Rules and Procedures for

Number Portability

Fixed to Fixed
Mobile to Mobile

(Administrative & IT Processes)

Version 3.0

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1st October 2020

Approval information

The Project Leader Group (NPA) has approved the baseline document
The Steering Committee has approved the baseline document

Change control specification

The Project Leader Group (NPA) has approved the baseline document (without revisions). This document will be amended (clarifications, corrections and improvements) by the Administrative Process Group (NPP) and the Task Force Group (TF) as work progresses on Number Portability. These amendments will be circulated using e-mail for comments to both groups, and will be included in the next revision (e.g. Rev. A) of the document. If any differences cannot be resolved using e-mail, then a meeting will take place to resolve the differences.

The Steering Committee will be asked to approve a specific revision of the document, which then will receive the next higher version number. The approved version will become the new baseline document.

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Revision history

Revision	Description	Date
3.0	From version 2.5 to 3.0 an update has been made which includes changes to the document structure and its sections. As a result, the revision history has been removed from Revision 3.0. Revision 2.5 will be available at OCH online to maintain cohesion. Major changes in revision 3.0 includes: The purpose of this new version of Rules & Procedures for NP is to make the document easier to read and manageable. The document was infected by too many quick changes. In general, 'shall' has been substituted by 'must' which is a stronger term. In general the term 'end-customer' has been replaced with the term 'end-user'. The term 'Number Act' has been substituted by the term 'Telecommunication Act'. Chapter 1: References to Function Charging and Service Portability has been deleted since these terms are outside the scope for NP in Denmark. We emphasize that these Rules & Procedures do not state the full rules for NP. The reader also needs to read the Standard Agreement for NP (New) Chapter 1.1 Assumptions The term 'operator' is defined, and the different types are described according to OCH. (Old) Chapter 1.2 Subsequent Porting Has been removed since it is not relevant anymore. (Old) Chapter 1.3.2 Fixed to Mobile and 1.3.3 Mobile to Fixed Has been removed since it is not relevant anymore. (Old) Chapter 1.3.5 Machine to Machine Is added to 1.4.2 since it is a sub part to Mobile to Mobile (Old) Chapter 1.4 Requirements Has been moved to Appendix 2. (Old) Chapter 1.5 Assumptions Has been deleted and substituted by Chapter 1.1 Assumptions (New) Chapter 2.2.1.1 Written Power of Attorney Describes the minimum requirements for a Power of Attorney and introduces the use of NEM-ID. (Old) 2.3 Reference model Is deleted since it is described in txt.	1. October 2020

	(Old) Chapter 3.1.2.2 Using digital signature Is deleted since it is covered by the main chapter about Power of Attorney 2.2.1.1 (Old) Chapter 3.1.2.5 ICC number analysis Has been moved to Appendix 1 Key Processes (Old) Chapter 3.1.2.6 Number analysis Has been moved to Appendix 1 Key Processes (Old) Chapter 3.1.3 Statistics Has been moved to (New) 3.2.5 OCH A/S responsibilities. (Old) Chapter 3.1.4 Range Holder Number payment Is included in (New) Chapter 3.2.3 Recipient Responsibilities (Old) Chapter 3.2 Compensation to the end-userend-user Has been moved to Appendix 3. (New) Chapter 3.2.1 Operator Responsibilities This covers the common and shared responsibilities (Old) Chapter 3.3.1.1 Process for a new Routing/Charging code Has been moved to Appendix 1 Key Processes (Old) 3.3.2 Donor Responsibilities (Flow model) Has been deleted. Nobody understood it. Item about PoA is obsolete and deleted. Item about validation is obsolete and deleted. The recommendation about SIM card lock is obsolete and deleted. (New) Chapter 3.2.2 Donor Responsibilities It is added that Donor shall send an order confirmation to the end user when the subscription is terminated. (New) Chapter 3.2.3 Recipient Responsibilities 'End Customer relationship' is replaced with PoA Item about cancellation has been added Item about payment of number fee has been added Item about return of imported terminated numbers has been added (Old) Chapter 3.3.3 Recipient Responsibilities Item about 'point of connection' is obsolete and removed Item about NP Update Complete is obsolete and removed (Old) Chapter 3.3.5 OCH and Operator responsibilities The section about number ranges has been deleted since the same is described in the Transaction document. (Old) Chapter 3.4 The end customer has been filed for bankruptcy This has been moved to Appendix 1 (Old) 3.5 Reject codes This has been moved to Appendix 1	

	(Old) Chapter 4.1 General information The section about porting of 70/80/90 numbers is obsolete and removed (Old) Chapter 4.1.4 Two or more numbers on one SIM card ported using one < NP Create> This is obsolete and deleted (Old) Chapter 4.1.5 Usage of Type II Number Series (NP Create, NP Change) The dispensation option has been removed. (Old) Chapter 4.3.8 Activities when activating GSM numbers The Chapter is obsolete and deleted (Old) Chapter 4.3.9 Activities when activating 70 and 80 numbers The Chapter is obsolete and deleted (Old) Chapter 4.3.10 Activities when activating and porting 90 numbers This has been moved to Appendix 1 (Old) Chapter 5 Transactions This has been deleted since a much better description can be found in the Transaction document (Old) Chapter 6 Unresolved Issues This has been deleted, we have no unresolved issues (New) Appendix 1, 1.7 Implementing 3, 4, 5, 6 digit numbers This Chapter has really nothing to do with Number Portability but the Regulator recommended us to incorporate the txt in the R&P, since all operators are using this document.	

List of contents

1. Scope

This document outlines the administrative Rules & Procedures which must be adhered to during the porting of telephone numbers, as proposed and agreed by the members and non-members of the Telecommunication Industries Association in Denmark.

All Operators who terminate traffic in the National Network must adhere to the Rules & Procedures. The Rules & Procedures must interact with the Technical Rules & Procedures and be based on the agreement between the Operators.

This document has been produced in accordance with clause 7.2 in the Standard Agreement on Number Portability which is enclosed to the Industry Agreement on Number Portability ("Brancheaftalen"). All terms and conditions in the Standard Agreement on Number Portability and supplementary agreements to the standard agreement apply prior to the administrative Rules & Procedures in this document.

Not all issues will be resolved in this document. When this is the case, the different opinions of the Operators must be identified and presented to the Telecommunication Industries Association in Denmark.

This document does not specify how to implement the access to the end-user (e.g. Copper, Fiber, SIM Card), but is limited to identifying the need for establishment of access.

Only numbers that are in use or reserved can be ported.

The Operators Clearing House System (hereinafter OCH System) must be used to exchange the necessary ordering data between the Donor Operator and the Recipient Operator when establishing or changing Number Portability for a specific end-user. The Transaction Document (NPP96) defines the transactions used.

As of May 2013, it will be possible to use 12-digits numbers in Denmark. The rules and procedures in this document also support 12-digits numbers.

1.1. Assumptions

For the work in this document the following assumptions are made:

A Network Operator is directly connected to the OCH System.
A Network Operator has an Operator Code '010xx'.
Only a Network Operator can start a porting using a NP Create.
A Network Operator can act as a Service Operator.

A Service Operator may be directly connected to the OCH System.
In that Case the Service Operator has an Operator Code '00xxx'.

A Service Operator may be indirectly connected to the OCH System. (Meaning not connected)
In that Case the Service Operator has an Operator Code '08xxx'.
A Service Operator with an indirect connection to The OCH System needs an agreement with a Network Operator or a directly connected Service Operator in order to update the OCH System and get information's from the OCH System.

A Passive Operator (e.g. an operator performing SMS service) is directly connected to the OCH System.
A Passive Operator has an Operator Code '09xxx'.
A Passive Operator does not take part in normal number portability operations but will receive all updates to the Data Base

1.2. Regulation

Number Portability has been implemented in Denmark in two phases.

Phase 1 included porting of 8-digit PSTN and ISDN numbers in the fixed network between Operators in Denmark. Phase 1 was implemented October 15th, 1999.

Phase 2 includes porting of 8-digit number between mobile networks and geographic portability for fixed numbers, Phase 2 was implemented June 2001.

OCH A/S has, based on the antiterror act from 2006, decided to enforce the principle about ensuring correct update of the field Service Operator

To avoid a forced direct connection of all Service Operators a new functionality has been implemented. This makes it possible for a Network Operator or an OCH direct connected Service Operator to update the Service Operator field on behalf of a Service Operator which is not directly connected to OCH.

Secured numbers must in general refer to 'Bekendtgørelse om beredskabsaktørers adgang til elektronisk kommunikation i beredskabssituationer mv., nr. 564 af 01/06/2016' (sikret fortrinsret).

As of 2011- 24th of May the Danish number plan has been enhanced to also support 12 digit numbers primarily intended for Machine to Machine communication. "Vejledning til den Danske nummerplan punkt 10.1."

1.3. Product Description

From an administrative perspective Operator Portability is a termination of a subscription with the Current Operator and the creation of a new subscription with the new Operator.

1.3.1. Fixed to Fixed

Porting of one or more 8-digit fixed network numbers to fixed network between two network Operators or service providers or combinations thereof, or within the same Network Operator or Service Provider.

1.3.2. Mobile to Mobile

Meaning porting of one or more 8/12-digit mobile (GSM) network numbers to mobile (GSM) network between two Network Operators or Service Providers or combinations thereof, or within the same Network Operator or Service Provider.

