INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NOTICE 483 OF 2017

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

1 On 26 August 2016, the Independent Communications Authority of South Africa ("the Authority") published a notice of intention to conduct an inquiry into number portability for public comments in terms of section 4B (2) of the Independent Communications Authority of South Africa Act, (Act No. 13 of 2000), as amended ("the ICASA Act").

2. The objectives of the inquiry into number portability was to:

2.1 determine the strength and weaknesses of the current number portability framework;

2.2 determine if there are regulatory gaps arising from the market and regulatory development;

2.3 determine the impact of the current number portability framework on licensees and the general public; and

2.4 determine what regulatory interventions if any are necessary.

3. The deadline for the written submissions was 28 October 2016. The Authority received a total of seven (7) written submissions from Cell C (Pty) Ltd, MTN (Pty) Ltd, Neotel (Pty) Ltd, Ohren Telecoms (Pty) Ltd, Switch Telecom (Pty Ltd, Telkom SA SOC Limited and Vodacom (Pty) Ltd. On 26 January 2017, the Authority invited the aforementioned licensees to the public hearings which were held on 16 February 2017.

The Authority, hereby publishes this notice in terms of the ICASA Act section 4C (b) to communicate its findings on the inquiry into number portability.

Mr. Rubben Mohlaloga
Acting Chairperson

DATE: 20/06/2017

Number Portability Public Inquiry Findings Report

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Executive Summary

South Africa was the first country in the African continent to launch mobile portability in 2006. This was followed by a two-stage introduction of geographic number portability completed in April 2010.

The portability process was established in 2006 in terms of the Number Portability Regulations, Government Gazette No: 28091 ("the Regulations"), which was supported by the Functional Specification, Ordering System Specification (OSS) ("the specifications") and an Inter-operator Code of Practice. The specifications were implemented by the Number Portability Company (NPC) which acts as the central clearing house for portability.

The South African market has changed in many respects since the launch of portability, and portability faces new challenges that need to be addressed. However, those challenges need not to fundamentally change the process that has a broad support in the industry, is functioning well overall and require a closer monitoring. There is a broad consensus that issues such as resolution and process updates require more support from the Authority to facilitate the implementation of technical solutions and timely response to customer complaints.

In 2016, the Authority began a review process which started with a public inquiry completed in March 2017, with a view to update the Regulations through a formal consultation process in the course of the 2017/18 financial year.

Although 2016 saw a strong increase in prepaid ports, the percentage of the mobile base porting each year since inception in the higher value post-paid segments, timer violations and a high percentage of rejected ports need to be addressed to ensure a more efficient process which customers can trust.

Geographic number portability appears more favourably against international benchmarks. However, issues around legacy systems have limited the flexibility of portability. Furthermore, a large number of licensed operators with limited resources have been negatively impacted by delays in updating routing tables.

These are the summary of the findings which are dealt with in detail in section 2 below:

- There is strong support for the current number portability process and the role of the NPC as the central database provider (CRDB). However, all stakeholders recognise that there are performance issues that need to be addressed with a better enforced process.

- Key performance indicators (KPIs) are scarce. In particular, the Authority has only access to limited information through the NPC. Considering the under-performance of mobile portability and the issues on process inefficiencies that are recognised by all stakeholders, there is a need for sufficient information to be available to the Authority and for possible dissemination of this information to all stakeholders.

- Legacy issues have hindered geographic number portability in the past. There is, however, a strong case to lift some of the area number constraints to allow for portability based on 0N codes. All stakeholders also agree that the block sizes can be reduced for increased efficiency in the process. However, it may be prudent to try and preserve the number block sizes through a different pricing mechanism.

- Stakeholders generally agree that the scope of fixed portability should be extended to non-geographic numbers – this is available in the majority of countries.

- The cost per port is generally considered to be efficient. However, there may be a need to introduce a tiered structure for geographic number portability, where fees are levied per ported block rather than per individual number, resulting in an overall lower cost (than currently) to port number blocks.

- Times to port could be reduced – in particular, real-time port is becoming a standard feature for mobile portability. However, stakeholders generally agree that times to port are currently adequate and that other issues should be addressed first (notably to streamline the escalation process and to improve the

updating of routing tables). A reduction of the times to port could be a medium-term target.

- The risk of fraud or slamming has become a key concern for the industry. Some operators consider that this justifies a donor-led confirmation request. However, in line with international experience, an option to consider is adjusting the current portability process, adding an initial step whereby the CRDB sends a PIN to the customer wishing to port as an additional safety measure to ensure that the port request is not fraudulent.

- Some adjustments to the current process have been proposed by the operators, including the port lock period, the causes to reject ports, winback activities and tariff transparency methods. The current process is aligned with international standards and only minor changes and clarifications should be considered.

- Customer complaints and issue escalation procedures ought to be revisited. From the review, the Authority might be required to play a more active role as an arbitrator to ensure better coordination within the industry.

- Enforcement of existing regulations could limit the issues around routing information.

- The setting up of a technical committee with industry representatives and effective governance rules would be an important step to ensure a quicker response to change requirements. The Authority's role would be to actively coordinate the committee's work and remain the only entity that can introduce changes to the process.

- Glossary of Terms
- MNP - Mobile Number portability
- GNP - Geographic Number Portability
- OSS - Ordering System Specification
- FSS - Functional System specification
- CRDB - Central Reference Database
- NPC - Number Portability Company
- NNP - National Numbering Plan
- ACQ - All Call Query
- NNP - National Numbering Plan
- LAC - Location Area Code
- SMS – Short Message Service
- SIM – Subscriber Identity Module
- ECA - Electronic Communication Act
- ECS – Electronic Communications Service
- PSTN – Public Switched Telephone Network
- SNPAC - Swedish Number Portability Administrative Centre
- NIP - Numero Identifacion Personal
- RIO - Releve d' Identite Operateur
- NST - Network Syncronisation Times
- IST - Interconnect Support Teams
- PST – Port Support Teams
- NRA - National Regulatory Authorities
- CVM - Centro de Visualizaticion y Monitoreo
- BEREC – Body of European Regulators for Electronic Communications
- TRAI – Telecom Regulatory Authority of India
- BIPT – Belgian Institute for Postal Services and Telecommunications
- CRTC – Canadian Radio-television and Telecommunications Commission
- OTA – Office of the Telecommunications Adjudicator
- ANATEL – Agencia Nacional de Telecomunicacoes
- CONATEL- La Comision Nacional de Telecomunicaciones
- AGCOM – Autorita Per Le Garanzie Nelle Communicazioni
- CRC – Comision de Regulacion de Comunicaciones
- SUBTEL – La Subsecretaria de Telecomunicciones de Chile

Introduction

1.1 The portability framework

The Authority was initially required in terms of section 89 (1) (b) of the Telecommunications Act, 1996 (Act No.103 of 1996) ("Telecommunications Act") to introduce number portability by 2005. On 30 September 2005, in Government Gazette No. 28091, under the Telecommunications Act, the Authority published the Regulations and the Functional Specification for Mobile Number Portability. Pursuant to the Regulations, on 25 November 2005 in Government Gazette No. 28268, the Authority published the Draft Mobile Number Portability Ordering System Specification ('OSS') which defines key processes, including:

- Port request and activation;
- Port time change (deferred porting time up to 30 calendar days);
- Port cancellation (up to one hour before porting hour);
- Port reversal (up to two months after porting); and
- Return to block operator (including quarantine period of three months)

In 2005, the Telecommunications Act was repealed by the Electronic Communications Act, 2005 ("Act No. 36 of 2005) ("the ECA"), promulgated on 18 April 2006 in Government Gazette No. 28743. The Authority now finds its mandate in relation to Number Portability in section 68 (1) (b) of the ECA.

On 13 July 2007, in Government Gazette No. 30089 the Authority promulgated the Functional Specification for Geographic Number Portability, and finally on 23 April 2010, in Government Gazette No. 33145, the Authority published the Geographic Number Portability Ordering System Specification.

Section 68 (1) (b) of the ECA states that the Authority must make regulations prescribing measures to ensure that number portability is introduced in 2005 or soon thereafter, as far as is practicably possible, including the creation of a number portability database, and cost allocation and recovery among licensees. Section 68 (7) (c) states that these regulations must include matters relating to the allocation of responsibility between licensees for the implementation of number portability to ensure effective functionality, and the protection of customers, including disclosure of

consumer rights relating to portability and the processes and procedures to be followed for resolving subscriber complaints.

Regulation 2(5) of the Regulations states that it is the Authority's responsibility to develop, maintain and enforce the Functional Specifications for Mobile and Geographic Number Portability. In terms of clause 5(3) of the Functional Specification for Geographical Number Portability Regulations, the Authority should also collect and monitor annual porting statistics from all the operators.

The recipient-led portability process is defined in detail in the Functional Specification, and the Ordering System Specification (OSS). South Africa opted for an All Call Query system (with indirect routing for incoming international calls); this is now standard practice throughout the world.

The Central Reference Database (CRDB) is the administration database that acts as an interface between the recipient and the donor operators, providing a single database for all ported MSISDNs. The CRDB is not a routing database; each operator updates his own routing tables based on the information broadcasted by or retrieved from the CRDB.

In 2006, the NPC was formed jointly by Cell C, MTN and Vodacom. The NPC administers the CRDB linked to the operators via a network interface. With the introduction of Geographic Number Portability in 2010, Neotel and Telkom joined the NPC as shareholders. Other operators are also members of the NPC, although they are not shareholders.

1.2 Portability performance to date

In the public inquiry process, there was a strong consensus that portability is a key component of the competitive framework for South Africa. All respondents to the inquiry, however, pointed to specific weaknesses that require changes or updates to the existing framework as they negatively impact portability.

In South Africa, the publicly available information on ported numbers is limited to the total number of ports (cumulative) published on the NPC web site[1].

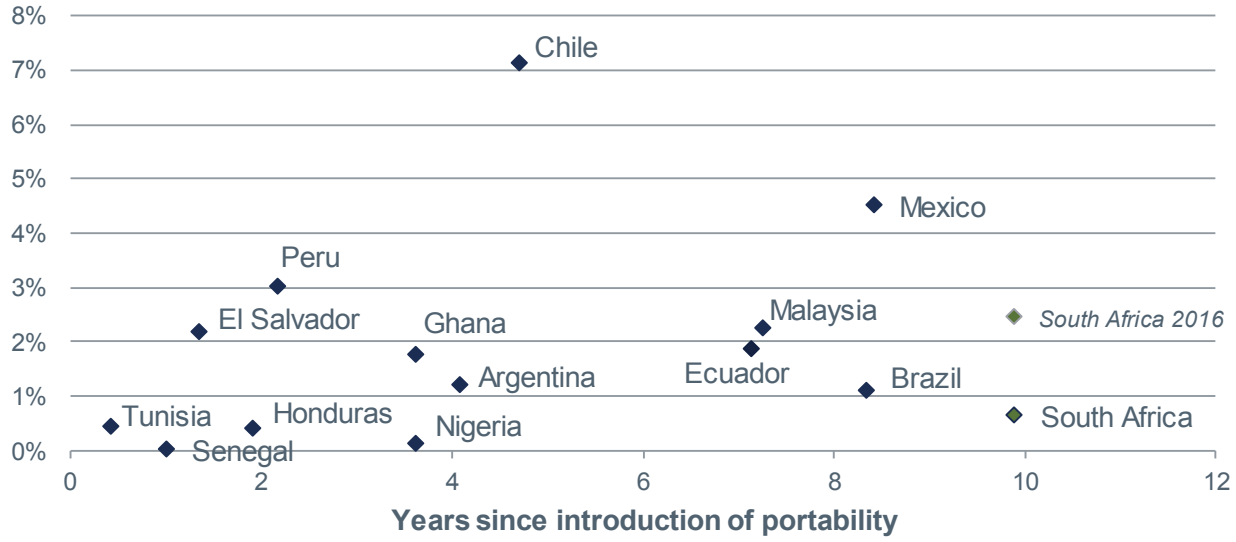
[1] http://www.number-portability.co.za/

For mobile number portability, Figure 0-1 shows the cumulative ports, divided by the number of years since launch, as a percentage of the mobile subscriber base. The comparison is not favourable to South Africa which lags its peers for the cumulative period 2005-2016. However, it is worth noting that 2016 shows very different results to the previous years with close to 2.5% of the mobile base being ported.

The benchmarked countries have a different market structure, in particular in relation to the relative weight of the post-paid base. Portability tends to be more attractive for post-paid users and percentages of ports are indeed higher. Although few countries report separately prepaid and post-paid ports, it is worth mentioning that the most successful country in the benchmark, Chile, shows for the full year 2016 that 15% of the post-paid base ported its numbers – this ought to be close to the churn rate of the post-paid base. In Peru, based on a more limited time series, post-paid ports account for around 10% of the base. In both countries, prepaid ports represent a smaller proportion of the prepaid subscriber base. This is in strong contrast with South Africa where prepaid ports, as a percentage of the prepaid base, are higher than post-paid ports as a percentage of the post-paid base. This suggests that there is scope for improvement in port take-up rates.

European markets typically reach higher percentages, ranging from 6% to over 12% in Italy for example. These are largely post-paid markets by now. Although detailed data is often unavailable, a rough measure of success in Europe is when post-paid ports are of a comparable magnitude to post-paid churn. This is by far not yet the case in South Africa.

