities (e.g. numbers from this range utilised for eCall services).

- In cases where electronic communications services to emergency services are supported, the location of the network termination point shall be provided for the support of location information to be associated with electronic communications services to the emergency services if it is considered technically possible and appropriate by the competent authorities.

- Where it is considered technically possible and appropriate by the competent authorities, any services offered using numbering resources from the '4' range shall be in line with the applicable Legal Interception and Calling Line Identification obligations.

- Undertakings allocated numbering resources from the '4' range are required to utilise the infrastructural and/or technical connectivity solutions of local authorised *'Public Communications Network'* providers.

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The following Decision 4 includes the text which will be included in Section 20 entitled *'Summary of the Main Number Ranges'* in the Decision entitled 'Development of the Numbering Plan'. No feedback was received to the proposed Decision 4 during the public consultation.

Furthermore, the MCA is introducing text as part of Decision 4 to be included in Section 11 of the same Decision 'Development of the Numbering Plan' indicating that the contents of this section has been integrated with the summary table found in Section 20 of the same Decision. Since the MCA believes that the retail tariff level for electronic communications services towards numbers from the '4' range may vary depending on the use-case, the corresponding retail tariff found in Figure 7 of Section 20 is being depicted as 'variable'.

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Decision 4

Section 20 of the *'Development of the Numbering Plan'* Decision is being updated as follows:

20   SUMMARY OF THE MAIN NUMBER RANGES

Figure 7 gives a high level view of the revised numbering plan proposed in this document. The column on number charging states the current position and may be changed in the future.

Range	Detail	Allocations	PATS	Number Portability	Emergency Access	Revenue Sharing	Nomadicity or Roaming	Number Charging	Retail Tariff
0 - Access Codes	00 - International access	-	-	-	-	-	-	No	*
	05XX - Number Portability Codes	1	-	No	-	-	-	No	*
1 - Other Codes	1XX/X/X - Short codes	1	-	No	-	-	-	No	Low
	10XX - Carrier selection	1	-	No	-	-	-	No	*
	116XXX - HESC	1	-	No	-	-	-	No	Low
	118X - Directory services	1	-	No	-	-	-	No	High
2 - Fixed PATS	2XXX XXXX	10k	Yes	Yes	Yes	No	Yes	Yes	Low
3 - Non-PATS ECS	3XXX XXXX	10k	No	No	No[1]	No	Yes	Yes	Low
4 - Non-ICS	40XXX XXXXX - 42XXX XXXXX	100k	No	No	No[1]	No	Yes	Yes	**
5 - Premium	50XX XXXX - Legacy & SMS PRS	1k	Yes	Yes	No	Yes	No	No	High
	5YT0 Z0XX - Voice PRS	100	Yes	Yes	No	Yes	No	No	High
6 - Spare for future use	-	-	-	-	-	-	-	-	-
7 - Mobile PATS	7XXX XXXX	10k	Yes	Yes	Yes	No	Yes	Yes	High
8 - Freephone	800X XXXX	1k	Yes	Yes	No	Yes	No	No	Low
	8000 XXXX	1k	Yes	Yes	No	Yes	No	No	Zero
9 - Mobile PATS	9XXX XXXX	10k	Yes	Yes	Yes	No	Yes	Yes	High

[1] Except in particular circumstances
 * Not Relevant
** Variable

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Figure 7: Revised numbering plan

Section 11 of the 'Development of the Numbering Plan' Decision is being updated as follows:

11   THE FUTURE NUMBERING PLAN

Until such a time when a completely new decision on the National Numbering Plan is published, any new national numbering plan related information will be integrated in Figure 7 found in Section 20 of this document.

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5.3 EXTRA-TERRITORIAL USE OF NUMBERS

As defined by the MCA in its Consultation Paper, the term 'extra-territorial use of numbers' refers to the use of a particular country's numbering resources by a foreign service provider in its home country. However, this term does not refer to international roaming situations.

Extra-Territorial Use of Numbers from the Maltese National Numbering Plan

In the case of conventional telephony and any other Interpersonal Communications Services, extra-territorial use of Maltese numbers in other countries is not permitted. However, due to the different characteristics and the cross-border nature of some M2M/IoT connectivity services and other Non-ICS, in its Consultation Paper the MCA proposed that the extra-territorial use of numbers from the '4' range may be permitted subject to the Authority's authorisation depending on the circumstances.