These 12-digits mobile (GSM) network numbers are implemented with dedicated RI/CI numbers. A 12-digit mobile number cannot be ported to a 8-digits mobile (GSM) network number with a RI/CI connected to a 8-digits mobile network numbers

2. Abbreviations and Definitions

2.1. Abbreviations

CPS	Carrier Pre Select (Operator ID)
DDI	Direct Dial In
DO	Donor Operator
ICH	Internal Clearing House (at the Operator)
LUBO	Last Updated By Operator (The field is sometime called DSO - Direct Service Operator)
LSO	Logical Service Operator (Service Operator without connection to OCH)
M2M	Machine-to-Machine
NO	Network Operator
NP	Number Portability
NTA	National Telecom Agency (Telestyrelsen)
OCH	Operators Clearing House
PONR	Point Of No Return
PONS	Point Of No Stop
SO	Service Operator
SP	Service Provider
SPC	Signaling Point Code.
RH	Range Holder
RNO	Recipient Network Operator
RO	Recipient Operator
RSO	Recipient Service Operator

2.2. Definitions

Bilateral aftale om Elektronisk Fuldmagt på Erhvervskunder	Bilateral Aftale om Elektronisk Fuldmagt på Erhvervskunder is an agreement which can be entered into bilaterally between the operators
Bilateral agreement on CustomerID	Bilateral agreement on CustomerID solution is an agreement which can be entered into bilaterally between the operators.
Bilateral agreement on ICC solution	Bilateral agreement on ICC solution is an agreement which can be entered into bilaterally between the operators.
CustomerID	End-user-number or account number at the Donor Operator
Donor Operator (DO)	The Operator from which one or more numbers are in the process of being ported out.
Geographic Portability	The fixed number is now active at the same operator, but has moved geographically, either to another Municipality or switch or both.
GSM	Mobile Number
ICC	SIM-card number
In Use	A telephone number is in use when it is activated in the network and as long the operator is routing traffic to the

	number. If the number is temporally suspended i.g. due to lack of payment it is still in use and can be ported. If a telephone number is finally disconnected i.g. due to lack of payment, it is no longer in use, and the operator is no longer obliged to export the number.
Machine-to-Machine	Porting of one or more 12-digits mobile (GSM) network numbers. These numbers are typically used for data connections between two units. These 12-digits mobile (GSM) network numbers are implemented with own RI/CI numbers. A 12-digits mobile number cannot be ported to an 8-digits mobile (GSM) network numbers with a RI/CI connected to an 8-digtis mobile network numbers.
Number Type I	Any single connection with only one independent telephone number.
Number Type II	Porting of a main number, with one or more number-series attached. A number-series can be one single number different from the main number, or a consecutively range of numbers.
Telecommunication Act	Lov om elektroniske kommunikationsnet og -tjenester, jf. LBK nr. 128 af 07/02/2014 med senere ændringer.
Number Portability	End users right to keep their number, when changing operator.
Operator	An Operator can be • A Network Operator • A Service Operator • Both a Network Operator and a Service Operator Most Network Operators are also Service Operators. **Network Operator (NO):** - A Network Operator operates a physical network and/or a switch**.** - A Network Operator is an operator who terminates traffic in the Danish Telco network. - A Network Operator opens for incoming and outgoing traffic to/from an imported number. - A Network Operator disconnects incoming and outgoing traffic to/from an exported number. - A Network Operator can start an import of a number. **Service Operator (SO):** - A Service Operator provides services to an end user. - A Service Operator handles all contact to the end-user/end-user. - A Service Operator handles billing and service assurance towards the end-user/end-user. - A Service Operator confirms/rejects an export of a number.
Operator Portability	The number is now active at a different Operator.

Other Operator	Any Operator (Service or Network) connected to the OCH System.
Point of No Return	This is the threshold, when passed, that a porting cannot be cancelled, but has to be completed. Point of No Return has only relevance in an Operator Porting Flow. Point of No Return occurs when the OCH System has received and accepted the <NP Completion>.
Point of No Stop	This is the threshold, when passed, that a porting cannot be stopped when the Donor, or the Recipient Operator or the OCH System sends an erroneous message. The cause of the error has to be found, corrected and the flow resumed. Point of No Stop occurs when OCH System has received the initial transaction (e.g. <NP Create>), accepted it and has sent the responding transactions (e.g. <NP OCH Order Number Response> and <NP Create>) to donor.
Portability	The number or is now active at a different physical location or operator.
Ported Number	One number which is either ported from one operator to another operator or ported from one geographical location to another geographical location or ported from one function to another function.
Range Holder (RH)	The Operator who has been assigned the number from the NTA must remain the Range Holder regardless of the end-user's shift between operators.
Recipient Operator (RO)	The operator to which one or more numbers are in the process of being ported in.
Reserved numbers	The number is reserved to a specific end-user but is not currently in use in the network. In some cases, the Donor Operator needs to make numbers portable prior to receiving the NP Create. The possible cost of making reserved numbers portable must be specified in the contract between the Donor Operator and the end-user.
Retention Period	The time frame after a telephone number has been disconnected, but while an answering service might be active. During this period the end-user can request that the telephone number is re-activated. This timeframe is defined by the NTA. The retention period is minimum 3 month and maximum 6 month. This timeframe is defined by the NTA, see section NP Return. When the retention period expires the current operator must return the number to the Range Holder.
Service Provider (SP)	A company whose business is to provide telecommunication services produced on another operator's physical network.
Standard Number Portability Agreement	The Standard Agreement on Number Portability which is enclosed to the Industry Agreement on Number Portability "Brancheaftalen" (may 2011).
Termination Period	The Termination Period consist of three parts: 1. Time between notice to terminate and release from contract (Opsigelsesperiode).

	2. Minimum subscription period (Bindingsperiode). 3. Contractual obligations (Kontraktbinding). Both 1) 2) and 3) can be disregarded by the end-user if he accepts to pay the remaining fees to the Donor Operator.
The industry agreement on Number Portability "Brancheaftalen"	The Industry Agreement on Number Portability from May 2011 or any later version of the Industry Agreement on Number Portability. The Industry Agreement on Number Portability is entered into by members of the Telecommunication Industries Association in Denmark (TI).

2.2.1. Power of Attorney

2.2.1.1. Written Power of Attorney (Underskrevet NP-opsigelsesfuldmagt)

Written Power of Attorney including the end-users physical or digitally transferred signature. Digital signature e.g. Nem-ID or any other electronic based signature which is approved by the government.

A paper-based or digitally based document where the end-user gives a power of attorney to the Recipient Operator to terminate the end-users subscription agreement with the Donor Operator with the intent of importing the end-users number from the Donor Operator to the Recipient Operator.

The document must contain the following:

- ICC number/Customer ID number (optional)
- The end-users name
- The end-users CVR-number (if business end-user)
- The end-users birth date (if private end-user) [Optional]
- The end-users address
- The phone number to be imported
- Order date
- Name of the Recipient Operator
- Name of the Donor Operator
- The end-users power of attorney to the Recipient Operator that the Recipient Operator can terminate the end-users subscription agreement with the Donor Operator in order to import the number to the Recipient Operator

The Power of Attorney is valid until the end-user withdraws it from the Recipient Operator according to Danish Law.

2.2.1.2. Electronic Power of Attorney (Elektronisk NP-opsigelsesfuldmagt)

An electronically based Power of Attorney without the end-users physical signature.

An electronically based document where the end-user gives power of attorney to the Recipient Operator to terminate the end-users subscription agreement with the Donor Operator with the intent of importing the end-users number from the Donor Operator to the Recipient Operator.

The document must contain the following:

- ICC number/Customer ID number
- The end-users name
- The end-users CVR-number (if business end-user)
- The end-users birth date (if private end-user) [Optional]
- The end-users address
- The phone number to be imported
- Order date
- Name of the Recipient Operator
- Name of the Donor Operator

- The end-users power of attorney to the Recipient Operator that the Recipient Operator can terminate the end-users subscription agreement with the Donor Operator in order to import the number to the Recipient Operator

The Power of Attorney given by the end-user is documented by checkmarks on a webpage. These checkmarks must not be selected by default. It is assumed that the end-users information can be sent on unedited by the Recipient Operator to the Donor Operator.

The Power of Attorney can also be given by e-mail where the end-user receives the output of an order – containing the above described information – and a passage with the following contents:

By returning this e-mail I [end-users name] confirm that I hereby give permission to [the Recipient Operator] – on my behalf and according to the above described specifications – to terminate my subscription agreement with the Donor Operator in order to import the number to the Recipient Operator.

The end-user must return the e-mail, and the confirmed e-mail is the documentation for the given Power of Attorney.

The Power of Attorney is valid until the end-user withdraws from the Recipient Operator according to Danish Law.

3. Implementing NP between Operators

3.1. Relations between the Operators

The purpose of this section is to set the common Rules & Procedures between the operators for the administrative handling of ported numbers.

3.1.1. Interconnect/Number Portability Agreement

The implementation of Number Portability between two operators must be based on bilateral agreement, which must be based on the Standard Number Portability Agreement. The agreed set of Rules & Procedures must be added as an addendum to the existing Interconnect Agreement or in a Number Portability Agreement.

According to the Telecommunication Act, the suppliers of public telecommunication networks and telecommunication services must comply with all reasonable requests for establishment or modification of Interconnect Agreements in order to implement Number Portability.

It is recommended that a revised or new Interconnect/Number Portability Agreement should at the very least address the following issues:

Definitions of what types (number ranges) of numbers that can be ported.

- The administrative cost to be paid by the Recipient Operator to the Donor Operator for the handling of Number Portability.
- Exchanging order data related to Number Portability for a specific end-user.
- A reference to these Rules & Procedures for Number Portability in order to obtain a common reference platform.
- The use of the OCH System.
- Other business rules.

The Number Portability Agreement can be found of the homepage for the Danish Telecom industry: http://www.teleindu.dk/branchesamarbejde/nummerportabilitet/

3.1.2. Handling of Power of Attorney

3.1.2.1. Minimum requirements (written Power of Attorney)

The written Power of Attorney can be sent or e-mailed to the Donor Operator according to the Donor Operator guidelines, where it is validated with the received NP Create, before the Donor Operator is replying with NP Confirmation.
If nothing else has been agreed upon then this method must be complied to by all operators.

3.1.2.2. Electronically based Power of Attorney

Instead of using the minimum requirements as specified in 3.1.2.1 it is possible to use electronically based Power of Attorney, cf. clause 7.5 in the Standard Number Portability Agreement.

3.1.2.3. ICC/CustomerID solution

Instead of using the minimum requirement as stated in 3.1.2.1 and forwarding the Power of Attorney to the Donor Operator the ICC/CustomerID solution can be used for validation, cf. Bilateral Agreement on ICC/CustomerID Solution, see http://www.teleindu.dk/branchesamarbejde/nummerportabilitet/

When using the ICC/Customer ID solution the Recipient Operator holds the Power of Attorney and forwards the power of attorney to the donor Operator only on request.