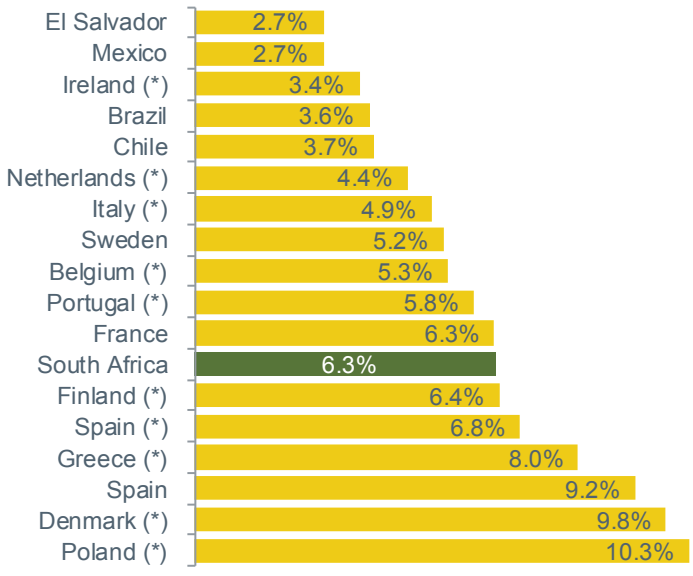
Figure 0-1: Cumulative mobile ports, annualised, as percentage of the base [Source: Aetha]



Note, the *South Africa 2016* indicator indicates mobile ports as a percentage of the mobile base for the year 2016 only. It is much higher than the overall indicator for the years 2005 to 2016.

For geographic number portability, Figure 0-2 below considers, for the last four available quarters, the geographic number ports as a percentage of the fixed subscriber base at year-end.

Figure 0-2: Geographic number ports, last four quarters available, as percentage of the base [Source: Aetha]



(*) Latest data available for 2015[2]

[2] https://ec.europa.eu/digital-single-market/en/news/telecommunications-data-files-digital-scoreboard-2016

The situation is very distinct from the mobile market –South Africa performs well compared to the benchmark. This is partly due to the different mix in the fixed base which is more biased towards corporate accounts in South Africa – corporate accounts are more likely to port their number when they churn. They also often port blocks of numbers, resulting in a higher number of numbers ported simultaneously per single entity.

1.3 Overview of the portability process

After more than ten years since its launch, mobile portability has yet to realise its full potential. Although 2016 saw a strong increase in prepaid ports, the percentage of the mobile base porting each year, in particular in the higher value post-paid segment, lags comparable countries. Timer violations and a high percentage of rejected ports need to be addressed to ensure a more efficient process that customers can trust. Geographic number portability – partly reflecting a more corporate base – appears more favourably against international benchmarks. However, issues around legacy systems limit the flexibility of portability. Furthermore, a large number of licensed operators with limited resources have had a negative impact on the process which is hindered by delays in updating routing tables. The South African market has also changed in many respects since the launch of portability and portability faces new challenges that need to be addressed.

1.4 The public inquiry

On 26 August 2016, the Authority published the Notice of Intention to Conduct an Inquiry into Number Portability Regulations in Government Gazette No. 40232. The purpose of the inquiry was to determine the strengths and weaknesses of the prevailing number porting process, and to determine if there are regulatory gaps arising from the market and legislative developments. Interested parties were invited to submit written representations by 28 October 2016.

The following seven parties submitted written responses to the inquiry:

- Cell C
- MTN
- Neotel
- Ohren Telecoms
- Switch Telecom

- Telkom
- Vodacom

Public hearings were held on 16 February 2017, followed by additional interactions with participants to the hearing to clarify their comments.

2 Consultation questions

This Section presents the main issues raised during the public inquiry process.

2.1 Geographic base: 0NN codes

The most common case for fixed number portability is where a customer ports his fixed number or block of fixed numbers fromone servive provider to a different service provider. In the normal case, the physical address of the service remains unchanged before and after the port, so the port proceeds.

The format of a fixed number in South Africa is 0NN ABC XXXX, where 0NN is the geographic area defined by the National Numbering Plan (NNP), ABC is a number range assigned to a service provider by the Authority and XXXX is the subscriber number. the ABC code is associated with - local exchanges which serve customers.

It is the case that some service providers, and in particular operators that use VoIP to deliver services, do not recognise the ABC boundaries. It may be that a number is ported away from Telkom to an alternative provider, the customer subsequently changes his physical location (address) and takes his number with him, then wants to port back to Telkom. In this case, there may be some technical complexity for Telkom to support the port back to its network, as the customer will now be using a number that exists outside of its local area code.

A more complex case is where the customer ports out from Telkom, then moves the 0NN area. For example, if the recipient operator permits an address change from a 011 (Johannesburg) geographic area to a 012 (Pretoria) geographic area, in violation of the Regulations. Here it is more complex for the number to port back to Telkom (or onwards to another operator that maintains compliance with the NNP).

Question 1.
Currently geographic number ports are restricted to the 0NN ABC level, although in practice numbers are often ported at the 0NN level. Stakeholders appear to agree that geographic portability should be allowed up to the 0N level, as soon as Telkom's network allows for this. Do you agree that geographic number portability should be extended to allow ports within the 0N area codes?

Responses from the public inquiry: Most of the participants to the inquiry agreed that geographic number portability should be based on 0NN areas rather than the local exchange areas currently used. Respondents to the inquiry complained that porting at ABC level local exchange is a barrier to effective geographic number portability and, where the physical address of the customer is unchanged, then the customer necessarily remains within the same local exchange area. Some respondents argued that clear maps for 0NN areas are critical to ensure their compatibility with mobile LACs (Location Area Code used in mobile networks). However, Telkom also stated that for technical reasons, currently they are only able to port within the 0NN areas. In a follow-up interview, Telkom suggested that approximately only one-third of its customers is on the IMS platform and that there are significant constraints with legacy equipment. These could last until 2021. Telkom requested that geographic number porting be restricted instead at the 0N level with the caveat that Telkom is not mandated to support full 0N porting until its IMS network upgrade has been completed around 2021. There are currently five 0N areas in South Africa (the old Transvaal region – Gauteng, Limpopo, Mpumalanga and North-West provinces, Western and Northern Cape, KwaZulu-Natal, Eastern Cape and the Free State). Other fixed line service providers did not express the view that this would be problematic.

There is consensus that the 0NN restriction on ports could be relaxed to the 0N. There is a natural incentive for operators to support this as quickly as possible and that no other service providers are disadvantaged.

2.2 Non-geographic numbers

Currently 080, 086 and 087 numbers are excluded from number portability. 080 and 086 are typically used by operators of call centres. There is no current mechanism for porting 087 numbers though this is due to the fact that these numbers had little relevance[3] at the time that the porting regulations were defined. Now they tend to be used extensively by smaller VoIP service providers.

Question 2.
Currently 080, 086 and 087 numbers are excluded from number portability. Do you agree that 080, 086 and 087 numbers should be subject to porting?

Responses from the public inquiry: Some Respondents to the inquiry, , argued that non-geographic numbers should be subject to number portability. Typically, these are Number Translation services where the access number is translated into a geographic number which is 'hidden' from the customer. Most respondents argued that currently Telkom has a de facto monopoly on these numbers, and the lack of non-geographic number portability reduces the incentive for customers who have both geographic and non-geographic numbers from porting as they are not able to take

[3] Government Gazette Publication 22352 June 2001 defines 087 numbers are "Reserved for future growth".

these numbers to a new operator. Telkom argued that these numbers are separate from the services provided to the customer and should, therefore, not be subject to portability. It is Telkom's view that where Telkom is the owner of the 080 or 086 number that the customer is free to take services from another provider and Telkom will arrange forwarding to the new geographic numbers providing access to these services. The other respondents to the enquiry complained almost unanimously that Telkom's charges for such forwarding make this arrangement economically unfeasible. Telkom is, therefore, effectively able to prevent customers from moving to other service providers.

There is broad consensus on the inclusion of non-geographic numbers for portability and the NPC will be required to configure specification for 080, 086, 087 numbers.

2.3 Block sizes

The current regulations state that operators that have customers who have been assigned blocks of 1,000 or 10,000 contiguous numbers shall be obligated to port the entire block of numbers. The NPC does not recognise a block of numbers internally and a block port is implemented as a series of individual number ports. In part this is a justification for charging a fee per number rather than having a single charge for the block of numbers.

Currently only blocks of 1 000 and 10 000 contiguous numbers can be ported. However, unlike single numbers, a block does not have the corresponding per line revenues.

Question 3.

Do you agree that block sizes should be preserved but a different charging mechanism should be applied?

Responses from the public inquiry: Some respondents to the inquiry complained that it is uneconomical to port a block of numbers because the NPC charges a fee per number, rather than a single charge in respect of the block. The challenge for recipient operators is that unlike single numbers, a block of numbers does not have the corresponding per line revenues. It is usually the case that a customer who has been allocated a 10 000 block (for example a corporate PBX), may only have maybe 100 voice lines. This is known as a trunk group. For the recipient operator having to pay for 10 000 ports for a 100-line service, this could be prohibitive. As a result, operators encourage the customer to port only the numbers from the block that they are actually using, thus breaking the block. Furthermore, this complicates the routing for all operators if the B-Number analysis is necessarily longer. Whilst several respondents argued that block sizes should be revised to include other sizes, the minimum size of blocks is a matter of controversy and some respondents have argued that blocks should not be allowed to be broken by porting.

Smaller sizes of number blocks – as small as 10 or 20 numbers – would reduce the cost of the port. Telkom, whilst arguing that blocks should not be broken up, stated that they can support block ports as small as 20 numbers in their routing tables. This may, however, be the wrong solution to the problem; the industry would be better served if there is an incentive to preserve number blocks rather than to break them up. If a single number is ported from a 10 000 number block, then the block owner no longer has a 10 000 number block. He then has 9 x 1 000 number blocks. Other countries, such as the UK[4], also specify block ports of 1 000 or 10 000 continuous numbers and fewer numbers than these are treated as individual ports.

An alternative option would be to introduce tiered pricing for block numbers. In this scenario, the number portability regulations continue to specify that block ports should be 1,000 or 10,000 numbers but are amended to stipulate that a single transaction charge be applied by the NPC in these cases, rather than 1 000 or 10 000 individual charges. This will incentivise the preservation of blocks of continuous numbers and not penalise operators that offer trunk group services.

Several comments from the participants to the inquiry indicate that there is some demand for implementing tiered pricing for geographic block numbers. Although blocks can be broken down to 20, according to Telkom, it is better to preserve blocks, as in the UK. Single transaction charge for number blocks will incentivise preservation of blocks of contiguous numbers. This has been implemented, notably in Sweden, and volume-dependent pricing structures are common in Europe. The current price in South Africa is competitive and this mitigates to an extent the issue.

Currently according to the ECA, the Authority is authorised to make regulations prescribing cost allocations, however, the costs per port are currently defined by the NPC and the Portability Regulations only empower the Authority to audit the costs, not to make any decisions regarding the cost. The Portability Regulations would need amendment to empower the Authority to impose a pricing structure if tiered pricing were to be introduced.

Question 4.
Do you agree that the Authority, through regulation, should impose the introduction of tiered pricing?

Responses from the public inquiry: Several comments from the participants to the inquiry indicated that there is some demand for implementing tiered pricing for geographic block numbers. The argument is that when porting geographic numbers, if the number is part of a larger block, the whole block must be ported, and the recipient operator must pay for all of the numbers in the block at the same rate as if

[4] UK Geographic Number Portability (GNP) end to end process manual. Operational Processes. Version 17.5. 22nd Nov 2016.

he were only porting one number. This results in situations where the recipient operator has paid for 1,000 numbers to be ported, but is only generating revenue from the lines that his customer uses, which may only be a subset of 100 numbers. Some operators suggested applying tiered pricing for block of geographic numbers, with higher discounts applied to ports of larger block sizes.

Portability in Sweden has been implemented in a similar way to South Africa. A company was set up to administer portability, called the Swedish Number Portability Administrative Centre (SNPAC), with the largest Swedish operators each owning part of the company. The SNPAC sets the prices per port based on cost, similarly to the NPC. However, the SNPAC has not implemented a rebate model (as is the case with the NPC), and instead has imposed tiered pricing for contiguous blocks of numbers[5], as illustrated below.

Table 2-3:
Cost per port in Sweden [Source: SNPAC]

Size of number range	Price (ZAR)[6]
1-9 numbers	12 per number
10-99 numbers	122 per block
100-999 numbers	535 per block
1000-3000 numbers	765 per block

As can be seen in the table above, these prices constitute a significant discount for large number ranges. If charged at the individual port price, the total price to port a block of 1 000 numbers would be ZAR12 000, but with the discount, it would only cost ZAR725, a fraction of the individual cost. Since the SNPAC claims to operate at cost, it seems reasonable to assume that the process of porting large blocks of numbers is less resource-intensive than porting the same number of individual non-contiguous numbers, which is why it is able to offer such a large discount.