Extra-Territorial Use of Other Countries' Numbers within the Maltese Territory

In the case of conventional telephony and any other Interpersonal Communications Services, extra-territorial use of other countries' numbers is not permitted within the Maltese territory. However, in its Consultation Paper the MCA proposed that if it deems justified it may authorise the extra-territorial use of foreign numbers within the Maltese territory for the provision of M2M/IoT connectivity services and other Non-ICS, and would be subject to adherence to all local regulatory and commercial general authorisation requirements.

One of the MCA's assessment criteria in determining whether numbering resources pertaining to EU/EEA Member States may be permitted for Non-ICS extra-territorial use within the Maltese territory shall be that these numbering resources are included in the specific database on the numbering resources with a right of extra-territorial use within EU/EEA Member States managed by the '*Body of European Regulators for Electronic Communications' (BEREC)* for those types of numbering resources included in this database once it becomes available.

When determining whether the extra-territorial use of numbers of countries which are not in the EU/EEA for M2M/IoT connectivity services and other Non-ICS should be permitted within the Maltese territory, a more rigorous assessment will be required.

Global Numbering Resources

The utilisation of global numbering resources allocated directly by the ITU-T (e.g. E.164 country code = 882/883) is not considered as extra-territorial use of numbers. The MCA may authorise the utilisation of such global numbering resources by authorised Non-ICS providers within the Maltese territory for M2M/IoT connectivity services and other Non-ICS, subject that all local regulatory and

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commercial general authorisation requirements are met. In line with ITU-T recommendations on the utilisation of global numbering resources, this should also be the case in other countries.

**FEEDBACK AND DECISION ON EXTRA-TERRITORIAL USE OF NUMBERS**

5.3.1 Distinction between Extra-Territorial Use of Numbers and International Roaming

A respondent referred to the MCA's statement that the term 'extra-territorial use of numbers' does not refer to permanent roaming and requested that for clarity purposes the term 'permanent roaming' should be defined and further clarification on what the term extra-territorial use of numbers encompasses should be provided.

Besides stating that operators should be allowed to retain the right to negotiate terms with roaming partners for inbound M2M traffic the same respondent also mentioned that as local networks are dimensioned for domestic SIMs, a large increase in foreign SIMs for M2M on a permanent basis might produce capacity problems with possible network congestion. To this effect, the said respondent requested the MCA to inform local operators of new operators using numbers extra-territorially in order to enable them to take the necessary measures to avoid impact on their subscribers. It also enquired on whether the scenario where local operators' SIMs are resold through another operator and used in another Member State would classify as permanent roaming or extra-territorial use of numbers.

Another respondent suggested the adoption of more streamlined pre-authorisation arrangements in relation to the extra-territorial use of Maltese numbering resources for Non-ICS where an applicant for numbering resources from the '4' range would notify the MCA where they anticipate that the provision of M2M/IoT connectivity services and other Non-ICS would entail the extra-territorial use of numbers (e.g. if they plan to sell services to Maltese transport or logistics organisations). The conditionality of extra-territorial use in other EU/EEA Member States would remain.

The MCA would like to point out that the 'permanent roaming' criteria as established in the EU International Roaming Regulation could apply and also believes that the extra-territorial use of numbers as specified in the Consultation Paper should not impact operators' rights and obligations when negotiating roaming agreements. 'Extra-territorial use of numbers' which is only permissible in the case of M2M/IoT connectivity services and other Non-ICS is permitted subject to the Authority's authorisation depending on the circumstances and will be assessed on a case-by-case basis. To ensure clarity, Figure 1 is showing the main differences between what constitutes International Roaming (whether permanent or temporary) and Extra-Territorial use of Maltese Numbers from a regulatory perspective.

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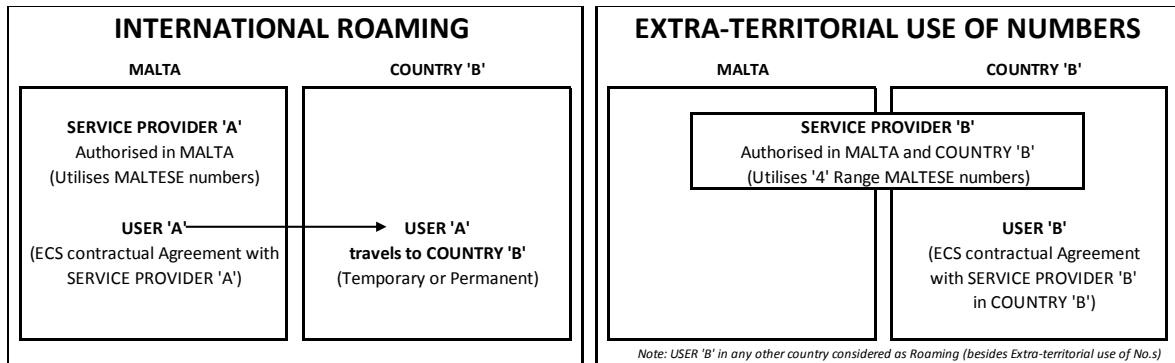
Figure 1

To facilitate comprehension on what constitutes a service provider or user in this scenario, the value chain depicting the various stakeholders for M2M/IoT connectivity services including any commercial general authorisations requirements is being included in Annex A of this document.