If the Donor Operator wants to request a sample/random check then the Recipient Operator must forward the Power of Attorney within 5 working days. It is a requirement when requesting a random sample check that this is done via e-mail. The e-mail must contain the following information:

- Emne/Subject: Krav om fuldmagt/Valid end-user relationship/Tvivl eller Stikprøve.
- Text: <TelephoneNumber>. As a response to this the Power of Attorney must be sent by e-mail.

A Donor Operator can at the most request samples/random check of 5% of the total amount of exports per recipient within a month. The Recipient Operator is only obliged to retain the Power of Attorney according to the Retention Period as stated in 2.2.1.1 and 2.2.1.2.

If agreed upon to use the ICC/CustomerID solution for validation the ICC/CustomerID information must be sent within the NP Create. The donor Operator may confirm or reject the NP Create immediately upon receive of the transaction without further documentation, or the donor Operator may request the power of attorney to be forwarded (sample/random check).

3.2. Responsibilities

3.2.1. Operator responsibilities

All Operators have the following responsibilities:

- When a new operator wants to engage with OCH A/S, the Operator is expected to contact OCH A/S at least one month before the expected launch date.
- Update and complete 'Operator information' at OCH-Online at least 10 working days before the Operator is actually connected to the OCH system
- If the new operator wants to implement number ranges in the OCH system, then the operator must immediately inform the other Operators by sending relevant NP Range Update transactions, see Appendix 1, section 1.3.

- The NP Range Update must contain at least the following information: CPS, Routing Info, Charging Info, SPC, Number Type, and Municipality.
- It is valid for an end-user to have one pending order on number porting per telephone number. Attempting to submit more than one order per telephone number will cause the subsequent orders to be rejected by the OCH System.
- If number portability orders are delayed at the Donor Operator or at the Recipient Operator, so that the due date will be exceeded, the operator in question must immediately inform the other operator of the nature of the delay and the expected execution time. If a delay is caused by a large amount of orders piling up at either operator, this operator must take appropriate action at once, and inform the other operator(s) of the nature of these actions. The information can be broadcasted using the OCH Helpdesk.
- Operators who need to perform a large number of transactions exceeding normal operation (currently 2000 transactions or more per day) must order a service window through OCH A/S.
- All orders must be processed in their incoming sequence.
- If an order or a transaction message contains errors, then the sending operator must correct this if possible.
- The time that a Fixed Type I number or Mobile number is disconnected from the network must not be more than a few minutes.
- All operators must be able to process an <NP Update> message and reply with an <NP Update Complete> to the OCH System in less than 10 minutes.
- The involved operators must perform the physical porting, patching etc. with a minimum of inconvenience to the end-user.
- The Receiving Operator is responsible for any error correction on the end-user if prefix/routing errors should arise as a result of the importing process. All operators are obliged to assist in the error correcting process if they are involved.
- To inform the other operators about any changes to charging and routing information. This applies to both single number (porting) and for ranges (update of basic information).
- To ensure that a telephone number for which the operator is not Range Holder, is returned to the Range Holder when the retention period expires.
- In order to prevent excessive load on the other operator, e.g. caused by batch jobs, the submitting operator must send orders without delay.
- When a telephone number is resold to a Service Operator without a connection to the OCH System, it is the responsibility of the new Service Operator to contact the Network Operator or the Service Operator with a connection to the OCH System to update the OCH System with the new Service Operators information. Based on the updated OCH information, the authorities can then contact the dedicated point of contact within the new Service Operator.
- Operator information must at all times be updated with all mandatory fields in OCH online.

3.2.2. Donor responsibilities

When executing a porting of a number, the Donor Operator has the following responsibilities:

- If the Donor Operator wants relevant documentation for the valid end-user relationship cf. clause 7.5 in the Standard Number Portability Agreement, this must not delay the overall order processing.
- Every operator must inform the NPA of the syntax of his CustomerID and ICC number and where the end-user can retrieve this information. The syntax

information can be found on OCH Online under Operator Information. Each operator has the responsibility to maintain the syntax information at all times.

- When a Donor Operator receives a number portability order (<NP Create>), the Donor Operator must respond on the current working day, provided that the Power of Attorney request is on file. If no Power of Attorney request is on file, then the Donor Operator must hold the portability order for 10 working days, and in the case of time-out reject the order by using <NP Reject>.
- If the Recipient Operator cancels a porting, then the Donor Operator must cancel the pending disconnect order for that telephone number in his systems.
- In the event that an order contains no "wanted execution date" (i.e. at the expiration of the termination period) the Donor Operator must inform via a <NP Confirmation> the Recipient Operator about the execution date.
- The Donor Operator must comply with any "wanted execution date" beyond today and set "confirmed execution date" = "wanted execution date".
- The Donor Operator must not set "confirmed execution date" prior to "wanted execution date".
- For further information and exceptions see 4.2. Timing Information.
- Inform the end-user/customer with a 'opsigelsesbrev', and the agreed termination date. This must be based upon the confirmed execution date communicated to the Recipient Operator.

3.2.3. Recipient Operator responsibilities

When executing a porting of a number, the Recipient Operator has the following responsibilities:

- Plan and lead the execution of a porting
- Plan and lead the fall-back if needed
- When an end-user wishes to port his number, it is the responsibility of the Recipient Operator to ensure that the Power of Attorney is on file.
- If the <NP Create> is validated using ICC field or CustomerID and the Donor Operator requests the Power of Attorney, then the Recipient Operator must supply this information before the end of office hours on the following working day. The Power of Attorney must be sent by returning the requesting e-mail (described under Random Check Solution) with the Power of Attorney attached in electronic form.
- If the number has been ported to the Recipient and the Power of Attorney is invalid (according to the Donor and end-user judgement) then the Recipient Operator (now the Donor Operator) must confirm the Number for porting back with a ConfirmedExecutionDate no later than the next working day (if no RequestedExecutionDate is present).
- If the Power of Attorney is invalid (not received or erroneous) before the NP Completion has been sent, the Recipient Operator must upon request from the Donor Operator send a NP Cancel and thereby stop the flow.
- If the Power of Attorney is invalid and the number has been ported to the Recipient Operator, then the number must be ported back (using a NP Create) to the Donor Operator within 24 hours. A new ICC/CustomerID or Power of Attorney is not required, and the new Donor Operator cannot use any Retention / Termination

period. The request for porting back within 24 hours must be raised a maximum of 10 working days after the initial porting has taken place.
- In order to prevent excessive load on the Donor Operator, e.g. caused by batch jobs, the Recipient Operator must send orders without delay.
- That the end-user has access to the network and that emergency calls to 112 are enabled at all times.
- Inform the end-user/customer with the agreed execution date, or the reject reason by e-mail or SMS.
- To inform the Donor Operator, the OCH System and other operators connected to the OCH System when a porting order has been completed (<NP Completion>).
- To ensure that the porting order is executed on the agreed execution date. The Donor Operator has the right to disconnect the end-users access after the agreed execution date if no other information has been received.
- Is not allowed to complete an <NP Create> prior to the agreed execution date.
- If a porting with ConfirmedExecutionDate is cancelled before execution date, the Recipient Operator must inform the end-user about the cancellation.
- The Recipient Operator must pay the annual fee for the number to the Range Holder according to Standard Agreement item 8.7. Reports on OCH online supports this process.
- The Recipient Operator must return a terminated number to the Range Holder after the retention period has expired.

3.2.4. Network Operator responsibilities

As a Network Operator the requirements in "Bekendtgørelse om sikring af offentlige telenet og teletjenester" must be fulfilled and as a minimum it must be secured that:

- Preference must be established in ones own network if demanded by the authorities
- When porting a preferential number, the Donor Operator must inform the Recipient Operator, that they are receiving a preferential number (sikret nummer).
- The Recipient Operator must inform the requesting authority, as specified by the Donor Operator, about the changed network-conditions.

3.2.5. OCH A/S responsibilities

Before a new operator is connected to the OCH System, OCH A/S must inform the operator about:

- A bilateral agreement for number porting, which must be based on the Standard Number Portability Agreement, must be made with each of the other operators connected to the OCH system.
- The name of the contact person at the new operator, which the existing operators must contact regarding number portability issues, is broadcasted to operators connected to the OCH system.
- A list of operators is available on OCH-online

- The list contains addresses for daily contacts, the commercial responsible of the operator, the technical responsible of the operator etc.

This must be completed at least 10 working days before the Operator is actually connected to the OCH system

When a new operator is connected to the OCH system or an operator is changed or deleted OCH A/S must supply the following information at least 10 working days before connection/change or disconnection date to the existing operators using OCH system:

- Operator ID
- Operator Name

In the above it is assumed that a physical connection to the OCH System exists, that software is loaded and operational etc. Operator Number (Prefix code) is issued by the NTA for Network Operators and by OCH A/S for Service Providers.

3.2.5.1. Statistics

OCH A/S must be able to make statistics to the operators, for them to be able to make:

1. Financial clearing towards donor of fees in connection with porting of numbers.
2. Financial clearing towards Range Holder of fees for usage of ported numbers.
3. The OCH A/S must keep count of the number of attempted portings, the number of successful portings, the number of failed portings including cause of failure. This information shall be used to validate the quality and performance.

This will be detailed further in the Requirement Specification for new functionality to the Operator Clearing House System.

3.2.1. OCH system responsibilities

When executing a porting of a number, the OCH System has the following responsibilities:

- The OCH System must send a <NP Update> based on a <NP Completion> within one minute.
- The OCH System will not perform any checks on dates apart from pure syntax checks.
- If the Recipient Network Operator is different from the Recipient Service Operator in the <NP Create> the OCH System must mark the flow as being in "copy mode". This will cause the OCH System to send copies of transactions to the Recipient Service Operator.
- If the Donor Service Operator is different from the Donor Network Operator, the OCH System must mark the flow as being in "copy mode". The OCH System will send copies of transactions to the Donor Network Operator.
- In order to ensure that an <NP Create> request is sent to the correct OCH direct connected Service Operator, the LUBO field is used. This field is further detailed in the Transaction document.

4. Service Operation

This section defines the service operation and the Rules & Procedures necessary to support Number Portability.

4.1. General Information

Administrative procedures and administrative interfaces between operators are defined at business and end-user level and will be further defined in the Requirement Specification for the Operators Clearing House System.