2.4 Risks of fraud and slamming

The risk of fraud and slamming is a widespread concern. In South Africa, those risks have resulted in litigations between mobile operators and there seems to be a consensus among the mobile operators that the process can be improved. In Europe, the BEREC[7] report emphasised that "It is important that the switching process results in a positive experience for consumers. Consumers will only benefit from competition where they have confidence in the switching process. Where this is not the case, consumers will be unwilling to engage effectively in the competitive process."[8] In

[5] SNPAC – Price list - http://www.snpac.se/?q=en/content/price-list-valid-2017-01-01

[6] Exchange rate: SEK1 = ZAR1.52, 10 April 2017 – Source: http://www.xe.com/

[7] Body of European Regulators for Electronic Communications – regulatory agency of the telecommunications market in the European Union.

[8] http://berec.europa.eu/doc/berec/bor_10_34_rev1.pdf - page 70

practice, several regulatory authorities in Europe have modified the portability rules to address the issue.

Portability regulations in South Africa require ports to be initiated by end-users:

"A recipient operator shall not order number portability for any subscriber unless it has received a request from that subscriber and shall ensure that the recipient service provider does not order number portability for any subscriber unless it has received a request from that subscriber." (Portability Regulation, 2005, §7 (1)).

This is further specified in the Mobile OSS:

"The Recipient shall not issue a Port Request on behalf of a Subscriber unless it has received a request from the Subscriber. The Recipient must be in a position to provide proof of such Port Request. The Recipient may issue a Port Request on behalf of the Subscriber without consent being in writing, however to issue a Port Notification for a post-paid porting, the Recipient must be able to provide a written request / Power of Attorney signed by the Subscriber. No consent in writing is required to issue a Port Notification for a prepaid port." (Mobile OSS, 2005, §2.3.1)

"The Recipient will endeavour to ensure that the Subscriber requesting the port is the legitimate owner or their authorised representative. This shall be done by at least performing a CLI validation for a Prepaid Subscriber and an Account Number validation for a Post-paid Subscriber prior to issuing a porting request." (Mobile OSS, 2005, §2.3.2)

Many stakeholders indicated concerns with fraudulent port requests and slamming. An additional step to the existing process would be beneficial to confirm authorisation of the port by the subscriber. This would involve a code being sent to the subscriber at the start of the portability process which can then be used to authorise the port. It is important that the donor operator does not send this message as the portability regulations specifically prohibit the donor operator from contacting the customer during the porting process.

Question 5.

Do you agree that a message including a code for the subscriber to authorise the port with should be introduced to deal with fraudulent ports? If so, who should send this message: the recipient operator or the CRDB? Should the message be sent via SMS or an IVR system? Should the industry consider delivering the message in several languages?

Responses from the public inquiry: The results from the public inquiry suggest that the current CLI validation process for prepaid may be insufficient to guarantee that the port is effectively requested by the end-user. Some mobile operators argued that the main disadvantage to the current number portability framework is that it can

be used to facilitate fraud through unauthorised or illegal port requests and that the regulations should be updated to include an additional step in the process. The best approach to address this issue, however, remains controversial among the mobile operators. Some suggested that a double opt-in / confirmation SMS from the donor operator is put in place. The customer is entitled to make an informed choice but needs to have the relevant information available to make such a choice. Also, a message from the donor would assist in preventing fraudulent porting as the customer would be made aware that his SIM card is being ported. The notification from the donor, however, should not in any way infringe on the customer's right to port. Another respondent suggested that subscribers should be allowed to manually trigger port cancellations and reversals easily and without need to contact the call centre. Some respondents questioned whether the NPC is the best party to send the message as there may be security issues. One respondent disagreed strongly with this approach, arguing that the mobile portability is relatively untouched by fraud, and that there is a lack of empirical evidence that bank fraud is linked to an increased porting activity.

A standard procedure in many portability processes is a confirmation SMS sent by the CRDB to the end-user to start the port process. In Colombia for instance, this was introduced from the start of mobile portability in 2010. When an end-user wishes to start a port process, it requires to the recipient operator a Personal Identification number (Número de Identificación Personal, NIP). The recipient sends a request to the CRDB which sends the number by SMS to the end-user within five minutes[9]. In 2014, Mexico updated the 2007 regulations to take into account the risk of slamming and fraud. Considering that the request for a Personal Identification Number (Número de Identificación Personal, NIP) by the end user is an efficient procedure to guarantee that the port is required by an end-user, the regulatory authority IFT extended the procedure to fixed ports. The end user may request such number directly without the recipient's help. The NIP is sent by the CRDB by SMS. However, as SMS is not prevalent for fixed networks, the new rule established a requirement to set up an IVR system that calls the end user to provide the NIP at no cost[10]. In France, the regulatory authority ARCEP introduced in its updated mobile portability regulations in 2007 the possibility for an end-user to call the recipient operator to request a RIO (Relevé d'Identité Opérateur), comparable to the Personal Identification Number[11]. The RIO is confirmed through an SMS. This procedure was extended to fixed portability in 2011 with a single number common to all operators. In addition, the end user is

[9] CRC, Resolución No 2355 de 2010 "Por la cual se establecen las condiciones para la implementación y operación de la Portabilidad Numérica para telefonía móvil en Colombia", §15

[10] IFT, Reglas de portabilidad numérica, Diario Oficial, 12 noviembre de 2014, §4.A

[11] http://www.arcep.fr/index.php?id=8571&tx_gsactualite_pi1[uid]=946&tx_gsactualite_pi1[annee]=2007&tx_gsactualite_pi1[theme]=0&tx_gsactualite_pi1[motscle]=&tx_gsactualite_pi1[backID]=2122&cHash=75f27a4dcb

informed throughout the process by SMS[12]. Similarly, Italy had introduced a similar procedure through a CdM code (Codice di Migrazione). However, in its decision 52-09-CIR in 2009, the regulatory authority AGCOM notes that there was a risk of fraudulent generation of CdMs and introduced a secret code sent by the Donor to the end-user. This code is then given to the Recipient who checks with the Donor that the request is indeed requested by the end-user. The 'secret code' was introduced to reduce the instances of irresponsible/dishonest sales activities[13].

The international experience suggests that an additional step to the existing process could be beneficial to portability in South Africa. Such a process involves the CRDB sending a code to the end-user at the start of the portability process without the donor sending a direct message, as was the case in 2016. In line with the portability regulation, in particular around winback, it is important that the message is not sent by the donor.

The introduction of a PIN in the portability process, however, would require amending the OSS. The detailed process would require operators – through a specific technical committee – to agree on the steps to be taken, taking into account the following:

- How the PIN can be obtained – either through the recipient operator or directly by the end-user to a defined operator-specific or generic Freephone number.
- Alternatives to SMS – in particular for geographic number portability – this may require the CRDB to implement a new IVR system.
- How the industry wants to address issues related to the language of communication with the end-user – English-only messages may be an impediment to effective portability.

The PIN-based mechanism must be implemented by the NPC. This implementation is likely to support both a SMS-based and an IVR-based mechanism (for both mobile and fixed portability). There will be changes to the CRDB to support the process for generating a PIN and being able to validate this when a port request is initiated. There will be interfaces for sending / receiving SMS, and integration to an IVR. This will require additional investments. Licensed operators will also require an update to their systems.

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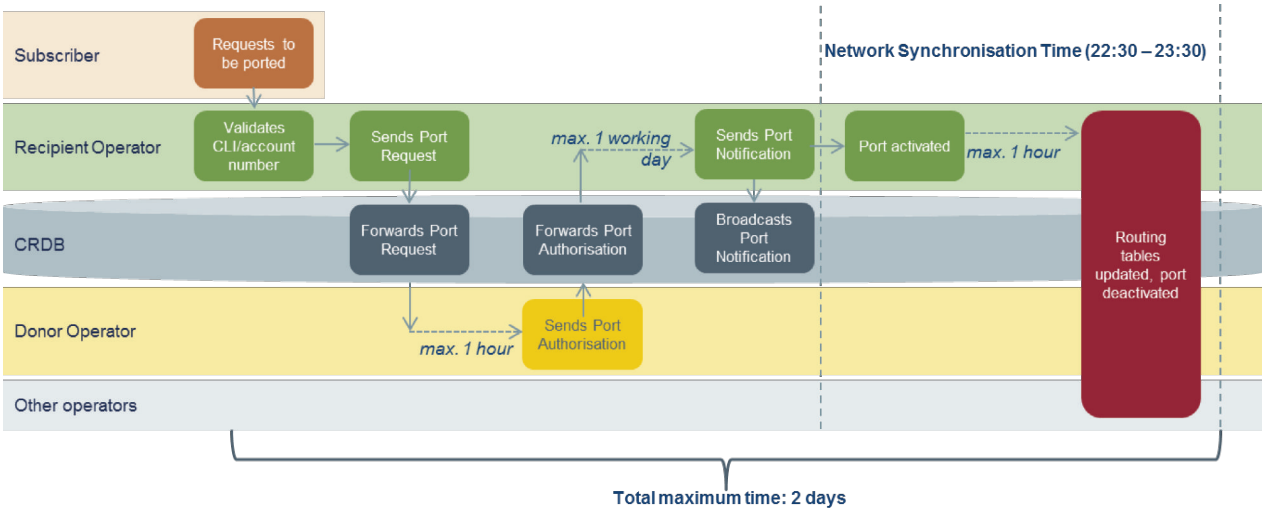
12 http://www.arcep.fr/index.php?id=8571&tx_gsactualite_pi1[uid]=1444&tx_gsactualite_pi1[backID]=1&cHash=d656331c4d

13 Delibera n. 52/09/CIR, "Integrazioni e modifiche relative alle procedure di cui alla delibera n. 274/07/CONS ai fini della implementazione del codice segreto", https://www.agcom.it/

2.5 Porting times: mobile numbers

An overview of porting times is shown in Figure 2-4 below.

Figure 2-4: Mobile porting times [Source: Mobile Number Portability OSS]



The maximum amount of time between the Port Request and the port being completed is two (2) working days. For corporate ports, the only difference is that the donor operator has 16 business hours from when it receives the Port Request to confirm with the customer that the porting is authorised and send the Port Authorisation. This extends the maximum port time for corporate ports to 4 days.

The current experienced porting times of about 1 day is an internationally competitive timeframe. Although in some countries the actual porting time has been reduced to a few hours, this would mean implementing real-time CRDB updates, which could increase the risk of fraud and slamming. As long as all the service providers comply with the Porting Timers, mobile port times are adequate for the time being, although they could be reduced in the future by implementing real-time CRDB updating.

Question 6.

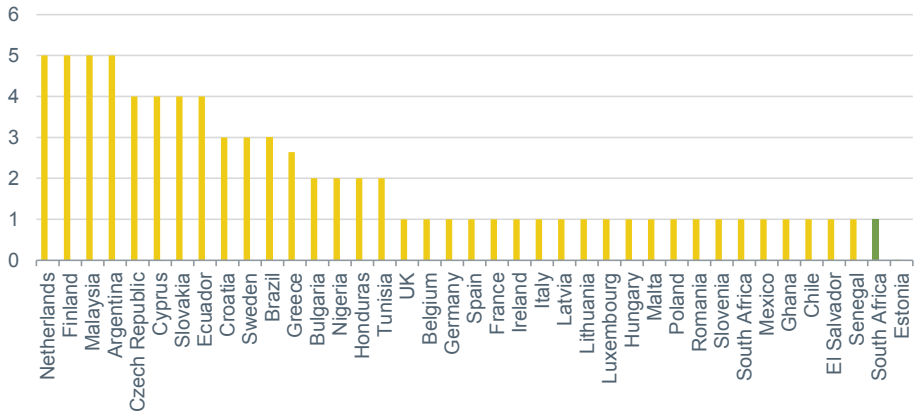
Do you agree that the current target of 1 working day for mobile ports is acceptable?

Responses from the public inquiry: In general, the consensus is that a porting time of 1 (one) day is what is experienced most of the time and that this is an acceptable target. One respondent, however, argued that the current timeframes could be reduced so that subscribers experience fewer delays and are more likely to proceed with the porting process. To this effect, it argued that weekend and corporate port times should be reduced. Another respondent observed that average porting times of five to six hours are globally competitive but expressed concerns that a reduction of this timeframe could increase the risk of fraudulent ports.

According to the information submitted during the enquiry, the timeframes currently experienced by customers porting their mobile numbers in South Africa seem reasonable.

Figure 2-5:
Mobile time to port (days) [Source: Aetha]

Note: Estonia is 0.01 of a day.