With regard to network capacity concerns, if the foreign SIMs being utilised in the Maltese territory belong to users of a foreign service provider, such usage would be considered as 'international roaming'. In such cases the EU International Roaming Regulation, which includes measures that can be taken by the visited network operator to address any permanent roaming issues, could be applied by the network operator in question. In the case of users of a local service provider utilising SIMs provisioned with foreign numbering resources, obviously the onus to ensure adequate network capacity lies with the same service provider.

Reference is made to the respondent's query on when local operators' SIMs are resold through another operator and used in another Member State would classify as permanent roaming or extra-territorial use of numbers. The Authority would like to point out that local service provider's SIMs may not be offered by any other service provider (whether local and foreign) to users unless it is acting as a services reseller on behalf of the authorised service provider and not permitted to enter into an ECS contractual agreement with the user directly. To ensure clarity, when a services reseller is entering into an ECS contractual agreement with a user on behalf of the Maltese SIM's service provider in another country, the service would classify as extra-territorial use of numbers (see Figure 1). Ultimately the faculty whether extra-territorial use of numbers is allowed (or not) is dependent on whether the country where the service is being offered permits such use and that the regulatory requirements and conditions of the country in question are adhered to.

With reference to the respondent's query on specific pre-authorisation by the MCA in the case of extra-territorial use of numbers, the Authority would like to point out that when users who would have entered into an ECS contractual agreement with a Maltese authorised undertaking within the

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Maltese territory utilise their services whilst they are abroad corresponds to international roaming (refer to Figure 1), and therefore does not require any specific pre-authorisation by the MCA.

5.3.2 Commercial General Authorisation Considerations

One of the respondents supported the Authority's proposed approach with respect to the extra-territorial use of foreign numbers within the Maltese territory but requested high-level details on the Commercial General Authorisation categories, timeframes (given possible temporary and/or sporadic extra-territorial use) and charging methodology which would apply. Another respondent requested that any obligations imposed on foreign operators offering M2M/IoT services in Malta should not be less onerous than those imposed on local operators to maintain a competitive market and a level playing field.

The MCA considers that it is imperative to maintain a level playing field among authorised undertakings of electronic communications services. To this effect, under the current regulatory framework, an undertaking who intends to market and/or offer M2M/IoT connectivity services and/or other Non-ICS specifically (not necessarily exclusively) for the Maltese market where the undertaking would enter into an electronic communications services contractual agreement with Non-ICS users within the Maltese territory is required to notify as a provider of *'Other Publicly Available Electronic Communications Services'*. This applies irrespective whether any numbering resources would be utilised for service provision and, if applicable, the type of numbering resources to be utilised. Furthermore, as currently the case, whenever a publicly available electronic communications service is provided, a corresponding '*Public Communications Network'* commercial general authorisation is required by the undertaking(s) providing all or partially the infrastructural and/or technical connectivity solutions. To facilitate comprehension, Annex A within this document denotes the Commercial General Authorisations requirements of all the stakeholders involved in the value chain of M2M/IoT connectivity services.

The timeframes applicable to the notification of any Commercial General Authorisation as stipulated in national legislation shall apply. Authorised undertakings would be included in the Register of Authorised Undertakings and the administrative charges as established under Part A of the Eighth Schedule of the Electronic Communications Network and Services (General) Regulations (S.L. 399.28) would be applicable.

5.3.3 New section entitled *'Extra-Territorial Use of Numbers'* introduced in the Decision 'Development of the Numbering Plan'

In its Consultation Paper, the MCA proposed to replace the text found under current Section 8 entitled '*Numbers for Data Terminals*' in the Decision entitled 'Development of the Numbering Plan'

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with the text found in the *'Proposed Decision 5'*. Section 8 is now entitled *'Extra-Territorial Use of Numbers'*. The rationale behind the proposal to replace the current Section 8 in its entirety was based on the lack of demand for numbers for data-only terminals and considerations to the way in which the industry has evolved with respect to M2M/IoT connectivity services and other Non-ICS. No feedback on this matter was received during the public consultation.

The following Decision 5 includes the text which will be included in Section 8 of the 'Development of the Numbering Plan' Decision.