The numbers that can be ported include, without exception, all numbers for which a written agreement or reservation exists. When an end-user wants to port his telephone number within the retention time frame, the end-user must reactivate the telephone number at the Donor Operator, and then activate the porting.

At completion time of a porting, the Recipient Operator or the Current Operator (geographical porting) must inform all other operators of the telephone number's new/actual information for routing, charging, municipality code and SPC code. This obligation also applies for telephone numbers with no direct geographic relation i.e. Mobile, 70/80/90 numbers and VoIP numbers, where the municipality code and the SPC code is set to an agreed default value.

Subsequent porting must be handled like a new Number Portability order. The current operator now becomes the Donor Operator and the new operator becomes the Recipient Operator.

If an end-user wants to port his telephone number back to his previous operator, the order must be handled like a create porting order. If the Porting Back is to the operator who has been assigned the number (Range Holder), the porting procedure still has to be followed. However, the end result is as if porting had never happened. When this situation occurs, the Recipient Operator flags it in the <NP Completion> transaction. This does not apply if a geographic porting is still active.

If, for any reason, the end-user wants to end his relationship with his current operator, the current operator handles this as a termination in his administrative and technical systems.

At the expiration of the retention time period the telephone number must be returned to the Range Holder.

4.1.1. Porting of number series

A number series means an unbroken, continuous range of telephone numbers.

Number series are allocated to one end-user and can be defined with one main number with one or more unbroken series attached.

The operator allocates a number series from assigned blocks of 10, 100, 1.000 or 10.000 numbers. If the same end-user has more than one number series the operator may allocate the series from the same block or from more than one block.

When an end-user that uses one or more number series wishes to change to another operator, the Donor Operator must relinquish the end-users number series to the Recipient Operator.

Only whole number series may be ported. The end-user cannot port parts of a number series as this would break up the continuous range. When more than one number series is allocated to the end-user, referring to the same main telephone number, all the series must be ported within one transaction. This applies whether the number series in question are active or reserved or a combination of these.

Any amendment of the existing procedures therefore involves receipt by the Recipient Operator, prior to dispatching the <NP Create>, of a written verification of the number series that have been allocated to the end-user by the Donor Operator (active, reserved and inactive number series). On the basis of a Power of Attorney from the end-user the Recipient Operator contacts the Donor Operator. (This service is currently already being provided to e.g. PBX suppliers).

The Donor Operator returns the list of the end-users number series, which subsequently forms part of the <NP Create>. This means that the Donor Operator helps safeguard the quality of the <NP Create>.

4.1.2. Distinctive ringing

When Distinctive Ringing is assigned to a number, it is possible to port all numbers using the <NP Create Type II>. The main subscription number must be entered in the Main Telephone Number field and attached supplementary numbers entered into the Series number fields.

4.1.3. ISDN2

When porting numbers in an ISDN2 subscription, it is possible to port all numbers using the <NP Create Type II>. The main subscription number must be entered in the Main Telephone Number field and attached supplementary numbers (MSN) entered into the Series number fields.

For Direct Dial In (Number Type II) the ordering and processing must be related to the main telephone number used by the end-user and shall affect all numbers in the Direct Dial In number series. The main subscription number must be entered in the Main Telephone Number field and attached supplementary numbers (MSN) entered into the Series number fields.

4.1.4. Usage of Type II Number Series (NP Create, NP Change)

The following restrictions apply for these types of porting:

- All the numbers in the transaction must have the same Donor Service Operator
- All the numbers in the transaction must have the same Donor Network Operator
- All the numbers in the transaction must be portable
- All the numbers in the transaction must belong to the same end-user
- All the numbers in the transaction must be of the same type (i.e. GSM or FIXED)
- All the numbers in the transaction must be ported at the same time.
- All numbers in one Series field must be in an unbroken ascending sequence

If any of the above restrictions are not fulfilled, then the porting is rejected either by the OCH System or by the Donor Operator.

4.1.4.1. Type II for Mobile

If the Donor Operator has implemented one or more numbers as a Type II, then the Recipient Operator must be able to port the numbers using a NP Create Type II.

If the main number is unclear the Recipient Operator should require a number analysis from the Donor Operator to clarify this. Such portings requires a written Power of Attorney which must be sent to the Donor Operator.

4.2. Timing Information

If the customer wants to comply with the commitment and termination period at the Current Operator, then the Recipient Operator sends a NP Create with requested date = Null (not filled). The Donor Operator responds to this by sending confirm date = end of commitment and termination period. If no requested date the confirm date given by donor operator must be the end date of all financial agreement, concerning services but excluding installments on hardware, between donor operator and end-user.

If the customer wants to port-out on a specific date, also within the commitment and termination period, then the Recipient Operator sets the requested date = specific date from customer and the Donor Operator responds by setting confirm date = requested execution date.

The main rules above are to be followed under these conditions:

- If the Donor Operator receives the NP-Create after 16.00, then the Donor Operator is allowed to consider the NP-Create as received on the following working day and respond accordingly.
- If the specific date is on a Saturday, Sunday, or Holliday, then the Donor Operator is allowed to confirm to the following working day.
- 24/12, 31/12, 1/5, 5/6 are not considered as working days.
- If ICC or CustomerID is not filled and the Power of Attorney is not received by EOD before the requested porting date, then the Donor Operator is allowed to reject the flow (code 376). If Donor Operator doesn't reject the flow, donor can confirm the flow to the next working day after the Power of Attorney has been received.

If the Recipient Operator does not accept the confirm date then he may cancel the porting flow. Otherwise the alternative date is accepted.

The Recipient Operator may request an earlier date than the confirmed date given by the Donor Operator in the NP Confirmation. This date cannot be prior to the originally requested date by the Recipient Operator. If the Donor Operator and Recipient Operator agree to change the Confirm_Date without cancelling the existing flow, then Donor Operator has to make a second NP Confirmation based on the mutually agreed execution date.

If the Donor Operator, Recipient Operator and end-user agrees that the porting was a mistake then the Donor Operator and the Recipient Operators must be able to recover the situation within a maximum of 24 hours.

4.3. Creating Number Portability – Process Description

The process of porting an end-user telephone number from a Donor Operator to a Recipient Operator is done using the following Process flow:

Figure 2 - Process Flow

Before PONS (Point of No Stop) is passed, the entire porting flow will be terminated if an error is detected in any of the transactions.

When PONS (Point of No Stop) is passed a porting cannot be stopped when the Donor Operator, the Recipient Operator or the OCH System sends an erroneous message. The cause of the error has to be found, corrected and the flow resumed. The PONS is passed when the OCH System has received, validated and accepted the <NP Create>.

Before PONR (Point of No Return) is passed, the porting flow can be cancelled by the Recipient Operator.

When PONR (Point of No Return) is passed, the porting flow cannot be cancelled, but has to be completed. The PONR is passed when the OCH System receives, validates and accepts the <NP Completion> from the Recipient Operator.

4.3.1. Operator Porting

1. The end-user contacts the Recipient Operator.

2. A Power of Attorney about Number Porting is made between the end-user and the Recipient Operator.

3. Based on the Power of Attorney, the Recipient Operator request the Donor Operator to terminate the end-users subscription agreement. With the intend of importing the phone number to the Recipient Operator.

4. The Recipient Operator writes an <NP Create> and sends it to the Donor Operator via the OCH System. For all valid orders the OCH System returns an <NP OCH Order Number Response> message, and sends the <NP Create> to the Donor Operator.

5. The Donor Operator matches the <NP Create> with the Power of Attorney. Until the requested execution date, a match is attempted between the <NP Create> and the Power of Attorney order with short intervals (< 1 day). If no match is possible within 10 working days from receiving the <NP Create>, the <NP Create> is rejected using a <NP Reject>. This does not apply if ICC/CustomerID solution is bilaterally agreed on.

6. The Donor Operator validates the order and returns either an <NP Reject> message or an <NP Confirmation> to the Recipient Operator. In case the Recipient Operator receives a <NP Reject>, a new <NP Create> may be issued and sent to the Donor Operator.

7. The Recipient Operator starts working on implementing the access, that being through a fixed line or by issuing a SIM card.

8. On the agreed execution date, the Recipient Operator activates the end-user in the administrative systems and opens up the access connection (fixed line or SIM card). The Recipient Operator updates his databases (STP/IN) and the number database.

9. A <NP Completion> message is sent to the OCH System, thereby informing the other Operators that the end-user is activated. The OCH System updates its databases and sends the <NP Update> message to the other Operators including the Donor Operator.

10. The Donor Operator terminates the end-users subscription in the administrative systems, ensures that the access connection is taken out of service, and marks the number as being ported in the switching systems (STP/IN) and the number database sends a <NP Update Complete> to the OCH System.

11. The Other Operators update the switching information in their systems (STP/IN) and the number database and send a <NP Update Complete> to the OCH System.

The flow described above covers all variants of Operator Porting (i.e. 1st time porting, subsequent porting, etc.) for Fixed-Fixed (Types I and II), and Mobile-Mobile (Type I and II).

4.3.2. Service Provider as Donor.

This section applies if the Service Provider is connected directly to the OCH System.

The Service Provider must respond to the <NP Create> with a <NP Confirmation>. The OCH System must send a copy of the <NP Confirmation> to the Donor Network Operator for information.

If the porting is cancelled, the OCH System must send a copy of the <NP Cancel> to the Donor Network Operator for information.

The Donor Network Operator is also informed when the <NP Update> is sent from the OCH System to all Operators. The actual termination of the service is done when the <NP Update> is received.

4.3.3. Service Provider as Recipient

This section applies if the Service Provider is connected directly to the OCH System.

The end-user contacts the Service Provider. The Service Provider sends a <NP Porting Request> to the selected Network Operator through the OCH System, requesting that the Network Operator controls the operator porting. The Network Operator will establish the access for fixed lines, but one of both can issue the SIM card, depending on bilateral agreement between the Service Operator and the Network Operator.

When the Network Operator has accepted the request, he will issue a <NP Porting Response> to the Service Operator. The Network Operator will then initiate a normal Operator porting flow, where the Service Operator receives copies of the <NP Create>, <NP Confirmation>, and <NP Update Complete>.

The above flow is also used as a preamble when the Service Operator wants Geographic Porting and Function Porting performed by the Network Operator.

4.3.4. Service Provider on the Donor side without link to OCH System

The Service Provider has to use the Network Operator for the communication with the other operators.