A porting time of 1 (one) day for mobile portability is the most common implemented timeframe for mobile portability across the world. There are some countries that carry out ports in less than a day. In Ireland, despite the fact that the regulations impose a maximum porting time of 1 (one) day, according to the regulators, the majority of ports are carried out within 2 (two) hours.[14] In Canada, the CRTC claims that mobile portability similarly usually takes a few hours.[15] In the USA, mobile portability also only takes a few hours to complete.[16] In Australia, the regulations on mobile number portability state that operators must complete 90% of ports within 3 hours.[17] In general, the global trend is moving towards mobile ports to be executed in real time, with Ghana being an example of an African country that has managed to implement a portability process that completes 91% of ports in 5 minutes or less.[18]

[14]CEPT/ECC Working Group Numbering & Networks - Number Portability Implementation in Europe – March 2014 http://www.cept.org/files/5466/documents/Number%20Portability%20Impementation%20in%20Europe%20-%20based%20on%20a%20survey%20of%20CEPT%20member%20countries%20-%20March%202014.pdf

[15]http://crtc.gc.ca/eng/phone/mobile/num.htm

[16] https://www.fcc.gov/consumers/guides/porting-keeping-your-phone-number-when-you-change-providers

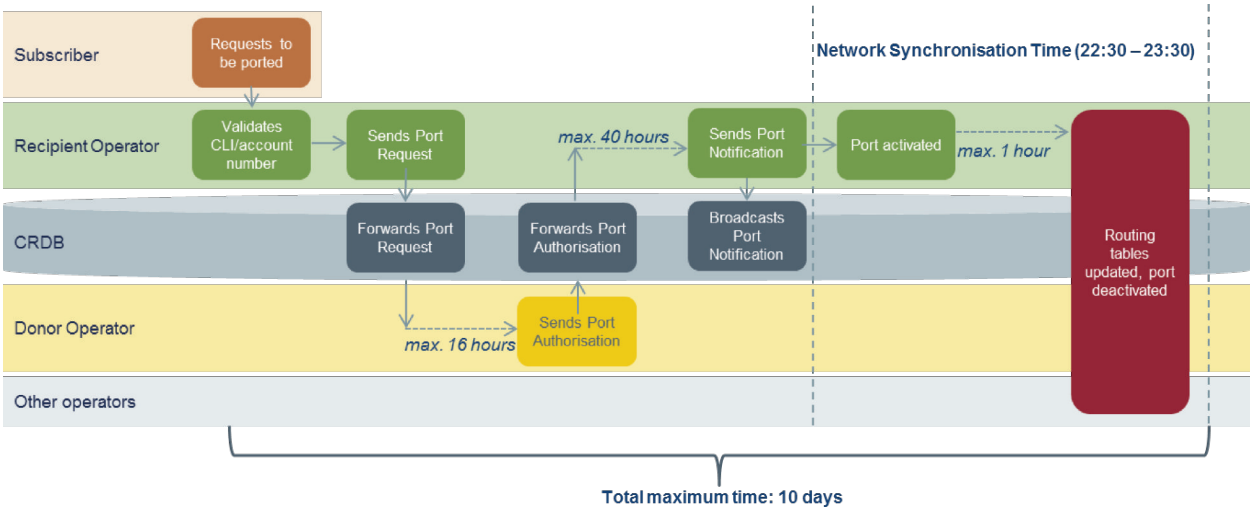
[17] http://www.acma.gov.au/Industry/Telco/Numbering/Portability/mobile-number-portability-information-for-industry

[18] http://www.balancingact-africa.com/news/telecoms-en/31526/ghanas-mobile-number-portability-scheme-outstrips-south-africa-kenya-and-nigeria

2.6 Porting times: geographic numbers

The Geographic Number Portability OSS also defines the Port Timers for each of the stages of the porting process, thus defining the total maximum time for Geographic Number Ports to be carried out.

Figure 2-6: Geographic porting process and times [Source: Geographic Number Portability OSS]



The current portability regulations define a maximum time of 10 working days for ports of individual numbers. This is a very long timeframe compared to international benchmarks. However, it seems that in most cases shorter times are actually experienced. There are currently many implementation issues relating to geographic number porting which are a higher priority.

If the porting times are not changed during this consultation process, they will need to be reviewed and updated in the medium term to bring them in line with international best practice.

Question 7.
Do you agree that the Authority should review mobile and geographic time to port in two years' time?

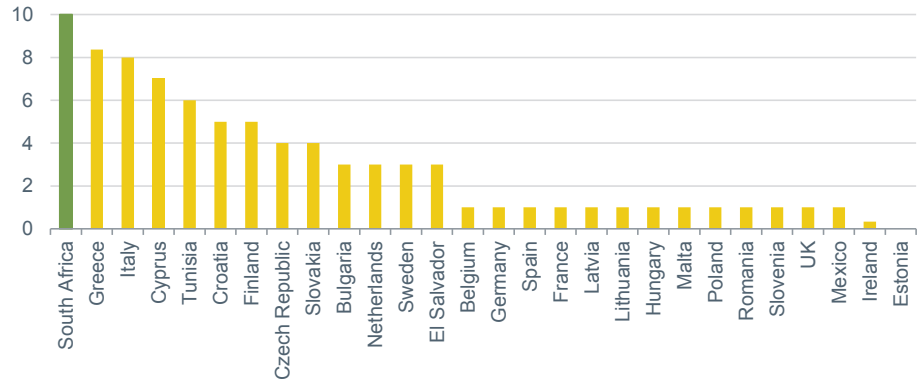
Responses from the public inquiry: During the enquiry, several participants indicated that they believe that current port times being experienced are too slow. One participant claimed that the average port time experienced by their customers is 10 days – the maximum length of time allowed by the regulations. One respondent, who has experienced long geographic number porting times, stated that the delays are often caused by the donor operator, as there seem to be no penalties for ignoring requests or failing to respond. Another respondent agreed that it often experiences long delays as volumes of GNP have increased, and argues that operators should be obliged to fully integrate with the CRDB to provide for instant computer-based approvals or rejections, instead of relying on slow manual processes. However, respondents to the inquiry noted that, despite delays in geographic number portability,

it is not currently a major issue of contention: if operators were to comply with the Porting Timers the situation would be acceptable. However, one respondent argued that the porting time should be reduced to three days.

As shown in Figure 2-7, many countries have implemented porting times as low as 1 (one) day for fixed portability.

Figure 2-7:
Fixed time to port [Source: Aetha]

Note: Estonia is 0.01 of a day, Ireland is 0.33.



The maximum porting time of 10 days for geographic ports as defined in the current regulations is a long time, especially compared to the time to port in other countries. However, there are currently implementation issues that are specific to South Africa, a market with a large number of fixed players.

2.7 Network synchronisation times (NST)

The portability regulations in South Africa dictate when operators should synchronise changes to their networks:

"Activation and deactivation on the network and updating of routing tables shall only take place during Network Synchronisation Time (22h30 – 23h30) on all days except Public Holidays" (Mobile OSS, 2005, §2.1.3)

The Geographic OSS mentions the NST but does not specifically state at what time the NST should occur.

During NST, the recipient operator activates the ported-in subscriber on its network and updates its routing tables, and after the CRDB sends the Port Activation Broadcast Message, the donor operator deactivates the subscriber from its network and updates its routing tables. Additionally, all other operators must also update their routing tables to reflect the port.

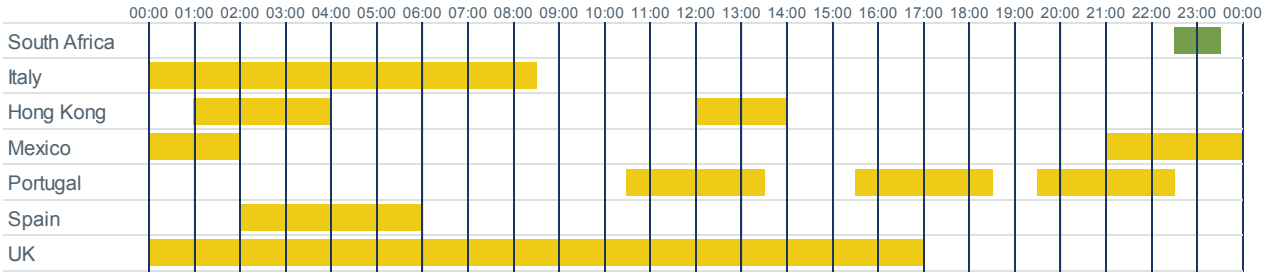
Question 8.

Do you agree that the NST should be extended? If so, how long should it last? At what time of day should the NST be implemented to best reduce both inconvenience to customers and avoid delays to the porting process?

Responses from the public inquiry: During the Authority's inquiry, some participants raised issues with the NST, pointing to the limited time in which a port may be activated as one of the main reasons that delays are experienced in the porting process. One respondent stated that the current NST time of 5pm to 6pm is not ideal as it is not during office hours which results in delays and problematic porting processes for subscribers. It argued for either extending the NST to office hour times or to scrap the NST completely to allow for port activation at all times. Another respondent agreed that ports should not be restricted to the NST, as this would reduce the porting timeframe and cause less frustration for subscribers. Several operators argued that NST should be expanded, or completely removed so that ports could be activated at any time. Others argued that the NST should be moved to a more convenient time for consumers, for example 2am to 3am, as during the NST they can at times be left without service while the routing tables are updated. In direct opposition, one participant argued that the NST should be moved to business hours, in order to reduce the delays caused by missing the NST.

There are many different international practices in terms of implementing a window during which porting and/or updating of routing tables occurs. Figure 2-8 below summarises international examples of these time windows.

Figure 2-8: Porting Windows [Source: Aetha]



It can be seen that the other countries in the benchmark all have longer porting windows than South Africa; the average of the above porting windows is seven (7) hours. In addition, some countries (Italy, Hong Kong, Mexico, Spain and the UK) have at least part of the window out of business hours, during the night and early morning. In contrast, the porting windows in Portugal fall mainly during business hours.

The international experience and comments received during the inquiry suggest that extending the NST would be beneficial to the portability process. Changing the NST would require amending the Functional Specifications and OSS for both mobile and geographic portability.

Currently, Network Synchronisation Time (NST) takes place during 22h30 – 23h30. Stakeholders and international best practice suggests that extending this would benefit the portability process.

Question 9.

2.8 Ported lock time

The portability regulations in South Africa dictate the period of time after a port during which subscribers may not port again:

"Subscribers are not allowed to port again within 2 months of a successful port, measured from the Porting Time." (Mobile OSS, 2005, §2.1.1.1)

The ported lock time is also defined in the Geographic Portability Regulations:

Name	Value	Description
Ported Lock Time	2 months	The time where subsequent port request on a number or number range will be rejected

(Geographic OSS, 2010, §7)

This means that during two months after a successful port, subscribers are not allowed to port to a new operator, or back to their original operator.

Question 10.

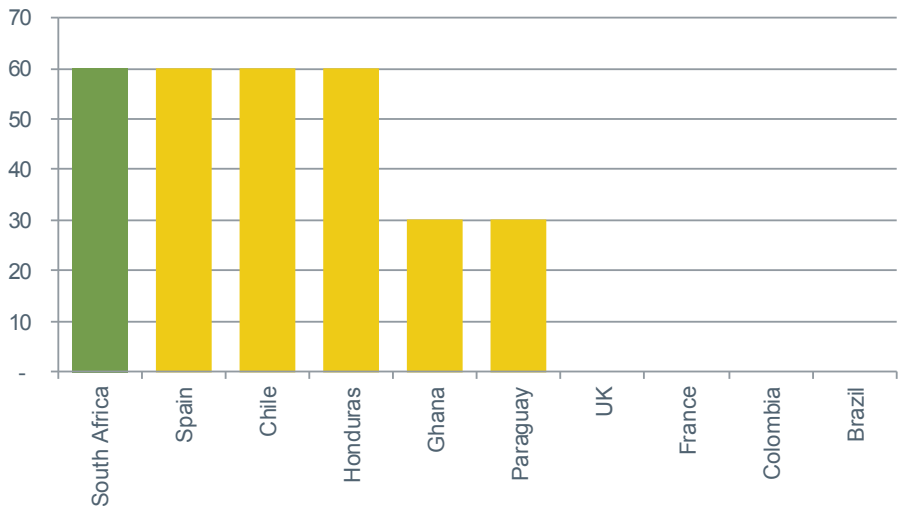
Do you agree that the current *two-month ported* lock time is *satisfactory?*

Responses from the public inquiry: During the inquiry, most of the participants indicated that this two-month period is acceptable and serves to protect operators from serial payment defaulters. Some participants thought it could be reduced, especially in cases where the consumer wants to port back to his original operator. One operator first argued that this period is too long and that customers should be allowed to port back to their original operator after a waiting period of seven days. In a subsequent interview, however, it broadly agrees with the 60-day period. Other respondents have suggested the possibility of reducing the period to a month or 45 days, but remained supportive of the current regulation.

As can be seen in Figure 2-9 below, it is common for countries to implement either a two-month, or one-month ported lock time, or to have no ported lock time. There does not seem to be an international standard.

Figure 2-9: Ported lock times [Source: Aetha]

Note: the UK, France, Colombia and Brazil do not practice port lock.



The current ported lock time of two months appears to be an acceptable time limit for consumers to be prevented from porting again, providing adequate protection to the operators. During the inquiry, the consensus was that the two months' limit works well.

Subscribers are unable to port their numbers for two months after a successful port. Stakeholders indicated that there is general consensus that this two-month ported lock time period is satisfactory.

2.9 Port cancellation and reversal processes

The port cancellation and the port reversal processes are defined in the OSS. The recipient and donor operators must come to an agreement for a port reversal to take place[19]: In particular:

"A Port Reversal can only be requested for the following reasons:

- *The port was done in error.*
- *The port was done maliciously.*
- *The port was done fraudulently.*
- *Other reasons as agreed upon between the recipient operator, donor operator, and customer"*

The current regulations in South Africa, however, are not very specific on malicious or unlawful practices. The Code of Practice does not address those issues specifically.

[19] "In certain cases Ports can be reversed. These would normally be when Ports happened maliciously, unlawfully, or where the wrong MSISDNs have been ported as a result of data entry errors." (Mobile OSS, 2005, §2.1.4.1)

Question 11.