Decision 5

Section 8 of the '*Development of the Numbering Plan*' Decision is being updated as follows:

8. EXTRA-TERRITORIAL USE OF NUMBERS

For the scope of this document the term 'extra-territorial use of numbers' refers to the use of a particular country's numbering resources by a foreign service provider in its home country. However, this term does not refer to international roaming situations.

8.1 Extra-Territorial Use of Numbers from the Maltese National Numbering Plan

Extra-territorial use of numbers from the Maltese National Numbering Plan in the case of conventional telephony and any other Interpersonal Communications Services is not permitted, however due to the different characteristics and the cross-border nature of some M2M/IoT connectivity services and other Non-ICS, the extra-territorial use of numbers from the '4' range may be permitted subject to the MCA's authorisation depending on the circumstances. This would be subject to whether the other country in question permits such use, and that its regulatory requirements and conditions are adhered to, including the requirement for a General Authorisation, consumer protection requirements and other rules related to the use of numbering resources.

Since countries outside the EU/EEA are not legally bound with the EU regulatory framework, the Authority is likely to undertake a more rigorous assessment when determining whether the extra-territorial use of numbers from the '4' range for M2M/IoT connectivity services and other Non-ICS should be permitted outside EU/EEA Member States.

To ensure clarity, Figure 1 is showing the main differences between what constitutes International Roaming (whether permanent or temporary) and Extra-Territorial use of Maltese numbers from a regulatory perspective.
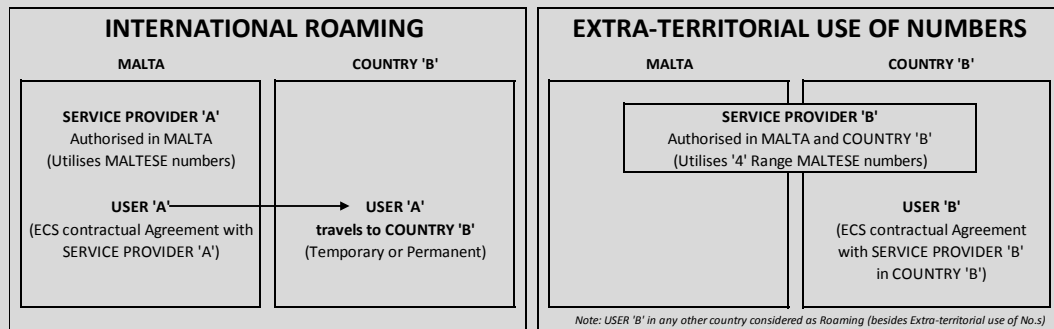
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Figure 1

8.2 Extra-Territorial Use of Other Countries' Numbers within the Maltese Territory

In the case of conventional telephony and any other Interpersonal Communications Services, extra-territorial use of other countries' numbers is not permitted within the Maltese territory. This is obviously not applicable in the case of conventional international roaming scenarios. If it deems justified the MCA may authorise the extra-territorial use of numbers within the Maltese territory for the provision of M2M/IoT connectivity services and other Non-ICS, and would be subject to adherence to all local regulatory and commercial general authorisation requirements.

One of the MCA's assessment criteria in determining whether numbering resources pertaining to EU/EEA Member States may be permitted for Non-ICS extra-territorial use in the Maltese territory shall be that these numbering resources are included in the specific database on the numbering resources with a right of extra-territorial use within EU/EEA Member States managed by the '*Body of European Regulators for Electronic Communications' (BEREC*) for those types of numbering resources included in this database once it becomes available.

Since countries outside the EU/EEA are not legally bound with the EU regulatory framework, a more rigorous assessment will be required when determining whether the extra-territorial use of numbers of countries which are not in the EU/EEA for M2M/IoT connectivity services and other Non-ICS should be permitted within the Maltese territory.

8.3 Utilisation of Global Numbering Resources within the Maltese Territory

The utilisation of global numbering resources allocated directly by the ITU-T (e.g. E.164 country code = 882/883) is not considered as extra-territorial use of numbers. The MCA may authorise the utilisation of such global numbering resources by authorised Non-ICS providers within the Maltese territory for the provision of M2M/IoT connectivity services and other Non-ICS, subject that all local regulatory and commercial general authorisation requirements are met.

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6. NUMBER CHARGING

As specified in the Consultation Paper, usage fees of €700 per block of 100,000 allocated numbers would be applicable on an annual basis for all numbering resources allocated from the '4' range.