The operator that last updated the Service Operator field receives the NP Create order and before he sends the <NP Confirmation> transaction, he must obtain acceptance from the Service Provider. The operator that last updated the operator field becomes the operator indicated in the field Last Updated By Operator, LUBO, in the OCH database.

When the operator that last updated the Service Operator field – upon reception of a <NP Update> – has updated his databases, he must also inform the Donor Service Operator.

4.3.5. Service Provider on the Recipient side without link to OCH System

The Service Provider has to use the Network Operator for the communication with the other operators.

The end-user contacts the Service Provider. The Service Provider contacts the Recipient Network Operator, requesting him to be Network Operator for the Service Provider's coming end-user. If the Network Operator agrees, a normal porting flow starts with the Network Operator as Recipient Network Operator. This describes the situation where the resell takes place directly between the Network Operator and the Service Operator without OCH link.

In these cases, the Network Operator issues a NP Create, which states that Recipient Service Operator is equal to the Service Provider without OCH link.

E.g. when the Service Provider without OCH link is Hard2Tel, and the Network Operator is Telenor then the result will be:

- Service Operator: Hard2Tel 08111

- Network Operator: Telenor 01015
- LUBO: Telenor 01015

In cases where the resell goes through a Service Operator with OCH link, the contact to the Recipient Network Operator goes through him. In order to ensure the correct content of the LUBO and the ServiceOperator field the Service Operator with OCH link must send a NP Change after the NP Create flow is closed.

In these cases, there are two steps required to perform the porting.

In the first step the Network Operator issues a NP Create transaction, which states that Recipient Service Operator is equal to the Service Provider with OCH link.

In the second step the Service Operator with OCH link issues a NP Change transaction, which states that Recipient Service Operator is equal to the Service Operator without OCH link.

E.g. an end-user wants to join Cirque and this end-user has a telephone number which is currently located at Telenor as network Operator. Then Cirque who is a Service Operator without OCH link contacts his Service Operator with OCH link: ZachoTel.

ZachoTel chooses to ask TDC to import the number into the TDC network and resell the number to ZachoTel.

This is the first step.

The second step is the NP Change issued by ZachoTel where ZachoTel inserts Cirque as Service Operator.

Result after 1st step (NPCreate flow):
- Service Operator: ZachoTel 00111
- Network Operator: TDC 01011
- LUBO: Zachotel 00111

Result after 2nd step (NPChange flow):
- Service Operator: Cirque 08063
- Network Operator: TDC 01011
- LUBO: ZachoTel 00111

4.3.6. Service Provider without link to the OCH system and Customer_ID

In order to validate CustomerID in the NP Create the OCH system needs to have the information about the service providers fixed telephone number and the corresponding CustomerID.

4.3.7. Activities when porting Pre Paid Numbers

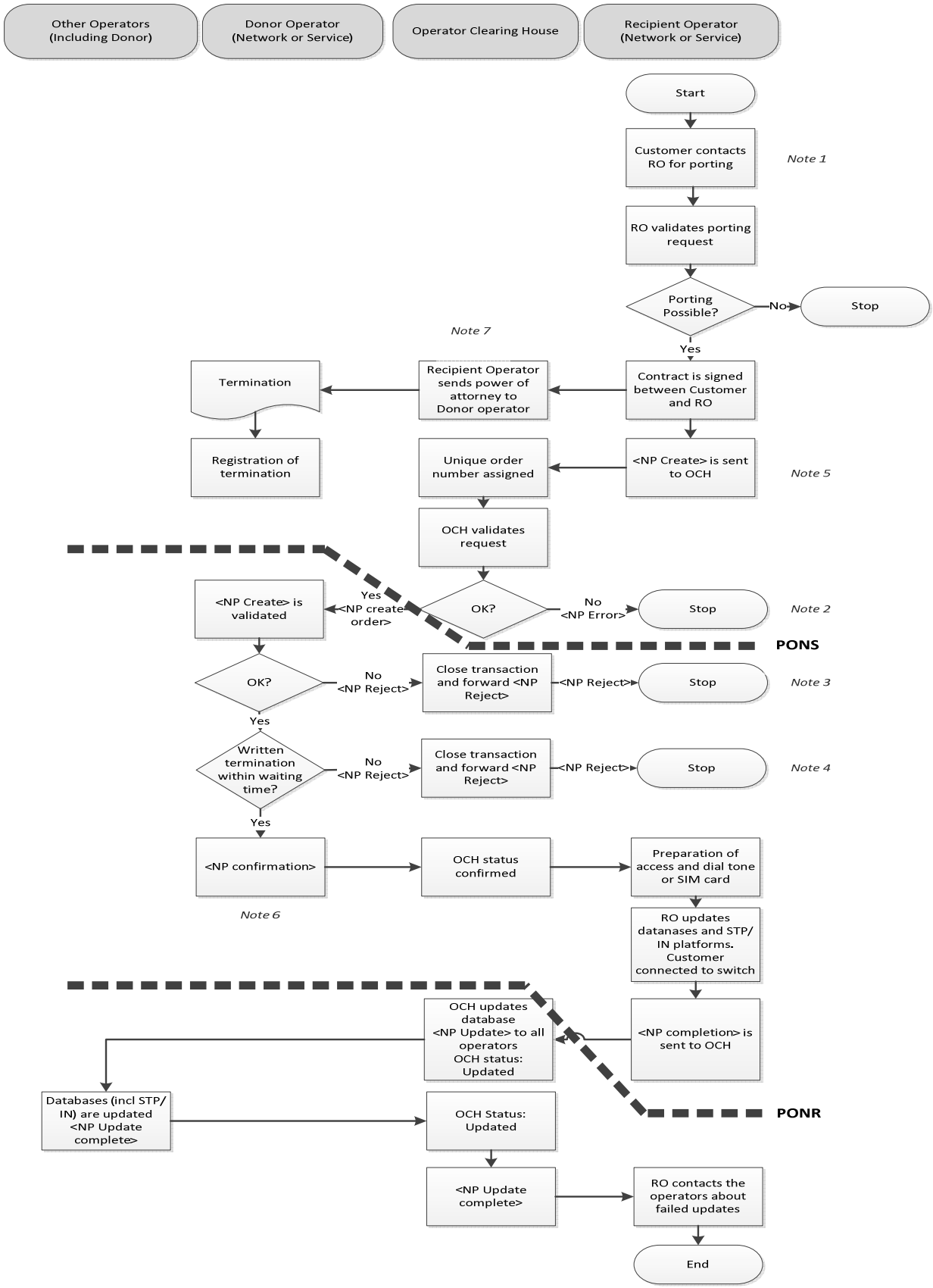
When porting a number that belongs to a Pre Paid SIM card the following activities must be done (please refer to the scheme in 4.3.1): 1, 2, 4, 6, 7, 8, 9, 10, 11.

4.4. Operator Porting – Flows

When the end-user moves one or more telephone numbers from one operator to another, but does not change physical address (relevant for fixed) an Operator Porting takes place.

Assumptions for the flows are:

- The end-user contacts the Recipient Operator.
- The Recipient Operator terminates the existing contract on behalf of the end-user
- The Recipient Operator needs to prepare the access for the end-user that should be used after the porting. This is done by issuing a new SIM card or by initiating the access by a fixed line e.g. fibre network access.


Other Operators (Including Donor)
Donor Operator (Network or Service)
Operator Clearing House
Recipient Operator (Network or Service)
Start
Customer contacts RO for porting
Note 1
RO validates porting request
Porting Possible?
No
Stop
Yes
Note 7
Termination
Recipient Operator sends power of attorney to Donor operator
Contract is signed between Customer and RO
Registration of termination
Unique order number assigned
<NP Create> is sent to OCH
Note 5
OCH validates request
<NP Create> is validated
Yes
<NP create order>
OK?
No
<NP Error>
Stop
Note 2
PONS
OK?
No
<NP Reject>
Close transaction and forward <NP Reject>
<NP Reject>
Stop
Note 3
Yes
Written termination within waiting time?
No
<NP Reject>
Close transaction and forward <NP Reject>
<NP Reject>
Stop
Note 4
Yes
<NP confirmation>
OCH status confirmed
Preparation of access and dial tone or SIM card
Note 6
RO updates datanases and STP/ IN platforms. Customer connected to switch
OCH updates database <NP Update> to all operators OCH status: Updated
<NP completion> is sent to OCH
PONR
Databases (incl STP/ IN) are updated <NP Update complete>
OCH Status: Updated
<NP Update complete>
RO contacts the operators about failed updates
End

Note 1: *If the Recipient Operator is a Service Provider, then it is advisable that the Service Provider obtains approval for establishing the access from the Network Operator before the contract is signed with the end-user. See the request flow specified at 4.3.3, if using the OCH System to obtain the approval.*

Note 2: *The Recipient Operator may need to contact the end-user for further information before starting the transaction flow from the beginning.*

Note 3*: The Recipient Operator may need to contact the end-user for further information before starting the transaction flow from the beginning.*

Note 4*: The Donor Operator has waited for the Power of Attorney for 10 working days, but the Power of Attorney has not arrived. For GSM this only applies if the Donor Operator is not using ICC field validation.*

Note 5: *It is assumed that the <NP Create> order is sent as soon as possible after the end-user has signed the contract.*

Note 6*: It is possible for the Donor Operator to send multiple <NP Confirmation> in order to change the execution date. This may only be done after agreement with the Recipient Operator.*

Note 7*: The Power of Attorney is e-mailed from the Recipient Operator to the Donor Operator using a Power of Attorney from the end-user. Note: For GSM the Power of Attorney may be replaced by using ICC field validation instead.*

4.5. Termination - Flows

When the end-user terminates his subscription agreement with the Current Operator, who is not the Range Holder, the number must to be returned to the Range Holder after the retention period has expired.

When the retention period has expired, the Current Operator updates his databases and sends a <NP Return> message to the OCH System. The OCH System updates the databases and converts the message into a <NP Update> message that is sent to all Operators. All Operators return an <NP Update Complete> message to the OCH System upon successful update of their databases. The OCH System sends the <NP Update Complete> through to the Operator who sent the <NP Return>.

4.6. Geographic Porting – Flows

When the fixed network end-user moves from one location to another within the Current Operator but outside the geographic area covered by the local switch and keeps the same telephone number, geographic porting arises.