Do you agree that a cooling-off period should be implemented (after studying any potential benefits this would bring to the portability process in South Africa)?

Responses from the public inquiry: Comments from the operators indicate that, in general, this system seems to work, and operators usually agree in instances where the subscriber would like to return to his original operator. The public inquiry, however, highlighted operators' concerns – and opposite views – on the current procedure for port cancellation and reversal in case of a fraudulent port. One respondent argued that subscribers should be given the option to manually trigger port cancellations and reversals without the need to call the recipient's call centre. Another respondent, however, noted an increase in port-ins reversals which could be linked to winback practices and suggests that port reversals should be minimised. Some of the participants also suggested that the introduction of a 'cooling-off period' during which customers could quickly port back to the original operator no questions asked, if they are unhappy with the service received from the new operator.

According to the BEREC report on best practices to facilitate consumer switching, there is a wide range of different practices in Europe with regards to cooling-off periods, with different countries having implemented different processes and timescales, and some countries not having a cooling-off period at all.[20] The process in South Africa appears to be in line with most common standards. In Portugal, for instance, if a subscriber wishes to cancel a port which is already in process, he must contact the recipient operator. If the recipient operator has already submitted the port request to the CRDB, he can cancel the port either before or after receiving the response from the donor operator. If the recipient operator has already sent the port notification and activated the subscriber on its network, the so-called 'point of no return', the port cannot be cancelled and the subscriber must wait for the port to be completed and then initiate a whole new port back to the original operator. It should be noted that in Portugal there is no waiting period for consumers wishing to port again after a recent port.[21]

But abuses can be identified, both on the recipient side (slamming) and the donor side (winback). In countries where winback has been a significant issue, some regulatory authorities have prohibited cancellation altogether. For instance, in Italy cancellation by the end-user is no longer allowed. The regulatory authority AGCOM notes that in 2008, over 28% of port requests were cancelled. Portability regulations were later updated to prohibit port cancellation specifically as a response to winback practices. Similarly, the regulatory authority in India (TRAI) prohibited cancellations in 2012 – except for the reasons to reject stated in the MNP regulations. A 2013 ECC report on

[20] http://berec.europa.eu/doc/berec/bor_10_34_rev1.pdf - page 36

[21] https://www.anacom.pt/render.jsp?categoryId=324335

Abuse, Delay and Compensation Mechanisms in Number portability[22] notes, however, that when porting times are shorter, winback is reduced considerably. Improved times to port, and a reduction of timer violations, may address more efficiently the winback issue in South Africa than a prohibition of port cancellations. A penalty approach may also address both the donor and the recipient abuse types. In Europe, the Universal Service Directive (USD)[23] article 30 clause 4.3 stipulates that: "Member States shall ensure that appropriate sanctions on undertakings are provided for, including an obligation to compensate subscribers in case of a delay in porting or abuse of porting by them or on their behalf." This can be implemented either by law or industry standards.

Stakeholders indicated concerns around the port cancellation and port reversal processes, and some suggested that the implementation of a cooling-off period could be beneficial to the portability process.

2.10 Tariff Transparency

Users find it desirable to be able to predict the price of calls to mobile numbers and porting of mobile numbers should not undermine this capability. Mobile number portability may, however, potentially reduce tariff transparency for mobile users due to the price difference that may exist between on-net and off-net calls. In countries where such differential is high, specific measures for tariff transparency for ported numbers are generally implemented.

At the time of launch of portability, South Africa was typical of those mobile markets where operators compete with very low effective on-net tariffs. Regulation 7 (4) of the Number Portability Regulations states that:

"To ensure adequate tariff transparency for callers, where as a result of number portability the termination rate charged for a call to a ported number is more than 10% higher than the termination rate charged by the operator allocated the number block that contains the ported number, ***the terminating operator shall apply a warning*** *to be agreed with the Authority before connecting the call and shall not charge for the period during which the warning is applied." (our emphasis added).*

However, the obligation on the terminating operator is duplicated by a comparable obligation on the originating operator. Regulation 7 (6) of the Number Portability regulations states that:

"To ensure adequate tariff transparency for callers from networks where on-net discounts are offered the following shall apply: Where as a result of number portability an on-net discount that might be expected does not apply and the retail rate charged

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[22] Electronic Communications Committee (EEC) / CEPT, ECC Report 196, 17 April 2013, http://www.erodocdb.dk/docs/doc98/official/pdf/ECCRep196.pdf

[23] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0136

for a call to the ported number is more than 10% higher than the retail rate with on-net discount for a call to a ported number in the number block that contains the ported number, ***the originating operator shall apply a warning*** *before connecting the call." (our emphasis added).*

In practice, a warning message of three beeps has been introduced.

Question 12.
Would you agree that the rule for applying a warning message could be simplified – for instance to apply to all off-net calls to ported numbers?

Responses from the public inquiry: During the public inquiry, some respondents expressed concerns about the current solution and suggested that the current warning message when a subscriber calls a number that has been ported should be simplified. One mobile operator argued that the current solution has resulted in numerous customer complaints, as some do not understand the three beeps and others see it as an annoyance. In particular, the operator receives complaints from ported business customers who claim to be losing customers as the three beeps give the caller the impression that the number either does not exist or is engaged. Another operator first questioned the relevance of the dual obligations on both the terminating and the originating operator – this could result in six beeps rather than three. In addition, he questioned the 10% tariff difference rule and notes that, for instance, a warning message is likely to be required for calls to numbers ported from MTN to Cell C but not from Telkom Mobile to Cell C due to differences in termination rates between licensees. He argued that termination rates are not transparent to customers and there is no direct link between retail rates and termination rates. Finally, he noted that bundled products are now prevalent, making the 10% rule more difficult to apply. Other operators, however, stated that they were generally satisfied with the current system and potentially fewer beeps or beeps in quicker succession would suffice to address current issues. And one operator did not believe this is an issue and that the current system works well.

These comments raise three main questions:

- A practical question on the type of message – it should not confuse users;
- The relevance of the current method based on retail and termination tariffs; and
- A more fundamental question on the relevance of a tariff transparency message in a market where all-net tariffs are more prevalent.

Most countries have addressed the tariff transparency issue to ensure that mobile users have access to information that enables them to predict the cost of a call to another mobile number. Recital 41 of the Universal Service Directive recognises that the impact of number portability is considerably strengthened when there is transparent tariff information and states that NRAs "should, where feasible, facilitate appropriate tariff transparency as part of the implementation of number portability".

An audible warning of an off-net call at the start of a call has been introduced in some European countries, e.g., Austria, Belgium, Croatia, Ireland, Lithuania, Slovenia and Portugal. However, the majority chose to implement a service indicating the network to which specified numbers belong (either voice-based or SMS-based)[24]. Generally, the importance of the issue associated with tariff transparency to off-net numbers has reduced over time as operators increasingly offer all-net tariffs.

In emerging markets, a warning message has been the preferred solution, notably in major Latin American markets introducing portability in recent years. These markets are still characterised by significant differences between on-net and off-net call rates. In Ghana, however, the MNP regulation leaves to the traffic originator the option between an audible warning or the possibility for the subscriber to query via SMS or website whether a number is on the same network.

In countries imposing a warning message, methods were implemented for customers to block the message. For instance, Italy introduced a 456 code: if a mobile user dials 456 before a mobile number, he will receive information regarding portability. One operator offered a similar service that provides the same information for each call, but that can be deactivated by the user (opt-out option). Similarly, Ireland introduced an opt-in tone solution which is applicable to all off-net calls. In Austria, there is also the possibility that caller users can block this announcement via a dialling code 061 or by using special characters. In Belgium, the NRA imposed the existence of an audio beep. This beep was implemented in calls to ported-out mobile numbers. The beep has given rise to a number of problems, causing calls to be ended as the beep was not understood by the callers. It is now possible to block this function. In Portugal, two of the three mobile operators also offer the ability to deactivate the message[25]. In summary, only some European countries have implemented a warning message – typically applicable to all off-net calls to ported numbers, leaving a possibility to deactivate the feature.

A message of three beeps was introduced at the launch of portability to warn customers when the cost of a call to a ported number is more expensive than if it were on the same network. The number portability regulations distinguish between an obligation on the terminating operator in case when the cost is higher than the termination rate and an obligation on the originating operator in case of on-net discounts. The current rule is complex and the reference to the interconnection rate may not be as relevant (or easy to measure) as in the past. This pleads for a simplified mechanism to replace the current complex 10% rule.

Question 13.
Should the warning be shortened, or replaced by a clearer shorter voice message?

[24] ECC Report 31, Implementation of mobile number portability in CEPT countries, Updated October 2005

[25] https://www.anacom.pt/render.jsp?categoryId=124881

Responses from the public inquiry: Some respondents to the public inquiry have questioned the three beeps, arguing that these often appear confusing to end-users. The problems raised by operators are common with the experience in other countries. Warning messages or beeps can be confusing and counter-productive.

Question 14.
Would portability benefit from a deactivation mechanism? Would you prefer a code that customers can use to receive information, or an opt-out mechanism to deactivate the message?

Responses from the public inquiry: The South African voice market has changed over the past years. Although on-net / off-net pricing differentials continue to exist, many tariffs are 'all-directions' and the warning message may no longer be a necessity. Some countries have introduced methods for customers to choose whether to receive the information (for instance a code that customers dial before a mobile number to receive information regarding portability, or an opt-out to deactivate the warning message)

2.11 Routing information and update of routing tables

The current regulations for number portability already contain most of the measures required to ensure that portability routing is reliable for ECS licence holders, whether subscribers to the NPC or not. There appears to be, however, widespread lack of compliance across the industry which leads to failures that severely disadvantage ported customers.

Question 15.

Do you agree that enforcement and proper implementation of the current regulations should suffice to address most of the issue?

Responses from the public inquiry: Several of the participants considered that there is a serious problem with the call routing for ported numbers and in particular for geographic numbers. After a customer has ported his/her number, it is often unreachable from some South African networks for an extended period of time. This serves as a disincentive to port. The problem arises when routing tables are not updated during the NST window. Many network operators, and especially the smaller network operators, are slow to update their routing tables. Therefore, calls which are placed by their customers are routed to the donor network, rather than the recipient network. The donor network, not having implemented any sort of forwarding, no longer recognises the number and the call fails. The ported customer rarely appreciates that it is the called network operator that is to blame for not updating his routing, and more often tends to blame the new service provider. A further issue arises when a new number range is issued by the Authority to a network operator and a number from that range is ported out. One respondent complained that because there

is no industry mechanism to communicate new number ranges, it is common for an operator to port-in a recently issued number but then to experience the problem when non-CRDB participants have no routing for the number because they do not know about the number and the NDA signed with the NPC prevents this information from being disclosed. The consequence of these failures is that there is a disincentive to port because of a high probability of failed calls to the ported number, and it is not easy to determine which party is at fault (and impossible for the customer of the ported number). The problem is not limited to the smaller operators; calls from any network operator could fail due to one or more of the issues described above.

There are two measures that should ensure that calls to ported numbers are routed correctly.

Firstly, block operators are required to onwards route calls to numbers that have ported out from their network, as required by regulations 5 (2) of the Number Portability Regulations which states as follows:

"A block operator shall ensure that any calls, and where practicable other communications, to ported numbers within number blocks allocated to that operator shall be routed to the network that currently serves the called number and that any value of the original CLI shall be unchanged by the re-routing process"

This means that where an operator originating a call has failed to update his routing tables within the NST window, calls being sent to the donor network will still reach the ported out customer. However, their failure to route correctly may incur additional charges, as permitted by the regulation 6(8) of the Number Portability Regulations that states that:

"An operator that is required by regulation 5 (2) or 5 (3) to incur additional costs in routing calls or other communications to ported numbers may charge the operator from which they receive the calls or other communications for those additional costs."

This clause should act as an incentive for all operators to ensure that routing is correctly aligned with the CRDB. However, if the block operator fails to route calls then this incentive no longer functions correctly.

Secondly, Telkom is required by the regulation 5 (3) of the Number Portability Regulations to offer a service to the other operators to provide them an alternative to subscribing to the NPC and the operational complexities in updating routing tables within the NST window. regulation 5 (3) of the Number Portability Regulations states that:

"Telkom shall offer to all other network operators a service whereby it will route calls directly or indirectly to ported numbers"

Whilst Telkom does offer this service, problems result because it does not always update its network in a timely manner. This has been known to cause call set-up failures where the donor operator routes calls to the recipient operator, only for

Telkom to reroute the call back to the donor network. (This is known as circular routing which is detected by switching equipment, which causes the call setup to fail).

These two measures, if properly implemented, would in themselves be sufficient to address most of the issues of failed calls to ported-out numbers.

There is a requirement on ECS licence holders that originate PSTN calls to ensure that the call is routed correctly. This means that they either must subscribe to the NPC and be capable of updating their routing tables across their entire network within the NST window ("direct routing"), or they must use the services of a third party (i.e., Telkom or the block holder) to route calls for them ("indirect routing"). Indirect routing is expected to come at a cost, typically this will be on a per-call basis, whereas direct routing has the fixed costs associated with subscribing to the NPC and the operational overhead of updating network tables by the NST deadline. The requirement on ECS licence holders is in terms of regulation 5 (1) of the Number Portability Regulations which states that:

"An operator who originates a call or other communication to a ported number or who handles a call or other communication from outside the Republic to a ported number inside the Republic shall be responsible for ensuring that the call will be routed directly or indirectly to the operator that serves the called number".