FEEDBACK AND DECISION ON NUMBER CHARGING

One of the respondents welcomed the different number charging applicable for the '4' range due to the nature of Non-ICS where economic viability depends on selling large volumes and in some cases Non-ICS are also provided at no retail cost. The same respondent also agreed that a lesser numbering charge burden on authorised providers strikes the right balance between ensuring direct income for the State for use of its resources and encouraging commercial activity. The other respondents did not provide any specific comments on the applicable number charging.

Decision 6

The usage fees for numbers in the '4' range would come into effect as from the date of publication of the revised Part C of the Eighth Schedule of S.L. 399.28 and shall apply for all numbering resources from this range including those allocated to authorised undertakings by the MCA prior to the revision of S.L. 399.28.

The following Decision 7 includes the text which will be included in Section 10 of the 'Development of the Numbering Plan' Decision.

Decision 7

Section 10 of the '*Development of the Numbering Plan*' Decision is being updated as follows:

10   NUMBER CHARGING

Numbers are charged in accordance with Part C of the Eighth Schedule of the Electronic Communications Networks and Services (General) Regulations (Subsidiary Legislation 399.28).

The MCA considers that the following arrangements for charging for ported numbers are in line with the current regulations and are fair to the operators:

- When a number is imported, the recipient is not required to pay an annual charge for the number block that contains the number.
- When a number is exported, the block operator will continue to pay the annual charge for the number block that contains the number even if they are not serving other numbers in the block. The likelihood of all numbers in a block being ported is low provided that operators are allocating numbers efficiently.

The operators shall therefore report on this basis and pay the MCA accordingly.

Where a large proportion of the numbers in a block are ported, the MCA has considered the option of re-allocating the block to the recipient, but appreciates that this could cause an element of confusion with respect to the allocation tables and the operation of onward routing as the identity of the block operator would change. The MCA is therefore not proposing to make re-allocations, but is open to reconsidering this approach if requested by the operators and if there is a high proportion of blocks where all numbers are ported.

Decision 5:

Where numbers are ported, the following charging arrangements shall apply in accordance with Part C of the Eighth Schedule of the Electronic Communications Networks and Services (General) Regulations (Subsidiary Legislation 399.28):

- **When a number is imported, the recipient is not required to pay an annual charge for the number block that contains the number.**

- **When a number is exported, the block operator will continue to pay the annual charge for the number block that contains the number even if they are not serving other numbers in the block.**

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7. ALLOCATION OF E.118 AND E.212 NUMBERING RESOURCES FOR M2M/IOT CONNECTIVITY SERVICES AND OTHER NON-ICS

Section 6 of the Consultation Paper stated that due to the different nature and regulatory requirements of M2M/IoT connectivity services and other Non-ICS, Maltese national numbering resources utilised for all Non-ICS shall be kept distinct from those utilised for Interpersonal Communications Services. It also mentioned that in the case of IMSIs and ICCIDs, service providers should dedicate specific sub-ranges for Non-ICS even when an undertaking utilises the same E.212 Mobile Network Code and E.118 Issuer Identifier Number for both Interpersonal Communications Services and Non-ICS.

FEEDBACK AND DECISION ON THE ALLOCATION OF E.118 AND E.212 NUMBERING RESOURCES FOR M2M/IoT CONNECTIVITY SERVICES AND OTHER NON-ICS

One of the respondents stated that while it has no objection to the proposal to dedicate specific sub-ranges for M2M/IoT connectivity services and other Non-ICS, however, it indicated a technical limitation of not being in control of the first 10 digits of the E.118 numbering resources since such digits are dependent on the country code and on the date of issuance of the individual numbers.

The MCA would like to clarify that reference to 'specific sub-ranges' in its Consultation Paper was not specifically referring to the first 10 digits of the ITU-T E.118 range (although in this case the first 7 digits are required to include the country code and operator identification), but to assign sub-ranges in a manner which will enable the service provider effectively segregate those numbering resources utilised for Interpersonal Communications Services from those utilised for M2M/IoT connectivity services and other Non-ICS.

Decision 8

Maltese national numbering resources utilised for M2M/IoT connectivity services and other Non-ICS shall be kept distinct from those utilised for Interpersonal Communications Services.

When one takes into consideration that the '4' number range is being dedicated specifically and solely for Non-ICS, in the case of E.164 numbering resources such a separation would be accomplished automatically. However in the case of E.212 (IMSIs) and E.118 (ICCIDs) numbering resources, service providers are required to effectively segregate numbering resources utilised for Interpersonal Communications Services separately from those utilised for M2M/IoT connectivity services and other Non-ICS. This is also applicable when an undertaking utilises the same ITU-T

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E.212 Mobile Network Code (MNC) and ITU-T E.118 Issuer Identifier Number (IIN) for both Interpersonal Communications Services and Non-ICS.