When the geographic porting has been completed, the Current Operator updates his databases and sends an <NP Change> or <NP Create> message to the OCH System. The OCH System updates the databases and sends an <NP Update> message to all other Operators. All Operators return an <NP Update Complete> message to the OCH System upon successful update of their databases. The OCH System sends the <NP Update Complete> to the Current Operator.

4.7. Function Porting – Flows

When the following event occurs with a telephone number inside the Current Operator's network:

- Change the routing/charging information

The function porting is used.

The routing/charging information is global for the telephone number (or series of telephone numbers). This means that it is not possible to have two sets of charging information defined for the same telephone number, where one set of charging information is for one group of operators, and the other set is for all other operators.

When the Current Operator has done the required changes and updated the databases, a <NP Change> or <NP Create> message is sent to the OCH System. The OCH System will update the database and will distribute the information to the other Operators using <NP Update> messages. All Operators return an <NP Update Complete> message to the OCH System upon successful update of their databases. The OCH System sends the <NP Update Complete> through to the Recipient Operator.

4.8. Range Updates – Flows

The range update is used to inform about updated information in connection with a number range, excluding any ported numbers that may exist in that range. Only the Range Holder or the Range Holders Network Operator can update range information.

When the Range Holder has done the required changes to the range in question and updated the databases, a <NP Range Update> is sent to the OCH System. The OCH System will update the database and will distribute the information to the other operators using <NP Range Update> messages. All Operators return an <NP Update Complete> message to the OCH System upon successful update of their databases. The OCH System sends the <NP Update Complete> through to the Range Holder Operator.

4.9. Fault Procedures

The fault procedures address the fault situation(s) that might occur during the administrative and physical Number Portability transactions. The Requirements Specification and other instructions for OCH A/S may list fault cases and possible solutions.

If faults occur in the switching systems, the fault procedures in the Technical Rules & Procedures apply. However, faults related to the OCH System and other administrative procedures are listed in bullets 4.9.1. to 4.9.5.

The Operators can agree upon time frames, where all execution of Number Portability is suspended.

4.9.1. Day-to-day Fault Procedures

The day-to-day fault procedures address the fault situation(s) that might occur after all administrative and physical Number Portability transactions, i.e. the porting has been completed and both the OCH System database and all operators' databases have been updated with correct information.

- If one or more operators experience mismatch in their own database, a possible solution is to obtain the OCH System data and compare it with ones own end-user care system.
- In case of data mismatch, the information stored in the OCH System database will be considered the correct data if the operators do not agree otherwise in the relevant situation.

Each operator must assign a point of contact staffed with qualified personnel ready for mutual troubleshooting. These points of contact must be specified in the Interconnect Agreement.

OCH A/S must be involved in locating and correcting faults.

4.9.2. Back-up Procedures

Back-up procedures will be included in the OCH System, and no back-up procedures that bypass the OCH System will be implemented.

4.9.3. Fall Back Procedure

As a fallback for a failed Operator porting (detected within 24 hours after the recipient has sent <NP Completion>), an operator porting back to the Donor Operator will be performed, where the Donor Operator will disable timing checks.

In case of failure in the Recipient Operators switching systems or the physical connection, the Recipient Operator on behalf of the end-user can agree with the Donor Operator to initiate a rollback of the porting. Depending on status of the porting, one or two scenarios can be used:

Porting-status: Porting Completed

Upon request from the Recipient Operator, the Donor Operator will now initiate a <NP Create> with immediate execution date. The Donor Operator (who was recipient previously) will not validate the date but confirm. The Recipient Operator (who was Donor Operator previously) receives confirmation and can now send <NP Completion> to the OCH System when ready. This generates <NP Update> to all other operators.

Porting-status: Porting Active

The Recipient Operator use OCH Online to close the porting order that is still pending due to outstanding <NP Update Complete>. Upon request from the Recipient Operator, the Donor Operator will now initiate a <NP Create> with immediate execution date. The Donor Operator (who was the Recipient Operator previously) will not validate the date but confirm. The Recipient Operator (who was the Donor Operator previously) receives confirmation and can now send <NP Completion> to the OCH System when ready. This generates <NP Update> to all other Operators.

4.9.4. Forced closing of flows before PONR

The normal procedure is that the Donor Operator sends a NP Reject or the Recipient Operator sends an NP Cancel.

If this is not possible, a porting flow can be forced closed by contacting OCH helpdesk. It is only to be done after mutual agreement between the Donor Operator, the Recipient Operator and possible a cc-Operator (recipient of cc-transactions).

4.9.5. Forced closing of flows after PONR

The operator who initiated the flow can <force close> the flow using OCH online

Flows which remains open after Point Of No Return for a long period of time often causes problems because the numbers involved cannot be included in new flows since numbers can only can be active in one flow at a time.

Therefore, all flows will automatically be forced closed by OCH after a configurable amount of time dependent on the type of flow.
I.e. open NP Range Updates will be forced closed after a configurable amount of time, and Operator Porting flows will be forced closed after another configurable amount of time (Currently 7 days).

1. Appendix 1 – Key Processes

1.1. ICC analysis

An ICC analysis is where a Recipient Operator asks the Donor Operator to inform the Recipient Operator of the ICC-numbers of the end-users telephone numbers. When using ICC solution, it can be necessary to ask the Donor Operator for an ICC-number analysis to avoid inconvenience for the end-user. It is optional for the operator to offer the ICC-number analysis.

ICC-number analysis can only be used for end-users that contain more than 25 Mobil numbers.

The request for a number analysis must be sent by e-mail and must contain:

Model A:
Request: CVR-number + Written Power of Attorney
Answer: All mobile numbers + ICC numbers that belongs to the CVR number

Model B:
Request: CVR-number + Written Power of Attorney + mobile numbers (x-numbers)
Answer: Mobile numbers + ICC numbers (x-numbers)

The result of the number analysis must be forwarded within 10 working days.

The number analysis will always be a snapshot and therefore discrepancies can occur.

The Donor Operator is allowed to charge a price for the Number analysis. The price has to be agreed upon in the Number Portability agreement between the two operators.

1.2. Number analysis

A Number analysis is where a Recipient Operator asks the Donor Operator to inform the Recipient Operator of the end-users telephone numbers and configuration.
The requirement of a written Power of Attorney will not be applicable if the number analyse is required due to a public procurement. It is optional for the operator to offer the Number analysis.

The request for a number analysis must be sent by e-mail and must contain:

Model A – if model is not specified in the request, Model A will be used as default:

Input: (must be sent from the Recipient Operator)
Customer Name
CVR number and Power of Attorney.
Main number (best guess that the customer and Recipient Operator thinks)

Output: (must be provided and sent from Donor Operator)
CVR number and CustomerID(s)
The end-user configuration

Main number
All number series including reserved numbers, for both GSM and Fixed
For GSM numbers the ICC numbers must be included if connected to the number
Information about Alarm lines/numbers and other conflicting products

Model B

Input: (must be sent from the Recipient Operator)
Customer Name
CVR number and Power of Attorney
Main number (best guess that the customer and Recipient Operator thinks)

Output: (must be provided and sent from Donor Operator)
CVR number and CustomerID(s)
The end-user configuration
Main number
All numbers including number series and reserved numbers, for both GSM and Fixed
For GSM numbers the ICC numbers must be included if connected to the number
Information about Alarm lines/numbers and other conflicting products

The Donor Operator must inform the Recipient Operator if there is any cost associated with making reserved numbers portable. The Recipient Operator has the responsibility to inform the end-user about the cost and inform the Donor Operator if the numbers must be made portable.

The result of the number analysis must be forwarded within 10 working days.
The number analysis will always be a snapshot and therefore discrepancies can occur.

The Donor Operator is allowed to charge a price for the Number analysis. The price has to be agreed upon in the Number Portability agreement between the two operators.

1.3. Routing and Charging code

This section describes what needs to be done when an operator wants to implement a new Routing and Charging code or wants to implement a Number Range.

The process involves the following instances:

Requesting Operator.

The requesting operator must make sure that the RoutingInfo(RI) and ChargingInfo(CI) are in correspondence with an existing Number Range owned by the requesting Operator or a new Number Range owned by the requesting Operator. See Appendix 3 for definitions of RI and CI.

The RI and CI cannot be the equivalent of a number range which is greater than the Number Range itself. If an operator runs out of numbers and therefore buys more numbers from NTA, then the Operator can use the same RI/CI for those new numbers.

If an operator wants to use 12 digits number ranges, then the operator must apply for a new RI/CI code. A RI/CI code for 8 digits number range cannot be used for at 12 digits number range.

The requesting operator updates Samtrafik-aftaler to reflect the future use of the new RI and CI.

Then the requesting operator applies for the RI/CI through OCH using the OCH role OPERATOR_ADMIN.

The combination and syntax rules of the information used for applying for RI/CI are described in NPP96.

After updating the existing "Samtrafik-aftaler", and upon final approval of NPA, the requesting operator may send the relevant NP Range Update to OCH.

The application of the RI/CI with the relevant information results in a mail sent to all OCH Operators from OCH using the e-mail specified in OCH-Online, Operator List in the field Number & RI/CI Responsible email.

The OCH Operators.

Upon receival of the application request from OCH the Operators must check the "Samtrafik-aftaler".

The operators can reject the application within 14 days. If no such rejection has been received the application is automatically approved and will result in an update in OCH of "Godkendt RI/CI".

When the "Samtrafik-aftaler" has been updated and the NPRange Update has been received the operators must implement the routing in the network.

Rejecting an application for RI/CI

An operator can reject an application for RI/CI by another operator in OCH within 14 days after receiving the application by using the OCH role OPERATOR_ADMIN. An explanation must be entered as to why the application has been rejected by the operator.

A rejection of an application for RI/CI will result in an email to the applying operator and the other OCH operators with information about who has rejected the application.

An application cannot be rejected after the 14 days waiting period.

The combination and syntax rules of the information used for rejecting an application for RI/CI are described in NPP96.

Implement, Update or Delete Number Ranges

The Range Holder or if the Range Holder is a Service Operator which is not directly connected to OCH – the Network Operator, send a NP Range Update with RangeUpdateType I, U or D to OCH.