It is likely that smaller service providers would opt for the per call charges for indirect routing, provided this facility was robustly implemented, and only when their traffic volumes and operational capabilities grow sufficiently that it would make economic sense for them to subscribe to the NPC. It is due to a failure to ensure compliance with the regulations requirement regarding indirect routing that the first option is not functioning correctly.

Furthermore, the regulations are clear about the routing obligations for routing of calls to ported numbers. This applies equally to subscribers of the NPC, Telkom acting as a routing intermediary, or the block holder receiving calls to ported-out numbers. Regulation 6 (3) of the Mobile Functional Specification states that:

"When an operator who is handling a call determines that the called number is ported and determines the identity of the operator currently serving that called ported number, the operator shall add a prefix to the called number that identifies the current recipient operator."

It is worth noting further that the NPC provides porting information to international operators so that they are aware of which South African network is currently providing a service to a subscriber. This is unusual by international standards and, most probably, caused by block operators' failure to onwards route calls to ported-out numbers. As a convention, an international transit operator should not be required to know whether a number has ported; it should be sufficient to know the identity of the block operator as they have details of whether a number has ported out, and the identity of the current recipient network.

Several measures could be implemented to improve the current system:

- There has been confusion between operators about whether a number that has been ported out from a block owner, and later ported back to the block owner, constitutes a ported number. This is significant as it determines whether the B number should have a prefix applied and it has led to calls being rejected by the block operator. The portability regulation could clarify that any number that is currently serviced by its block operator is not defined as a ported number, regardless of whether it has been ported in the past.

- Since proper compliance with routing for number portability is already a requirement on service providers, a central ticketing system could be investigated in which operators report routing failures for investigation by the offending party. A trouble ticketing system would need to be implemented by the Authority or a third party on its behalf. This would provide secure access for ECS licence holders to log tickets and receive notifications that there may be a problem in their networks. This would require a design stage to design the workflow. Operators might have web access with e-mail notifications. The Authority would receive statistics reports.

- The Authority could also consider a series of penalties for ECS licence holders who persistently fail to update their routing in a timely fashion. Penalties for persistent failures to update routing were favoured by the majority of the inquiry respondents.

Stakeholders complained that routing problems frequently cause calls to ported-out numbers to fail, especially in the hours and days following the port. This is because routing tables have not been properly updated by all the operators. Sometimes the failure is temporary, caused by delays to the updating of routing, and at other times it can be a permanent failure.

The Authority may establish a system for operators to report and track routing failures for investigation by the offending party.

2.12 Reasons to Reject

A key element of the regulation in South Africa is that an outstanding amount owed to the donor is not a reason to reject a port. Regulation 4 (11) of the Mobile Functional Specification states that:

"A donor side shall not reject a request to port a mobile number under a post pay account on the grounds that the subscriber still owes money, nor may they delay the porting until the debt is collected, unless the subscriber is already subject to suspension of outgoing or incoming calls because of failure to pay a bill."

Regulation 4 (11) of the Geographic Functional Specification states that:

"The donor operator shall not reject a request to port a number or number block on the grounds that the subscriber still owes money, nor may they delay in porting until

the debt is collected, unless the subscriber is already subject to suspension of outgoing or incoming calls because of failure to pay a bill."

Although not a reason to reject, the port does not waive liabilities customers have to the donor operator. Sub-regulation 2.2.1.6 of the Ordering System Specification states that:

"A porting does not cancel an existing contract and the Subscriber may be liable for an outstanding contract amounts owed to the Donor."

Question 16.

Do you agree that outstanding payments should not be included as a reason for rejection?

Responses from the public inquiry: Two respondents have raised an issue with regulation 11 of the Functional Specification. One operator argued that "the regulation currently prohibits the donor operator from refusing a port where a consumer has money owing. However, the right of the customer to port should not supersede the donor's right to claim early termination charges or any amount due as provided for in the contract between the customer and the donor operator". Consequently, "[he] proposes that post-paid customers should only be allowed to port once they have settled all outstanding fees, including contractually agreed early termination fees". However, no further evidence was brought forward that levels of bad debt may increase significantly when numbers are ported. Similarly, another respondent proposed to repel regulation 11 and amend accordingly regulation 9 as some customers may not be technically suspended but may be substantially in arrears or have significant ongoing contract commitments, including amortisation or financing of hardware provided.

In its effort to disseminate best practice, BEREC notes that the single biggest obstacle to switching is contractual obligations. As a result, it includes in its first best practice[26]:

"Conditions and procedures to terminate contracts should not act as a disincentive to switching."

This is in line with the EU Universal Service Directive 2002/22/EC, amended in 2009[27], which, in its Article 30 addresses the issue in two key paragraphs:

"*5. Member States shall ensure that contracts concluded between consumers and undertakings providing electronic communications services do not mandate an initial commitment period that exceeds 24 months. Member States shall also*

[26] http://berec.europa.eu/doc/berec/bor_10_34_rev1.pdf

[27] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0136

ensure that undertakings offer users the possibility to subscribe to a contract with a maximum duration of 12 months."

"6. Without prejudice to any minimum contractual period, Member States shall ensure that conditions and procedures for contract termination do not act as a disincentive against changing service provider."

Although some countries, when introducing portability, did allow contractual obligations as a reason to reject, including money owed under an existing contract, EU has moved away from it and it is now common practice to exclude this as a reason to reject.

Some stakeholders suggest that outstanding payments should be allowed as a cause for the donor operator to reject the port. However, international best practice suggests that this should not be allowed, as it would adversely affect the portability process, in particular the key mobile post-paid segment. If bad debt issues arise, the industry should address it through other means, such as a shared black list and improved collection mechanisms.

2.13 Reviewing the Portability Process

Unlike many countries that have introduced portability, South Africa has had a very stable framework, with none of the key regulations being updated over a ten-year period. There is a need for a more proactive schedule of reviews, led by the Authority.

Mobile number portability has been in place for more than ten years and geographic number portability for close to seven years. During this time, the South African market has changed considerably:

- The competitive landscape has seen the number of service providers eligible to apply for numbering resources increase from five to almost five hundred following the judgment on self-provision in the High Court in 2008.
- Infrastructure-based competition has developed whilst the incumbent operators have upgraded their own infrastructure to more modern technologies.
- The market is migrating revenue from traditional voice services to data services for which the ownership of the number is less relevant.
- The mobile voice market is progressing towards more 'all-net' offers and bundled services, removing one key barrier to portability.

As the market changes, portability faces different issues that were not fully anticipated in the original regulations:

- The common problem of updating routing tables has been highlighted by most respondents to the Authority's public inquiry.

- The introduction of new services – such as banking services – is associated with potential new security issues for portability.

- Certain technical limitations – such as the definition of geographic areas – may have been lifted with the introduction of next generation networks.

- The process put in place does not properly address practical issues faced by the operators that are causing significant delays in port authorisation.

Question 17.

Should the Authority plan future reviews of portability regulations, including a first review two years after the current portability review?

Responses from the public inquiry: The consensus among the participants to the enquiry was that the performance of the current portability framework is adequate, and that although various issues need addressing, the necessary changes that are needed are incremental. There was also agreement that the NPC is performing correctly. However, operators who provided input into the current review process were generally in agreement that more frequent reviews should be conducted. There was a clear consensus that the process requires clarification and that specific issues need to be addressed quickly.

The situation in South Africa is in stark contrast to other markets. Most European markets have updated the portability regulations, partly driven by EU Directives, notably the EU Universal Service Directive 2002/22/EC, amended in 2009[28], or the dissemination of industry best practice by the Body of European Regulators for Electronic Communications (BEREC)[29]. This has led to a reduction in the time to port (with a maximum of one day as set in the EU Directive) and an adjustment to reasons to reject (typically supressing any outstanding amount owed to the donor as a valid reason to reject).

In France, for instance, geographic number portability, launched in 2003, was reviewed in 2005 with a first public consultation. This lead to the creation of an inter-operator body in 2009 and an updated law published the same year. This was followed by a new consultation on the cost to port in 2011, a consultation to simplify the porting process and to reduce porting times in 2013, and a consultation to increase security of porting in 2015. Similarly, for mobile portability, the regulator initiated several review processes in 2004, 2006 (resulting in a decrease of port time), 2008 (on the

[28] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0136

[29] http://berec.europa.eu/doc/berec/bor_10_34_rev1.pdf

issue of cost per port), 2012 (with an updated, simplified process) and 2014 (to address slamming issues).

Technical specifications can typically witness more frequent changes. In the UK, for instance, the equivalent to the OSS for non-geographic number portability published by an industry body under OTA (Office of the Telecommunications Adjudicator)[30] are changed periodically, with nine major changes over the last fifteen years.

The experience from Europe suggests that:

- A frequent review of the portability framework should be led by the regulator in the early years of implementation.
- Major reviews of the process typically require several years of consultation and process re-definition; however, specific changes (such as time to port, fraud issues or cost per port) can be addressed through shorter consultation processes.
- Changes should be organised through industry-led technical committees, typically monitored by the regulator.
- Flexible mechanisms to introduce changes are more effective at the operational level.

The stakeholders have welcomed the public inquiry process, however, there may be a need for a more proactive agenda set up by the Authority to monitor the evolution of portability and adjust portability processes to the evolution of the South African market. In particular, a review process of the processes governing number portability should be undertaken more frequently than once a decade – perhaps once every 2 to 3 years. The review process should be led by the Authority as the non-partisan regulatory institution in the market, in order to be seen as a neutral process and not advantaging any of the operators specifically.

2.14 Updating Portability Regulations

Currently, the process of reviewing the Functional Specifications, the OSS and the Code of Practice on a regular basis is not well defined. The current process of reviewing the number portability environment in South Africa with the aim of improving it, undertaken by the Authority is the first exercise of this nature in over ten years since the implementation of mobility number portability. There is a need for more frequent reviews due to the changing nature of technology and the market.

[30] http://www.offta.org.uk/files/NGNPE2E-Ops-Process.pdf

Question 18.

Should an "inter-operator technical committee", consisting of operator representatives, be formed to review the Functional Specification, the OSS and the Code of Practice on a regular basis? Would a tiered membership of core (active with NPC) and non-core members make it more efficient? Do you agree that this should be a consultative committee, chaired by the Authority, recommending amendments on a simple majority base?

Responses from the public inquiry: Most of the participants agreed that the Authority needs to more closely monitor data and enforce compliance with the portability rules. Several respondents highlighted the issues of timer violations and routing table updates. Some respondents highlighted the need to clarify the Inter-Operator Code of Practice[31], notably ensuring that customers are more aware of the services they may lose when porting. There was also a general agreement that the main recourse is litigation instead of a quicker dispute resolution procedure. One respondent suggested that the lack of monitoring and enforcement is an important issue that means that consumers are not adequately protected.

However, there were various opinions as to how this could or should be undertaken. Views were divided as to whether the Authority should lead any review process or whether an inter-operator technical committee could fulfil this role more effectively. If a technical committee were to be established, it should be relatively small, in order to be functional and able to secure consensus on issues among its members. One operator argued that a technical committee of this nature would place too much power in the hands of the large operators, which may not be positive for the market as a whole and for the consumers. There was also a concern that if changes are introduced to the OSS, it may have a significant impact on the system.

Operators are already co-operating within the framework of the NPC to resolve inter-operator problems. An example of this is a resolution to classify all porting customers with hybrid mobile plans as post-paid rather than prepaid customers. This standardisation assisted in reducing the number of rejected port requests due to mismatches in classifying hybrid customers (where one operator would classify it as post-paid while the other as prepaid). This type of co-operation needs to be further encouraged under the auspices of the Authority, to efficiently resolve issues that can be addressed between the operators without the need to change any of the specifications or regulations. However, the Authority can interact more closely with the operators (members of the NPC) on an ongoing basis to be more aware of any issues that may require its attention and addressing in terms of the specifications.

[31] "Network operators who are required to offer number portability and their service providers shall develop, maintain and enforce amongst themselves a code of practice relating to marketing and sales practices and communications with subscribers who request number portability." (Portability Regulation, 2005, §7 (9))

Based on the international experience, there may be a need to create a "technical committee", consisting of representative of all licensees involved in the NPC, whose task would be to meet on a regular basis to address issues from the Functional Specifications, the OSS and the Code of Practice. The committee would formally review the above and provide recommendations on what changes may need to be introduced to ensure an efficient number portability environment. A formal technical committee established in the portability regulations would meet three objectives:

- To introduce new concepts – on a consultative basis – for the implementation of portability.
- To promote cooperation between stakeholders.
- To monitor compliance.

The challenge with an all-encompassing technical committee (where all members of the NPC are represented) could be that it would result in a large body that would be inefficient and unable to effectively review the various documents governing the number portability process and make recommendations. Furthermore, without some form of enforcement, active participation in such a committee by the operators could also be limited due to either resource constraints or lack of real interest, or both.

A number of countries have established technical committees at the outset of the number portability process to be involved with the design of technical specifications and operational specifications for implementing portability, as well as with subsequent selection of an entity to manage the central database. The technical committees are composed of telecommunications operators and service providers. Examples of such countries include South and Central America (e.g., Costa Rica, the Dominican Republic, Mexico), as well as Europe (e.g., the United Kingdom).