Service providers shall maintain records of the ITU-T E.212 IMSI and ITU-T E.118 ICCID numbering resources dedicated specifically for M2M/IoT connectivity services and other Non-ICS and shall be in a position to provide this information to the MCA if/when requested.

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8. CORRECT USE OF NATIONAL NUMBERING RESOURCES

The MCA had proposed that whenever Maltese numbering resources (e.g. E.164) are utilised, service providers are not permitted to utilise numbering resources (e.g. E.212 and E.118) pertaining to other countries, or global numbering resources, for the same subscription profile. This is applicable to all electronic communications services and not solely in the case of M2M/IoT connectivity services and other Non-ICS. A new section is being introduced in the Decision entitled 'Development of the Numbering Plan' to reflect this. No feedback on this matter was received during the public consultation.

The following Decision 9 includes the text which will be included in a new Section 21 of the 'Development of the Numbering Plan' Decision.

Decision 9

A new Section 21 is being introduced in the *'Development of the Numbering Plan'* Decision as follows:

21 CORRECT USE OF NATIONAL NUMBERING RESOURCES

Whenever Maltese national numbering resources are utilised for the provision of any electronic communications service, the national codes applicable to the various types of numbering resources associated with the same subscription profile shall pertain to Malta (i.e. national codes 356 and 278 for E.164/E.118 and E.212 numbering resources respectively).

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ANNEX A - GUIDELINES ON COMMERCIAL GENERAL AUTHORISATION FOR M2M/IOT CONNECTIVITY SERVICES

The content of this Annex is based on extracts from the guidelines document on Commercial General Authorisation requirements for M2M/IoT services which was distributed to all authorised PATS providers in November 2018.

A.1 M2M/IOT STAKEHOLDERS

This section contains a short description on the role of each of the stakeholders generally found in the value chain for the provision of M2M/IoT connectivity services for the purpose of this document and whether a Commercial General Authorisation would be required if marketed and/or offered specifically (not necessary exclusively) for the Maltese market.

NETWORK INFRASTRUCTURE PROVIDER

The undertaking providing an element of (or the entire) infrastructural and/or technical connectivity solutions without which a *M2M/IoT Connectivity Service Provider* would not be in a position to provide the service.

A *PUBLIC COMMUNICATIONS NETWORK* Commercial General Authorisation is required subject that the M2M/IoT connectivity service is provided to **M2M/IoT Business Users** and/or **M2M/IoT End-Users** by an authorised provider of *OTHER PUBLICLY AVAILABLE ELECTRONIC COMMUNICATIONS SERVICES*.

> *Examples: Mobile radio/fixed access provider; core network functionality provider; Mobile Virtual Network Operator (MVNO); Low Power Wide-Area (e.g. LoRa) access provider; etc.*

Note: A **Network Infrastructure Provider** may also assume the role of an authorised **M2M/IoT Connectivity Service Provider**.

M2M/IoT CONNECTIVITY SERVICE PROVIDER

The undertaking entering into an ECS contractual agreement with the *M2M/IoT Business Users* and/or with the *M2M/IoT End-Users*.

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An *OTHER PUBLICLY AVAILABLE ELECTRONIC COMMUNICATIONS SERVICES* Commercial General Authorisation is required. Whenever a publicly available electronic communication service is provided, a corresponding *PUBLIC COMMUNICATION NETWORK* Commercial General Authorisation is required by the undertaking(s) assuming the role of a **Network Infrastructure Provider**.

Examples: a) *An undertaking entering into an ECS contractual agreement with a local agent for a car manufacturer (**M2M/IoT Business User**) acting on behalf of car owners (subject that the car owners do not enter into any ECS contractual agreement);*

   b) *An undertaking entering into an ECS contractual agreement directly with the car owner (**M2M/IoT End-User**);*

   c) *A local agent for a car manufacturer entering into an ECS contractual agreement with the car owner (**M2M/IoT End-User**).*

Note 1:   In order to retain only one service provider for each type of M2M/IoT connectivity service, a **M2M/IoT Business User** party to an ECS contractual agreement with a **M2M/IoT Connectivity Service Provider** may not enter into another ECS contractual agreement with a **M2M/IoT End-User**. It may however assume the role of a **M2M/IoT Services Reseller** on behalf of the **M2M/IoT Connectivity Service Provider**.

Note 2:   A **M2M/IoT Connectivity Service Provider** may also assume the role of an authorised **Network Infrastructure Provider**.

M2M/IoT SERVICES RESELLER

The entity acting on behalf of an authorised *M2M/IoT Connectivity Service Provider* with the *M2M/IoT Business User* or *M2M/IoT End-Users*.