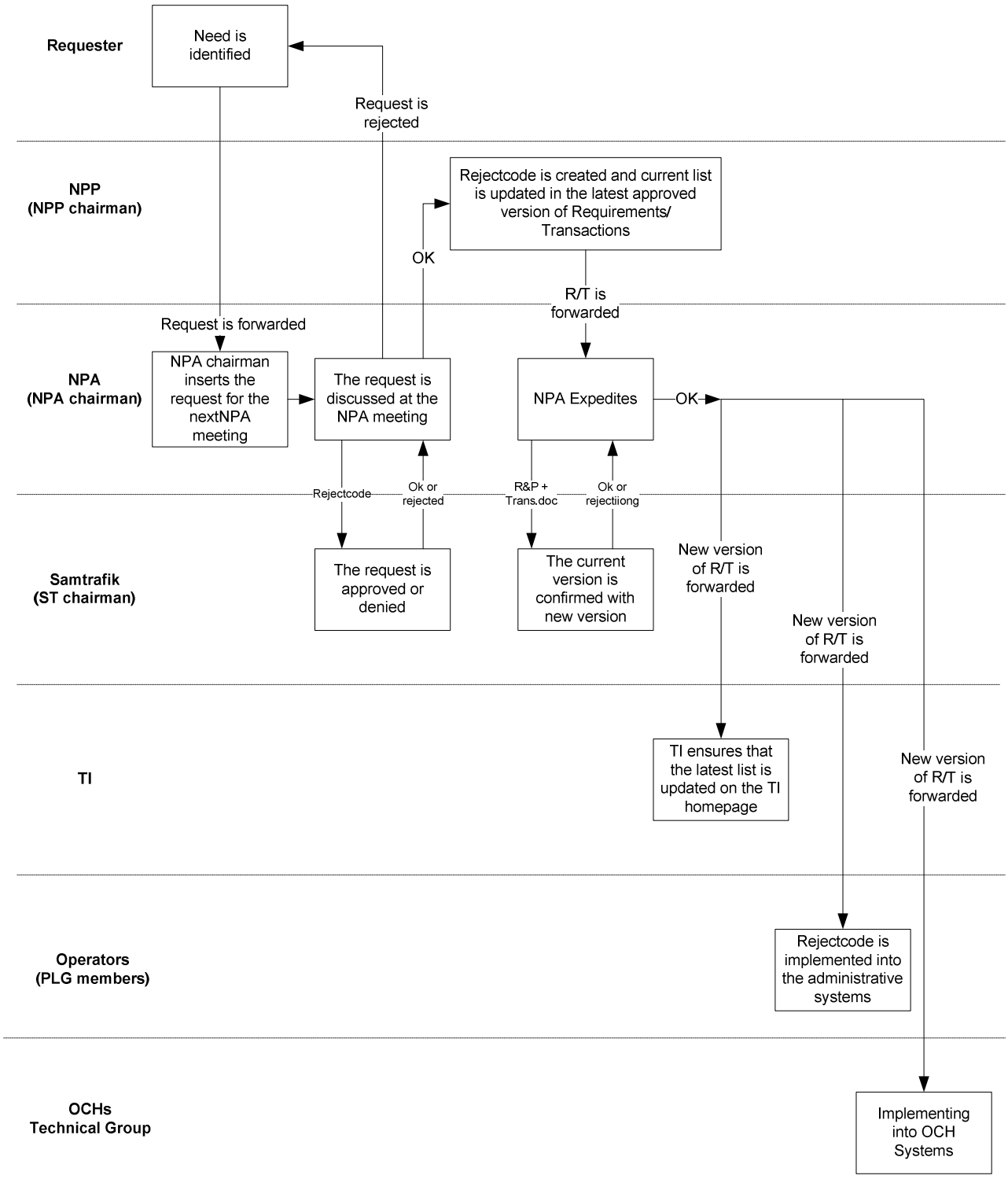
OCH will send the NP Range Update to all operators and send an email to the Number RI/CI responsible email specified in Operator Information (OCH Online).

The required changes due to the NP Range Update must be implemented at each operator within 4 weeks after receiving a NP_Range Update.

Process description for creating and deleting Reject codes on OCH

The process for creating or deleting a reject code for OCH is illustrated below. Thereafter the area of responsibility is described.

Processdiagram for creating/deleting and distributing Rejectcodes



- The requester.
  The requester identifies a need for a change of reject code. This need is described in detail with a date for activation. The request is forwarded to the chairman of the NPA.

- The chairman of the NPA.
  Upon receival of the request the chairman puts it on the agenda for the next NPA meeting.

- "Samtrafik" is the Steering Committee
  A change of reject code must be sent to the Steering Committee for approval.

- The chairman of the NPA.
  If the request is rejected the requester is informed thereof by the chairman of NPA.

  If the request is approved the chairman forward the information to the chairman of the NPP.

- NPP
  The change of reject code is inserted in the current approved Requirements/Transactions (R/T) documents.

- NPA
  NPA forwards the new R/T documents to "Samtrafik".

- "Samtrafik". The Steering Committee.
  The Steering Committee approved the new R/T documents to the new current version and returns the documents to NPA.

- NPA.
  NPA agrees on the date of activation and forward the information to Telekommunikations Industrien and the operators.

- Telekommunikations Industrien (TI).
  The change of reject code is publicised in the new current R/T document by making the document available on the OCH Online TI homepage (Sekretariatet).

- The Operators.
  Upon receival of the new current R/T the operators ensures the updating of the administrative systems with the change of reject code and that they are available for use on the requested date.

- OCH A/S Technical Group.
  The chairman of the NPA informs OCH A/S Technical Group about the change of reject code with the purpose of implementation in OCH systems.

1.4. The end-user has been filed for bankruptcy

Filed for bankruptcy without any open NP flows

If an end-user has been filed for bankruptcy the Donor Operator is obliged to reject any porting flows received from other operators after the file for bankruptcy unless a Power of Attorney is signed by the Curator of the bankruptcy.

Filed for bankruptcy after confirmation of NP flows

If an end-user has been filed for bankruptcy and there are open NP flows the Donor Operator is obliged to request the Recipient Operator to cancel the NP flows. The documentation for cancelling the open NP flows must contain information about who the Curator is. The cancellation must be done by the Recipient Operator before confirmed execution date or within 5 working days.

Handling of numbers in the bankrupt company

In order to port numbers covered in the bankruptcy the Recipient Donor must have a Power of Attorney signed by Curator concerning the numbers to be ported. The Power of Attorney must be sent to the Donor Operator.

1.5. Rejection Causes

Rejection Causes

Reject codes are the Donor Operators way of rejecting a porting of one or more numbers. Error codes are used by the OCH System when the system detects a syntax, semantic or lookup error. The Error and Rejection codes are specified in 7.5 Requirements/Transactions for Number Portability.

Below is the valid rejection codes and a short explanation.

Reject code	Explanation
330	The number type II configuration does not match the Donor Operators registration. Occur most on fixed number portings. If the customer can't figure out the configuration, after contacting their Current Operator, then getting a number analysis from the Donor Operator is recommended.
338	Telephone number not located at the Donor Operator. Wrong current number status at the Donor Operator. Contact the Donor Operator for questions.
339	The Customer ID does not match the telephone number.
348	Internal porting in progress to [MO], due date [DDMMYYYY]. Look at the OCH order reject text for further details.
349	The telephone number is not in use at the Donor Operator. Commonly used if the telephone number has a pending order e.g. termination or changes to the customers

	solution. Contact the Donor Operator for explanation, and when a new porting can be started.
350	The FIXED telephone number address is undefined.
351	Rejected due to pending change of telephone number.
352	The telephone has a pending reactivate order.
353	Rejected due to pending change of customer.
355	The customer rejects porting. ”Et fåtal af kunder har for at imødegå chikane blokeret deres kundeforhold for enhver form for bestilling, der ikke er positivt autoriseret (ofte via et kodeord) af kunden selv”.
356	Rejected, the Donor Operator is the customer.
376	Written termination not received by the Donor Operator within timeframe.
378	The Network Operator rejects porting Request. Contact the Network Operator for reason. Most likely used if operators don’t have a NP-agreement.
380	Wrong name and CVR number. Power of Attorney filled out with wrong customer information: name, address, CVR number, legal owner of the number. Refer the customer to the Donor Operator for questions.
382	ICC number does not match telephone number.
383	Illegal CVR number used in written termination.

1.6. Activities when activating 90 numbers

As stated in the Rammeaftalen concerning 90 numbers:
https://www.rammeaftalen.dk/rammeaftalen-for-90-nummer-tjenester/6-brugsret-til-90-numre/

The operator must, no later than 6 weeks prior to launching a new 90 number service or when changing a 90 number service already in use, request to telecommunications providers to open for traffic to the 90 number service. If an operator chooses to open a 90 number within a shorter notice than the 6 weeks, the other parties which have signed up to Rammeaftalen must have accepted this in advance. For charitable collections, a shorter notice can be accepted.

When implementing 90 numbers, the normal 4 week notification is suspended and substituted by the a 6 week notification.

1.7. Implementing 3,4,5, and 6 digit numbers

According to the Telecommunication Act, Networks Operators needs to ensure correct routing to numbers in the Danish Number plan. When an operator has been allocated a 3,4,5 or 6 digit number from the NTA the operator must do the following:

The operator can use the contact persons in OCH Online.

The primary choice is ”Number and RI/CI responsible”, if this is present.

The secondary choice is ”NP Responsible”, if this is present.

The third choice is ”NP contact”.

The operator sends a mail to these contact persons for all network operators requesting them to implement the number in their routing. The mail must also inform the Network Operators about the charging for the number.

Just like implementing 8 digit numbers the Network Operators must implement the new number in their networks within 4 weeks.