For instance, in Colombia, the regulator CRC implemented a permanent technical committee[32].

- The committee is proposing solutions related to the implementation of portability and ensures better coordination between operators.
- The committee is consultative – decisions are ultimately taken by CRC
- It is chaired by the CRC.
- Each operator nominates a representative – CRC ensures that the quorum is met and takes action if representatives are not present in the meetings.
- It includes a representative of the Ministry, as well as a representative of the CRDB.

[32] CRC, Portability regulations, 2010

- Decisions are taken with simple majority

In Mexico, the updated portability regulations of 2014 dedicate the entire second chapter to the role of the committee. The committee is chaired by the regulatory authority (Rule No. 7)[33]. The technical committee has a technical role to improve portability specifications and advise the authority on possible changes. The committee is a consultative body which provides recommendations in matters related to portability and is open to operators and other stakeholders. Decisions require a two-third majority. The authority ultimately is responsible for approving changes to the specifications.

In more mature European markets, the regulatory authority has in some cases delegated more operational functions to the industry, for instance providing a facilitation platform such as in the Office of the Telecommunications Adjudicator in the UK. The Office of the Telecoms Adjudicator[34] was set up to coordinate and facilitate technical discussions between operators for local loop unbundling. This entity has been later used as the appropriate forum for matters related to portability.

Based on the international experience – and in line with the feedback from the operators, the committee would require:

- To be chaired by the Authority – this will avoid larger and better organised operators to lead changes and ensure that an independent arbitrator takes into account smaller players.

- To be a consultative body – decisions, ultimately, must be taken by the Authority in line with current regulation.

- To include a reasonable quorum – with the Authority monitoring attendance and taking actions when members do not attend meetings.

- To introduce a working majority rule – this could be a simple majority or a two-thirds majority rule.

To reflect the particular situation in South Africa, with many licensed operators but only a small percentage of them participating actively in the NPC, a solution – comparable to what has been implemented in Belgium – is to introduce a concept of core and non-core members. Core members would be participants to the NPC whilst the committee would not exclude other stakeholders. The quorum would be required only for core members. Potential penalties for non-attendance would also apply only to the core members.

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[33] IFT, Reglas de portabilidad numérica, Diario Oficial, 12 noviembre de 2014

[34] http://www.offta.org.uk/

The portability regulation sets out the obligation of the industry to define Functional Specification and the Ordering System Specification (OSS). The operators have also developed a Code of Practice governing their activities within the number portability environment. Currently, the process of reviewing the Functional Specification, the OSS and the Code of Practice on a regular basis is not well defined. Many countries have opted for a regulator-led technical consultative committee supporting the regulator to address operational issues.

2.15 Enforcing portability regulations

As stated in the Portability Regulations, the Authority must enforce the Functional Specification. To date, the Authority has not enforced the rules by imposing penalties on operators that do not adhere to the Functional Specification or the OSS as there no penalties imposed by the Number Portability Regulations.

Question 19.

Do you agree that a penalty regime should be introduced, with a clearly defined process and maximum fine amounts?

Responses from the public inquiry: During the inquiry, various participants recommended that the imposition of penalties on operators that do not follow the rules may serve to discourage infractions such as timer violations, and several operators advocated for penalties to be introduced in cases where operators have not followed the regulations. One respondent recommended that recipient operators should be penalised by paying more for ports that are proven to be fraudulent. Another operator recommended that a strict enforcement policy be followed by the Authority, first by liaising with the licensee to improve compliance and then taking enforcement action, in a transparent and equitable manner. One operator believes that a more active intervention from the Authority would suffice in most cases – for instance notifying operators would already put sufficient pressure to address issues. Telkom recommends that penalties be introduced for winback practices.

In the UK, Number Portability is imposed on service providers through General Condition 18. [35] The regulator, Ofcom, has powers to enforce compliance with General Conditions, and specifically has the power to impose a financial penalty on a provider that has been in breach of one or more conditions, and has not come into compliance with those conditions and/or has not remedied the consequences of that contravention within a reasonable time after being notified of the breach by Ofcom. The amount of any such financial penalty is limited to be not more than 10% of the turnover of the provider's relevant business for the relevant period. The amount must also be "appropriate" and "proportionate to the contravention".[36]

In Italy, the portability regulations introduced inter-operator penalties with the aim to increase efficiency in the portability process and to reduce bad behaviour from operators attempting to impede ports. Donor operators that violate the maximum time to respond to messages in the portability process must pay a penalty to the recipient operator. For example, if the donor operator takes more than the stipulated maximum

[35] Ofcom Consolidated Version of General Conditions, §18, September 2014 - https://www.ofcom.org.uk/__data/assets/pdf_file/0021/36192/general_conditions_22sept2014.pdf

[36] UK Communications Act 2003, §96, http://www.legislation.gov.uk/ukpga/2003/21/contents

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time to respond to the initial port request, it must pay the recipient operator EUR10, plus a further EUR10 for each 24 hours of delay.[37] Operators must also compensate subscribers for delays, paying EUR2.5 for every day of delay caused by the operator.

In Ghana, the regulator has the power to impose fines of up to 2,000 penalty units on any operator that contravenes the portability regulations. In addition, the regulator may impose an administrative penalty of up to GHS20,000 for non-compliance with the regulations.[38]

Currently, the Authority has the power to enforce the portability Functional Specifications, however, there is no formal mechanism for the imposition of penalties on operators that violate the rules. There is a need for a better defined process for the imposition of penalties for timer violations and delays caused to the portability process. Such a process could involve notification from the Authority, followed by a fine which is proportionate to the infraction and the size of the operator if the operator has not remedied the situation within a certain timeframe. Another option is to impose a structure of fines similar to that in Italy, where operators must automatically pay fines whenever they are in breach of the time limits in the portability regulations.

2.16 Procedures to escalate and resolve issues

The inquiry process identified a number of issues that require timely resolution.

- The procedure for handling customer complaints is set out in the Inter-Operator Code of Practice. Subscribers, however, consumners are often left with little recourse to find a solution to their problems.
- Unnecessary delays in escalating and resolving inter-operator disputes negatively impact business and consumer users – for instance the port authorisation process. The authorisation must be sent by the donor operator within a certain period of time, dictated by the regulations. In practice, timer violations are recognised by all stakeholders as an important issue. This is supported by the data provided by the NPC.

Question 20.

Do you think that consumers are adequately protected by the Number Portability regulations? If not, please elaborate and provide alternatives?

Responses from the public inquiry: Although the dispute resolution process works relatively efficiently, it often still takes a long time to resolve certain disputes between

[37] Agcom - Barcelona 09 - 10 June 2011 - Workshop on the Regulation of Number Portability beyond EU Borders – page 38

[38] Ghana Mobile Number Portability Regulations, 2011, §25 – page 11

the operators. One operator claimed that it can take up to one year to resolve cases of unauthorised port requests. During the inquiry, some respondents claimed that part of the reason many ports are rejected, and delays are caused, is due to the lack of data integrity of some of the operators. For example, sometimes the customer's name is spelt wrong or differently and this causes the port to be rejected. One operator noted that the requirements for post-paid ports are more onerous than for prepaid, e.g., MSISDN / SIM number and customer ID number (or also company registration number, in case of a company number being ported) need to match. Therefore, there is a greater chance of a mismatch of data. Another respondent suggested that a common problem arises where employees try to port their numbers when they are leaving their company and try to port the number as a personal number, but it is still registered on a corporate account. These issues result in unsatisfied customers seeing ports delayed or rejected.

One respondent suggested that a dispute resolution mechanism similar to that set out in the Interconnection Regulations and the Facilities Leasing Regulations forms part of amended Number Portability Regulations. However, these regulations pertain to complaints / disputes between operators and not to customer (or consumer) complaints. They also stipulate relatively long dispute resolution timeframes (28 days) which is too long for dispute resolutions in the consumer market.

During the inquiry, some of the participants also raised concerns about the current customer complaints procedures, indicating that in some instances, customers can find themselves stuck in between the donor and the recipient operator as it is unclear whom they should contact to resolve their issues, and can often get referred to the wrong departments. Subscribers are often left with little recourse to find a solution to their problems. It was suggested that a process for subscribers to escalate their complaints to the Authority be implemented.

One operator suggested that the Code of Practice should be integrated into portability regulation. Some stakeholders consider that the current dispute resolution procedure for interconnection could be emulated although others believe that this does not address the tighter timelines required by customers' complaints.

There is certainly a clarification process required: the Mobile and Geographic OSS should be updated by the industry, which should agree on which fields are best served to identify the subscriber who wishes to port and are sufficiently rigorous to not cause unnecessary rejections. However, the public inquiry process pointed to more fundamental weaknesses in the handling of customers' complaints and the inter-operator escalation process.

2.16.1 Customers Complaints

The procedure for handling customer complaints is set out in the Inter-Operator Code of Practice and the Authority does have a customer complaints procedure in place that includes Mobile Number Portability in its scope, whereby if a customer has complained to an operator and has not received an answer within 14 days, the customer are able

to forward the complaint to the Authority which may escalate the complaint to an Alternative Dispute Resolution Committee or the Complaints and Compliance Committee, according to the severity of the complaint.[39] Comparable procedures have been established elsewhere:

- In Chile, the regulator SUBTEL made a 'Portal de Reclamos' or 'Complaints Portal' available for all consumers to make complaints about the portability process via the regulator.[40] All operators must acknowledge and respond to any complaints within five days. The subscribers then have 30 days to respond if they find that the solution is inadequate, at which point the operator must justify their original response to the regulator, which can then impose the solution it sees fit.[41]

- In the UK, if a subscriber has complained unsuccessfully to the operator, they are enabled to take their complaint to an Alternative Dispute Resolution Scheme that will act as an independent mediator in the dispute. If this still does not result in an acceptable solution for the subscriber, they can complain directly to the regulator, Ofcom, although the regulator will not investigate individual complaints but may initiate an investigation and action if many complaints are received.

- In Brazil, if consumers complain to their operators who then do not offer an acceptable response, consumers are able to contact the regulator ANATEL who will then monitor that the operator responds within 5 days and offers an acceptable solution. ANATEL will not investigate individual complaints but may use the information provided in complaints to prevent the problem from happening again by modifying regulations.[42]

It seems, however, that consumers and/or operators are not aware of this fact and it has not been adequately publicised. The Authority could impose a rule stating that all operators must include information about how consumers may escalate their issue to the Authority in their codes of practice for handling complaints. This could be included in the Inter-Operator Code of Practice. The scope of the complaints procedure could be expanded to include Geographic Number Portability and routing issues.

2.16.2 Inter-operator Dispute Resolution

The current regulations, Functional Specifications, the Code of Conduct, and the Ordering System Specification (OSS) speak to disputes arising between the donor and the recipient operators, and the processes to resolve such disputes. All of the

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[39] https://www.icasa.org.za/ConsumerProtection/ConsumerComplaintsProcedure/tabid/530/Default.aspx

[40] http://www.portabilidadnumerica.cl/que-es-la-portabilidad-numerica/preguntas-frecuentes/

[41] http://www.subtel.gob.cl/images/stories/interoperabilidad/reglamento_sobre_tramitacion_y_resolucion_de_reclamos_12d_0194.pdf

[42] http://www.anatel.gov.br/consumidor/index.php?option=com_content&view=article&id=39&Itemid=431

respondents in the Authority inquiry have indicated that they do have a Code of Practice in place, including an escalation process, used as a basis for inter-operator dispute resolution, as well as resolution of customer complaints. Moreover, a dispute resolution process also exists with the NPC, where escalation takes place as part of a 3-step process.

In the UK, Ofcom (the market regulatory authority) has developed the Customer Codes of Practice for handling complaints and resolving disputes. Section 52 of the Communications Act 2003 places a duty on Ofcom to set general conditions to ensure that communications providers establish and maintain procedures to handle complaints and resolve disputes between them and their domestic and small business customers.[43] The communications providers must have and comply with procedures that conform to the Ofcom Approved Code of Practice for Complaints Handling.

In Italy, AGCOM (the market regulatory authority) issued a series of regulations to protect consumers in terms of choice of service provider, contract termination, etc., including initiatives undertaken to regulate litigation between consumers and operators, and protecting consumers by means of supervisory activities and sanctions on the service providers. These are encapsulated in:

- Regulations on resolution of disputes between users and operators; and
- Regulations concerning disciplinary procedures.

AGCOM also published Rules for Settlement of Disputes between Electronic Communications Providers in terms of access to infrastructure and interconnection, with the latest update dating to April 2015.[44]

Based on the international experience, several options could be investigated to improve the inter-operator conflict resolution and the Code of Practice:

- Implement more frequent and mandatory meetings of the different operator PSTs and more frequent liaison between the PST counterparts. Meetings should take place on a monthly basis to resolve outstanding disputes and work towards preventative solutions to disputes, while ongoing liaison between PSTs should aim to resolve disputes within as short a time as possible.
- PST contact details in the CRDB need to be updated whenever changes take place and contact details must always be current. This should be a requirement and

[43] https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/codes-of-practice

[44] https://www.agcom.it/documentazione/documento?p_p_auth=fLw7zRht&p_p_id=101_INSTANCE_kidx9GUnIodu&p_p_lifecycle=0&p_p_col_id=column-1&p_p_col_count=1&_101_INSTANCE_kidx9GUnIodu_struts_action=%2Fasset_publisher%2Fview_content&_101_INSTANCE_kidx9GUnIodu_assetEntryId=2550487&_101_INSTANCE_kidx9GUnIodu_type=document

enforced by the Authority. The NPC can assist by keeping and disseminating updated contact lists to all of its members.