A Commercial General Authorisation is not required.

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*Example: Unless a local agent for a car manufacturer is authorised as a **M2M/IoT Connectivity Service Provider** (as in example (c) above), it may ONLY enter into an ECS contractual agreement with the car owner **(M2M/IoT End-User)** on behalf of an authorised **M2M/IoT Connectivity Service Provider.***

Note: A **M2M/IoT Services Reseller** is not allowed to enter into a M2M/IoT ECS contractual agreement directly with the **M2M/IoT Business User** or **M2M/IoT End-Users** since it will be acting on behalf of the authorised **M2M/IoT Connectivity Service Provider**.

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M2M/IoT BUSINESS USER

The entity entering into a M2M/IoT connectivity services contractual agreement with an authorised *M2M/IoT Connectivity Service Provider* to offer these services possibly incorporating its own product/equipment/service/solution to *M2M/IoT End-Users* without entering into an ECS contractual agreement with the same.

A Commercial General Authorisation is not required.

Examples:	*Local agents for car manufacturers making available eCall services to car owners; electricity supply providers making available smart metering facilities to consumers; vending machine distributors to individual vending machines; security companies providing security devices to individual premises, etc.*

M2M/IoT END-USER

The customer utilising a M2M/IoT connectivity service provided by either a *M2M/IoT Business User* or an authorised *M2M/IoT Connectivity Service Provider* (in the latter case by means of an ECS contractual agreement).
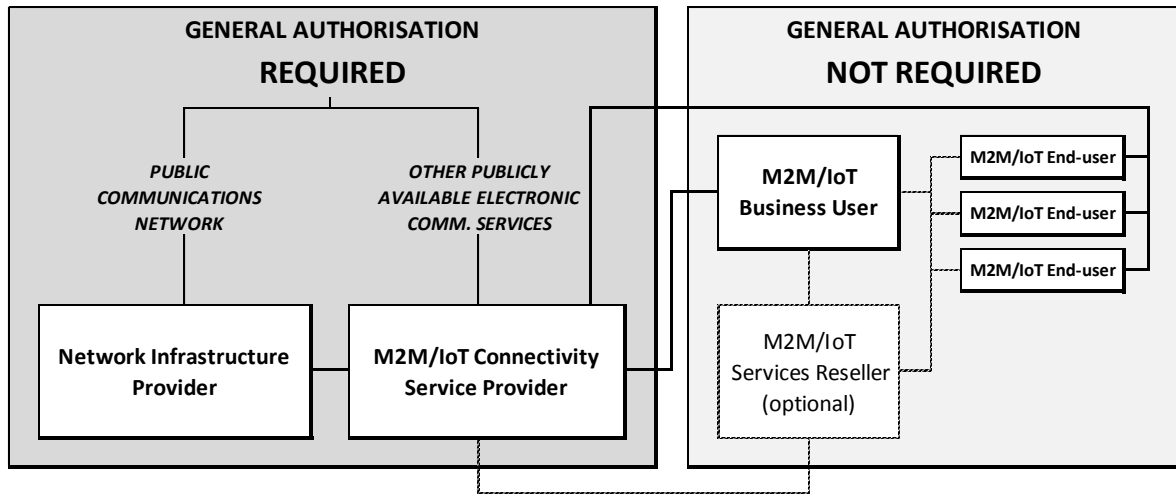
A Commercial General Authorisation is not required.

Examples:	*car owners; consumers utilising energy smart meters; vending machines; customers of security devices; etc.*

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FIGURE A.1

CONVENTIONAL M2M/IoT CONNECTIVITY SERVICES VALUE CHAIN

COMMERCIAL GENERAL AUTHORISATION REQUIREMENT PERSPECTIVE

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A.2 FREQUENTLY ASKED QUESTIONS (FAQS)

1. **If an undertaking intends to market and/or provide a M2M/IoT connectivity service specifically (not necessary exclusively) for the Maltese market and to enter into an ECS contractual agreement with *M2M/IoT Business Users* and/or *M2M/IoT End-Users* within the Maltese territory:**

   It will be assuming the role of a ***M2M/IoT Connectivity Service Provider*** (see figure A.1) in which case an *OTHER PUBLICLY AVAILABLE ELECTRONIC COMMUNICATIONS SERVICES* Commercial General Authorisation is required.

2. **If an undertaking intends to provide authorised *M2M/IoT Connectivity Service Providers* with an element of (or the entire) infrastructural and/or technical connectivity solutions:**

   It will be assuming the role of a ***Network Infrastructure Provider*** (see figure A.1) in which case a *PUBLIC COMMUNICATIONS NETWORK* Commercial General Authorisation is required.