2. Appendix 2 – Requirements for routing and charging traffic

The Network Technical Group and the Charging Group has identified the following requirements, in order to be able to route and charge calls correctly in the network:

Requirement	**Description**
Telephone Number	The number that is being ported.
Operator Identity	Identity of the Operator to whom the telephone number is ported. *The transaction document defines the field OperatorID.*
Geographical Information	The district (that is "Kommune") where the telephone number is assigned. If the number is active, the parameter identifies the district where the end-user is located. If the number is not active, the parameter identifies the district where the SPC is located. This parameter is used – if instructed by the Porting Case - in relevant cases to define the charging and to route the call to an interconnect in the relevant region. *The transaction document defines the field Municipality code, where the special code '000' defines the whole of Denmark.*
Porting Case	Information defining which parameters in the administrative interface that must be used for routing and charging. *The transaction document defines the field PortingCase, which holds the information.* The field PortingCase can have three values: 'NonPorted' (PortingCase 0 [NPT definition]), 'PortedWithGeo' (PortingCase 1) and 'PortedNonGeo' (Porting Case 2).
Routing Information	The equivalent number range (e.g. 4347 for numbers 43470000 to 43479999) to which the Telephone Number is ported and has to be routed as belonging to this number range. In the originating network this information is used to route the call if instructed by the Porting Case. *The transaction document defines the field RoutingInfo, which holds the information.*
Charging Information	The equivalent number range (e.g. 4347 for numbers 43470000 to 43479999) to which the Telephone

	Number is ported, and has to be charged as belonging to this number range. In the originating network this information is used to charge the call if instructed by the Porting Case. *The transaction document defines the field ChargingInfo, which holds the information.*
Interconnection Point	The information is the Network Indicator and the Signalling Point Code for the exchange. *The transaction document defines the field SPC, which contains the network indicator and signalling point code for the telephone number's current exchange.*

Porting Case NonPorted

If the Porting Case is NonPorted, then the Telephone Number is not ported, meaning that the routing and charging is unchanged. The Telephone Number may be resold, meaning that the Service Operator has changed.

Porting Case PortedWithGeo

If the Porting Case is PortedWithGeo, then the Telephone Number is ported to the fixed network with associated Geographic Information. call charging is done based on Geographical Information.

In this porting case, the following information is relevant for routing:
- Telephone Number
- Porting Case
- Operator ID
- Municipality
- Signaling Point Code

In this porting case, the following information is relevant for charging:
- Telephone Number
- Porting Case
- Municipality
- Operator ID

Porting Case PortedNonGeo

If the Porting Case is PortedNonGeo, then the Telephone Number is ported to a network with no associated Geographical Information (e.g. GSM, VMS, IN, VoIP). call charging is not based on Geographical Information.

In this porting case, the following information is relevant for routing:
- Telephone Number
- Porting Case
- Operator ID
- Routing Information

In this porting case, the following information is relevant for charging:
- Telephone Number

- Porting Case
- Operator ID
- Charging Information

The contents of the Routing Information can be different from the contents of the Charging Information. The valid values and their combinations are defined through interconnect agreements between the operators.

3. Appendix 3 – Compensation

Compensation to the end-user

According to legislation, section 7 in Teleloven entering into force as from 25. May 2011, an end-user is entitled to compensation if the porting of a number is delayed, in case of improper porting, or if the number to be ported is without telephone connection for more than 24 hours.

The end-user's operator is responsible for defining the rules and conditions for compensation, making them available for the end-user, and handling complaints from end-users regarding portings.

If an operator has given an end-user compensation for delay, improper porting or missing connection, this operator may under certain circumstances have the right to require equalization from the other operator involved in the porting.

Rules of Equalization

1. The rules of responsibility are set by the industry itself according to the new Telecom Law L 59, section 7. Rules in case of delay or misuse of number portability are found in the NP standard agreement and mentioned in Rules and Procedures.
2. The Recipient Operator has the responsibility for handling all error types, and assessment of the end-users claim for compensation, and if approved, give the end-user the given compensation.
3. In cases of improper portability, the end-user can contact either the Recipient Operator, or the Donor Operator. The operator which the end-user contacts first, is obligated to take responsibility for handling and assessing the end-users claim, and in approved cases, pay the compensation to the end-user.
4. Cancellation of NP flows is to be executed at 12 PM the workday before Confirmed Execution Date at the latest. If the cancellation is not executed correctly, it is not considered to be part of the Rules of Equalization.
5. All operators are obligated to put their rules for compensation in relations to Number Portability in their Terms of Agreement.
6. If an end-user in a specific case has received compensation from the Recipient Operator, the Recipient Operator will assess from the Rules of Responsibility, if there should be made a demand towards the Donor Operator, within the boundaries of the Rules of Equalization.
7. The economical demand must in any given case be calculated within the boundaries that the industry has set in the Rules of Equalization. In addition to the compensation and equalization between the involved operators, a demand of liability can be requested according the standard NP agreement § 11, The compensation amount paid to the end-user has to be minimum the amount of equalization.

The equalization of expenses is calculated per telephone number, which for example means that a type 2 porting with 50 telephone numbers, would mean 50x the equalization amount. If a porting contains more than 100 telephone numbers in one porting-agreement with the same end-user, and any further claims must be regulated according to NP agreement §11,

Allocation of responsibilities

A claim for economical reimbursement through the Rules of Equalization, can only be made when the end-user has received the compensation because of the following 3 reasons

- A) Delay*,
- B) Lack of connection for more than 24 hours, or
- C) Improper porting.

1. For error type A) and B) the porting must be completed on The OCH System with an NP Complete before any claim of equalization can be raised. Such claim must be addressed within 30 days after the end-user has received the compensation. For error type C) the porting must be ongoing, and the claim for equalization must be raised within 30 days at the most after the improper porting is returned to the Donor Operator.
2. For error types A) and B) in the above item 1 section, the process of equalization is initiated by the Recipient Operator, as it will be the Recipient Operator who has the main contact with the end-user. The claim for equalization is sent by E-mail to the Donor Operator according to the mailing list, containing the telephone number(s) along with the total amount of equalization and a short description.
3. For error type C) in the above item 1 section, the process of equalization is initiated by the Donor Operator, as it will be the Donor Operator who has the main contact with the end-user. The claim for equalization is sent by E-mail to the Recipient Operator according to the mailing list, containing the telephone number(s) along with the total amount of equalization and a short description. In cases where the end-user has received the compensation from the Donor Operator according the Donor Operators Terms of Agreement, the Donor Operator can claim full economical reimbursement for the compensation amount if it exceeds the amount written in the Rules of Equalization, according to the NP standard agreement § 11, If the Recipient Operator has paid the compensation to the end-user, there can be made no claim for equalization from the Donor Operator. For error types A) and B) the Donor Operator can ask for documentation that the Recipient Operator has paid compensation to the end-user. For Error type C) the Recipient Operator can ask for documentation that the Donor Operator has paid compensation to the end-user.
4. Claims for equalization are calculated from the allocation of responsibilities and the rules of Equalization of Expenses set by the industry itself.
5. It is legally liable for an operator to cause the failure types under the appropriate positive list in the section above in R&P, provided that the operator has contributed to the delay etc. The positive list is not exhaustive but will be regularly updated.
6. Operators Clearing House (OCH) is not a part of the compensation rules the industry has set. The Recipient Operator will therefore not receive equalization, if the Donor Operator has no responsibility, but the fault lies with The OCH System.

*) This means a delay, when the connection to and from the end-users telephone number between the end-user and Recipient Operators agreed porting date has been definitively established, however starting at the earliest after expiry of the next business day**).

**) Business days are all weekdays not included 1.5, 5.6, 24.12, 31.12.

Allocation of Responsibilities between Operators

Operator 1	Operator 2	Definitive allocation of the total amount of equalization between Operator 1 and 2 (in %)
Error committed by Operator 1	No error	100 / 0
Error which starts a faulty flow, which is crucial for the acceptance of a compensation claim	Is not expected to locate and fix error from Operator 1	100 / 0
Error which has participated to the acceptance of a compensation claim	Error which has participated to the acceptance of a compensation claim	50 / 50

NOTE:
"Error" is meant as the error type according to the positive list in Rules and Procedures, provided that the Operator has contributed to the delay etc. The positive list is not exhaustive, but will be regularly updated.
Equalization of expenses is settled along with other NP fees once a month. Equalization of expenses is calculated without VAT.
Every case of equalization should be stated with code, telephone number and a description.

Error types and equalization amount

Improper porting. (If Recipient Operator completes porting without acceptance from the end-user). Must trigger compensation after request from the customer, and the possibility of equalization according to the standard NP agreement § 11.) XXXX DKK. in equalization amount to the Donor Operator.

Delayed porting. Starting point is the time of porting that the Recipient Operator has agreed with the end-user, though earliest at the end of the next business day.The time aspect can be important to the end-user. Therefore, this will result in compensation after the end-user has contacted the Recipient Operator, according to the Recipient Operators Terms of Agreement. XX DKK. as a onetime payment, in addition X DKK. per following calendar day

Lack of connection. If the end-user is without connection in more than 24 hours. The time aspect is crucial to the end-user. Therefore, this will result in compensation after the end-user has contacted the Recipient Operator, according to the Recipient Operators Terms of Agreement. XXX DKK. as a onetime payment, in addition XX DKK. per calendar day.
All amounts are determined in the at all times existing NP standard agreement.

Specification of equalization types:

- 1000 Porting date is maintained
- 1001 Traffic is disconnected
- 1002 Lack of SIM Card
- 1003 Lack of Copper/Fiber/Ribbon
- 1004 Operators lacking to respond to an NP Update on The OCH System.

- 2000 Porting is canceled
- 2001 Recipient Operator hasn't canceled flow before Confirmed Execution Date.
- 3000 Porting date not maintained. Porting date pushed forward in time.
- 3001 Donor Operator confirms to a different date than asked in the Requested Execution Date
- 3002 Recipient Operator asks for a different date than agreed with the customer
- 3003 Recipient Operator asks for an impossible date, though agreed with the customer
- 3004 Donor Operator rejects due to a lack of Power of Attorney
- 3005 Donor Operator rejects due to a wrong Power of Attorney though the information is correct
- 3006 Donor Operator rejects due to wrong ICC number/CustomerID, though the information is correct
- 3007 Porting not started by Recipient Operator, or an error occurs on The OCH System
- 4000 Fraud
- 4001 Invalid Power of Attorney
- 4002 Improper flow started on The OCH System, but Recipient Operator cancels flow.
- 4003 Traffic is disconnected
- 5000 Recipient Operator starts an <NP Create> without an agreement with the end-user
- 5001 Improper flow started on The OCH System, but Recipient Operator cancels flow.
- 5002 Traffic is disconnected