- The Authority may wish to discuss with the operators modifying their Code of Practice to direct queries related to erroneous number routing to operator Interconnect Support Teams rather than to the Port Support Teams. Contacting the IST may result in quicker resolution of a routing error (lack of routing table update) than contacting the PST.

- The Authority may consider developing dispute resolution regulations based on the current Code of Practice, specifying an inter-operator dispute resolution process, including which cases need to be fast-tracked. The dispute resolution process existing at the NPC could be integrated into the regulations.

Question 21.

Should the customer complaints procedure be better publicised to consumers, for example in the operators' codes of practice for handling customers' complaints?

Responses from the public inquiry: Some stakeholders raised concerns about the handling of customers' complaints, claiming that sometimes customers can find themselves in between the donor and the recipient operators without knowing whom to contact or what their recourse is. The Authority does have a complaints procedure for consumers in place.

Question 22.

Should the current Code of Practice be updated or modified to improve the efficiency of dispute resolution between the operators? For instance: 1) should more frequent and mandatory meetings take place between operator PSTs to resolve issues and work towards preventative solutions to disputes? 2) Should a better system of updating valid PST contact details in the CRDB be implemented? 3) Should different teams within the operator structures be involved directly to expedite resolution of queries, e.g., the Interconnect Support Team ought to be contacted, rather than the Port Support Team in cases of number routing errors? 4) Should the Authority develop dispute resolution regulations?

Responses from the public inquiry: Operators participating in number portability have developed a Code of Practice governing resolution of inter-operator disputes related to number portability. The current regulations, Functional Specification, the Code of Conduct, and the Ordering System Specification (OSS) speak to disputes arising between the donor and the recipient operators, and the processes to resolve such

disputes. Although the dispute resolution process works relatively efficiently, it often still takes a long time to resolve certain disputes between the operators.

Question 23.
Should more frequent meetings of PSTs be implemented and attendance enforced by ICASA?

Responses from the public inquiry: One option to improve conflict resolution is to mandate more frequent inter-operator PST meetings

2.17 Portability Performance Metrics

Beyond cumulative ports, it is worth noting that the publicly available information remains scarce in South Africa. The Functional Specification, however, requires port data to be shared with the Authority on an annual basis. Regulation 5 (3) of the Functional Specification Regulations states that:

"Every mobile network operator or its nominated agent shall report to the Authority at six month intervals for the first two years of operation and thereafter annually the following statistics: (a) The number of requests received as recipient for the porting of individual numbers, with the figures shown separately for prepay and post-pay(recipient operator reports); (b)The number of requests made by the recipient side that have been rejected by the donor side for the porting of individual numbers, with the figures shown separately for prepay and post-pay (recipient operator reports, separate figures for each donor operator); (c) Reasons for the donor side to reject requests for porting (donor operator reports); (d) The number of porting where responses were not received or actions were not effected within the time limits specified in this functional specification; (e) Recipient operator reports separate figures for each donor operator; (f) The number of ported numbers that have been returned to the block operator under sub regulation 6 (5); and (9) Recipient operator reports separate figures for each block operator"

The same rule applies to geographic number portability (Geographic Number Functional Specification, 2005, s5 (3)).

In practice, the Authority only receives regular reports from the NPC directly. These allow monitoring of net ports by operator, for prepaid and post-paid, as well as some information on reasons for port rejects and timer violations. However, these do not distinguish prepaid and post-paid.

In most countries where an independent third-party is contracted to provide a central database service for portability, regulators specify the information that must be prepared and submitted to the regulatory authority on a regular basis. For instance,

the portability regulation in Brazil specifies under §41 that the CRDB must provide regular reports, including[45]:

- Port requests;
- Ports completed;
- Ports rejected, by reason;
- Ports completed later than the prescribed timeline;
- Ports cancelled, by reason;
- Reports on issues, including diagnostic and action to solve them;
- Report on the update of the database;
- Reports on real-time availability of data;
- Other.

Some countries have specified the requirement for a direct link between the CRDB and the regulatory authority. In Honduras, for instance, the regulatory authority Conatel has set up a monitoring entity (Centro de Visualización y Monitoreo – CVM), with a direct link to the CRDB to monitor quality of service targets, the time to port, the solutions to issues between operators and the monitoring of faults. The CVM is operated by Conatel[46].

A survey of RFPs for CRDB in other countries[47] leads to comparable requirements. The current Technical Specification is thus reasonably complete – the issue appears to be more one of effective implementation which could include a requirement for monthly data rather than annual.

As the true source of portability data, the CRDB appears indeed to be a more appropriate source than the operators for the Authority to collect timely data it needs to monitor the progress of portability. However, currently there is no specific obligation on the NPC to provide any regular reports. This appears to be an anomaly compared to best practice elsewhere: South Africa differs from many countries by requiring operators to provide portability data rather than requiring the CRDB to provide such data directly. Requiring the CRDB to provide the required data directly in the Technical Specification could quickly resolve the implementation issue – most respondents in the public inquiry supported this view.

This would require an update of the Functional Specification in two aspects:

- A requirement for more regular reports (at least from annually to monthly); and
- A requirement to have a single source for numbers directly from the NPC.

[4545] http://www.anatel.gov.br/legislacao/resolucoes/22-2007/8-resolucao-460

[46] Conatel, Resolución NR012/13, Reglamento portabilidad numérica para el servicio de telefonía móvil, § 19

[47] Four countries were surveyed – data is confidential

In addition, the scope of the report should be expanded from the current Functional Specification to include a diagnostic of issues and a report on how these have been addressed.

The dissemination of information to the public varies greatly from country to country. It is worth noting that regulators tend to disseminate more information during the early years of portability:

- The regulator in Mexico (Cofetel) reports ports in and ports out by operator on a monthly basis.
- The Peruvian regulator Osiptel only started in November 2016 to report ports separately for post-paid and prepaid.
- The regulator in Chile (Subtel) reports ports in and ports out by operator and by subscriber type.
- The regulator in Argentina (Enacom) reports total ports monthly, as well as detailed analysis of reasons to reject.

Although the stakeholders generally recognise that the portability process in South Africa works well, there were a few comments on performance to date, in particular compared to other countries. It is worth noting that currently only shareholders to the NPC are able to access statistics data that may not be available to other NPC members.

It may be, therefore, worthwhile to disseminate additional information to the industry to ensure quicker alignment on the reasons that are currently holding off the progress of portability, notably for mobile. This should include, on a monthly basis:

- Mobile prepaid, mobile post-paid, fixed corporate and fixed residential ports in and ports out by operator.
- Rejected ports by reason, for the same split as above.
- Number of ports back.
- Average times to port.

Regulators are typically the source of such information. The information could be presented as part of a portability page on the Authority's web site.

The Functional Specifications list a comprehensive set of porting statistics to be provided annually to the Authority by the operators. In practice, this mandate was delegated to the NPC. The NPC is generally recognised as the best source for accurate data and most respondents to the public inquiry support a single source for portability data for regulatory purposes.

Question 24.
Do you agree that the NPC is the most practical single source of data for portability?

Responses from the public inquiry: The preparation of monthly reports has been delegated by the operators to the NPC. There is not, however, a clear mandate in the regulations for the Authority to require information from the NPC. This limits the Authority's ability to monitor portability and address potential issues in its implementation.

Question 25.

Should the Functional Specifications be modified to enable the Authority to request directly to the NPC monthly port statistics and reports based on the current Specifications and adjusted to include reports on issue resolution, statistics for average time to port as well as additional detail by segment?

Responses from the public inquiry: Currently, only the cumulative numbers of ports are made public by the NPC. Other countries, in the early years of portability, have opted for additional transparency to create more awareness on portability and to provide a measure of its success.

2.18 Auditing the NPC

The creation of a CRDB is included in the ECA, Chapter 11, section 68 (1) (b). The Authority, as stated in its public notice 1781 of 2001, has the responsibility for implementing and administering the national portability database (section 2.1). However, it can delegate to a third party (section 2.2(a)).

The cost per port in South Africa differs from other markets on one important aspect. Typically, regulatory authorities have awarded a contract to a third-party which defines the cost per port charged to the recipient network. The cost being set, the CRDB takes the financial risk to recover its own costs. The situation is very different in South Africa: the NPC adjusts every year the cost per port based on the number of ports over the year, i.e., an increase in port volumes is transferred to lower prices per port. In 2016, the cost of a port was around ZAR30 against a reference price of ZAR50 due to the unusually high number of mobile ports. It should be noted, however, that there is no regulatory audit of the cost per port.

Question 26.

Do you agree that the current price levels are satisfactory and that the current pricing arrangement works well for portability?

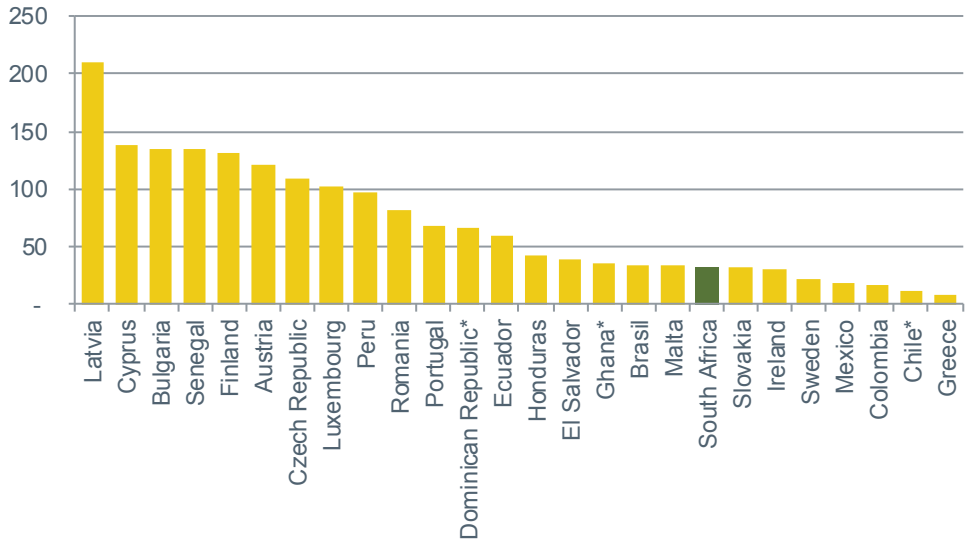
Responses from the public inquiry: In their responses to the public inquiry, stakeholders support the current agreement and no substantial issue on the current level of cost per port was raised. However, some respondents pointed to some potentially high fixed costs for the operators, such as the monthly subscription fees to

the NPC. At least one of the respondents also indicated that the variable cost to port (on an annual basis) makes budgeting difficult.

Figure 2-10 below shows that South Africa (based on an assumption of ZAR31 per port), compares well with the international benchmark.

Figure 2-10: Mobile cost per port, ZAR[48] [Source: Aetha]

*In the Dominican Republic, Ghana and Chile, the cost per port varies according to the volume of numbers ported. The figures shown are the cost for porting one number.



Although current pricing appears to be adequate, the Authority need to clarify its ability to audit on a regular basis or on an ad hoc basis the cost-base of the NPC. This could be based on similar procedures established by the Cost of Accounts submissions used to audit Telkom's cost models. This would require a clearer empowerment for the Authority to request audited data from the NPC. A change in the Functional Specification may be sufficient.

In most countries, regulatory authorities have maintained their power to audit and, when required, apply penalties for non-compliance. A relevant case is Belgium, where the CRDB is managed by a not-for-profit organisation (ASBL) which includes some members from (but not all) licensed operators. There is a non-discrimination obligation on the ASBL towards non-members. The portability regulation requires clear cost allocation rules to ensure that costs are fairly shared among the operators. Article 5, regulation 4 of the Mobile Portability Regulations (Belgium) also states the BIPT monitors the CRDB and is empowered to impose fines if necessary. The regulatory authority (BIPT) questioned some invoices for conformity testing procedures to a small operator and launched an investigation with respect to the compliance of such

[48] Exchange rates: USD1 = ZAR13.86, EUR1 = ZAR14.67, XOF1 = ZAR0.02, 10 April 2017 - Source: http://www.xe.com/

invoices. In 2011, the IBPT imposed a fine on the CRDB for non-compliance with portability rules[49].

Every year, the NPC adjusts the cost per port based on the number of ports over the year, i.e., an increase in port volumes is transferred to lower prices per port, and South Africa compares well with the international benchmark in terms of the effective cost per port. In their responses to the public inquiry, stakeholders are supportive to the current arrangement with the NPC and no substantial issue on the current level of cost per port was raised.

[49] Décision du Conseil de l'IBPT du 28 juin 2011 visant à imposer une amende administrative à l'ASBL pour la portabilité des numéros en Belgique pour le non-respect des règles relatives à la répartition des coûts applicables à la banque de donnée de référence centrale http://www.bipt.be/ public/files/fr/ 1802/Besluit+ administratieve+boete+VZW+voor+nummeroverdraagbaarheid+-+kostenverdeling+v2-FR+(version+non+confidentielle+-+website-Ministre).pdf