3. **If an undertaking intends to market and/or provide a M2M/IoT connectivity service specifically (not necessary exclusively) for the Maltese market and to enter into an ECS contractual agreement with *M2M/IoT Business Users* and/or *M2M/IoT End-Users* within the Maltese territory using its own element of (or the entire) infrastructural and/or technical connectivity solutions:**

   It will be assuming the roles of a ***M2M/IoT Connectivity Service Provider*** and a ***Network Infrastructure Provider*** (see figure A.1) in which case an *OTHER PUBLICLY AVAILABLE ELECTRONIC COMMUNICATIONS SERVICES* and a *PUBLIC COMMUNICATIONS NETWORK* Commercial General Authorisations are required.

4. **If an undertaking intends to provide M2M/IoT connectivity services SOLELY within the confines of an area of land owned, leased or otherwise lawfully possessed by the same undertaking:**

   A Commercial General Authorisation is not required (even if it uses its own infrastructural and/or technical connectivity solutions).

5. **If an undertaking intends to provide M2M/IoT connectivity services EXCLUSIVELY for its own private use within the Maltese territory:**

   A *PRIVATE ELECTRONIC COMMUNICATIONS SERVICES AND/OR NETWORK* Commercial General Authorisation is required (even if it uses its own or a third party's infrastructural and/or technical connectivity solutions no other Commercial General Authorisation category is required).

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6. **If an undertaking intends to provide M2M/IoT connectivity services within the confines of a single locality intended SOLELY for services of a community convenience nature, whether a fee is applicable or not** *(e.g. smart parking in localities and car parks)***:**

   A Commercial General Authorisation is not required.

7. **If an entity intends to act on behalf of an authorised *M2M/IoT Connectivity Service Provider*:**

   It will be assuming the role of a ***M2M/IoT Services Reseller*** (see figure A.1) in which case a Commercial General Authorisation is not required (it may only enter into an ECS contractual agreement with ***M2M/IoT Business Users*** and/or ***M2M/IoT End-Users*** on behalf of the ***M2M/IoT Connectivity Service Provider*** it represents)*.*

8. **If a *M2M/IoT Connectivity Service Provider* not authorised in Malta intends to offer M2M/IoT connectivity services specifically (not necessary exclusively) to *M2M/IoT Business Users* and/or *M2M/IoT End-Users* within the Maltese territory:**

   If it intends to enter into an ECS contractual agreement with ***M2M/IoT Business Users*** and/or ***M2M/IoT End-Users*** specifically (not necessary exclusively) within the Maltese territory, it would be assuming the role of a local ***M2M/IoT Connectivity Service Provider*** which would require an *OTHER PUBLICLY AVAILABLE ELECTRONIC COMMUNICATIONS SERVICES* Commercial General Authorisation.

9. **If a *M2M/IoT Connectivity Service Provider* intends to enter into an ECS contractual agreement for M2M/IoT connectivity services with *Business Users* and/or *End-Users* in other countries (and not within the Maltese territory):**

   A local Commercial General Authorisation is not required, even if some of its products could eventually be available within the Maltese territory *e.g. vehicle eCall services.* The Commercial General Authorisation requirements for this M2M/IoT connectivity service in other countries shall be subject to the applicable requirements in these countries.

10. **If a *M2M/IoT Connectivity Service Provider* and/or a *M2M/IoT Network Infrastructure Provider* requires numbering resources from the National Numbering Plan:**

    A ***M2M/IoT Connectivity Service Provider*** who is authorised as a provider of *OTHER PUBLICLY AVAILABLE ELECTRONIC COMMUNICATIONS SERVICES* would be eligible to apply for the allocation of specific E.164 numbering resources for M2M/IoT connectivity services usage.

    M2M/IoT Connectivity Service Providers shall not utilise E.164 numbers/number blocks from a number range already allocated to another authorised ***M2M/IoT Connectivity Service Provider***, even in cases where the latter is assuming the role of the ***Network Infrastructure Provider***.

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Under the current framework, only authorised *PUBLICLY AVAILABLE TELEPHONE SERVICE* providers providing mobile telephony services (i.e. MNOs and MVNOs) are eligible to apply for the allocation of national E.212 Mobile Network Codes and each request is analysed on a case by case basis.

Once a new framework for E.212 numbering resources is established, it is envisaged that an authorised **M2M/IoT Connectivity Service Provider** and/or an authorised **M2M/IoT Network Infrastructure Provider** would also be eligible to apply for the allocation of national E.212 Mobile Network Codes subject to proof of justification to the satisfaction of the MCA.