



**A Consultative Document**

**Draft Framework for Implementation of  
Indirect Access in Trinidad and Tobago**

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# **1 Introduction**

## **Rationale**

The Telecommunications Act 2001, hereafter called “the Act”, empowers the Telecommunications Authority of Trinidad and Tobago hereafter called “the Authority” to:

1. Establish conditions for an open market for telecommunications services, including conditions for fair competition, at the national and international levels (Section 3(a)); and
2. Promote access to telecommunications services (Section 3 (c)(i)).

In order to attain these requirements, the Act prescribes interconnection between concessionaires of public national and international telecommunications networks and services. Concessions have been granted for public national and international telecommunications networks and services and end users require access to concessionaires of public international telecommunications networks and services although they are not connected directly to those concessionaires. The Act gives the Authority in Section 25 (1) (b) the mandate to require concessionaires of public domestic telecommunications networks and services to provide indirect interconnection to other concessionaires of public telecommunications networks and services. This facility will guarantee equal access to all concessionaires of public international telecommunications network and public international telecommunications services by end users, thereby providing greater choice for them.

New entrants to the international access market will be at a distinct disadvantage if indirect access is not available and if the dialling patterns to access their services are onerous. Section 25 (2) (k) of the Act mandates that dialling parity be implemented as does Clause 8 of the Telecommunications (Interconnection) Regulations, 2006. The Authority is of the view that effective competition in international services can only be effectively achieved by the introduction of indirect access and dialling parity for end users.

Competition in the international voice call market will bring about greater choice and quality to users. The effects of indirect access for long distance and international calls in other countries, e.g. Europe and the USA, have shown that there was a boost to competition among the service providers in the provision of long distance and international calls which resulted in benefits to the end users. This draft implementation framework proposes a mechanism which, if implemented, could facilitate the achievement of such benefits by the people of Trinidad and Tobago.

## **1.1 Objectives**

The objectives of this consultative document are to propose:

- 1) the most efficient and cost effective method of providing indirect access in Trinidad and Tobago;
- 2) a manner in which cost for indirect access shall be determined and recovered;  
and
- 3) an approach for the implementation of indirect access

***Statement on Purpose:***

***The Authority proposes to require the implementation of indirect access to competing alternative public international concessionaires, without prejudice to them, for completion of international calls made by end users in Trinidad and Tobago in accordance with an implementation plan to be prescribed by the Authority.***

## 1.2 Regulatory Framework

The Authority draws on the following sections of the Act for the implementation of indirect access in Trinidad and Tobago:

Section 3:

*“The objects of the Act are to establish conditions for: ...*

*(a) an open market for telecommunications services, including conditions for fair competition, at the national and international levels;...*

*(c) promoting and protecting the interests of the public by-*

*(i) promoting access to telecommunications services;...”*

Section 25(1):

*“... a concession for a public telecommunications network or a public telecommunications service shall include conditions for –*

*(a) direct interconnection with the public telecommunications network or public telecommunications service of another concessionaire;*

*(b) indirect interconnection with such network or service referred to in paragraph (a), through the public telecommunications networks or public telecommunications services of other concessionaires;...”*

Section 25(2):

*“In respect of a concessionaire’s obligations pursuant to subsection (1), the Authority shall require a concessionaire to- ...*

*(k) provide dialling parity to other concessionaires of public telecommunications networks and public telecommunications services in accordance with requirements prescribed by the Authority.”*

### **1.3 Scope**

This draft framework document will serve as the basis for engaging the industry in a consultation on the approach to implement indirect access in Trinidad and Tobago. The consultation will address the implementation of indirect access for the fixed and mobile sectors of the market in Trinidad and Tobago.

### **1.4 Modification to Document**

As the country's telecommunications industry matures, the regulatory requirements in respect of Indirect Access will evolve. Subsequent to the consultation process, and after this document has been finalised, the regulatory framework for Indirect Access will be reviewed and modified as necessary and in consultation with stakeholders and the public, to ensure that regulatory practices and processes continue to be guided by appropriate policy guidelines and objectives.

### **1.5 Consultation Process**

The Authority is seeking the views and opinions of the general public and other stakeholders, in this first consultation phase, regarding the proposals made in this *Draft Framework for the Implementation of Indirect Access* in accordance with the Authority's *Procedure for Consultation in the Telecommunications Sector of Trinidad and Tobago*.

The Authority's consultation procedures and comment submission form are available on the Authority's website, <http://www.tatt.org.tt>.

Comments should be submitted on or before **August 25<sup>th</sup> 2008** to [policy@tatt.org.tt](mailto:policy@tatt.org.tt) or mailed to:

Telecommunications Authority of Trinidad and Tobago  
BEN Court, 76 Boundary Road  
San Juan

## 2 Definitions

The following are definitions for terms used in this document:

<b>Calling party</b>	the end user who initiates a call.
<b>Called party</b>	the end user who is called.
<b>Carrier pre-selection</b>	a method that offers the end user the facility to choose in advance which public international telecommunications concessionaire will be used for international calling. The end user dials the called party's number only.
<b>Carrier selection</b>	a method whereby the end user dials a carrier selection code prior to dialling the called party's number. The carrier selection code must be dialled for every international call or the pre-selected public international telecommunications carrier will be used to complete the call.
<b>Carrier selection code</b>	the numbers dialled by an end user in front of the international called party's number to select the carrier which will carry the call. The carrier selection code is made up of the carrier access code and the carrier identification code and can be four to seven digits in length.
<b>Concessionaire</b>	an authorised provider of public telecommunications services
<b>Default service provider</b>	the service provider whose facilities are used if no choice is exercised by the end user when dialling.
<b>Dialling parity</b>	is the ability to access an international called party using different public international telecommunications concessionaires by dialling the same number of digits to complete the call as if using the international facilities of the end user's public domestic telecommunications concessionaire.

<b>E.164</b>	the International Telecommunications Union recommendations on the format of a telephone number.
<b>End user</b>	the residential or business user of telecommunications services.
<b>Equal Access</b>	is the ability of a customer to choose in a transparent and equal manner between two or more competing concessionaires.
<b>Indirect Access</b>	is the term used to describe the use of a public international telecommunications concessionaire, to which the end user is not directly connected, to carry his international calls.
<b>Local Access Service Provider</b>	an authorized operator providing public telecommunication services on a local or national basis and to which end users are connected directly.
<b>New entrant</b>	an authorized public international telecommunications services provider which has recently established business arrangements in a country to begin to offer telecommunications services.
<b>OECD</b>	Organisation for Economic Cooperation and Development.
<b>Service provider</b>	a concessionaire providing public telecommunications services.

### **3 Types of Indirect Access**

There are two basic types of indirect access, namely Carrier Pre-selection and Carrier Selection.

- 1) Carrier pre-selection offers the end user the facility to choose, in advance, which public international telecommunications concessionaire will be used for completing his international calls.
- 2) Carrier selection is a feature where for every international call, a carrier selection code is dialled before or after the international number. The carrier selection code usually consists of a carrier access code and a carrier identification code. The carrier selection code can be up to seven (7) digits in length (NANP practice). It is usual to use it as a prefix code rather than a suffix code.

#### **3.1 Carrier Pre selection**

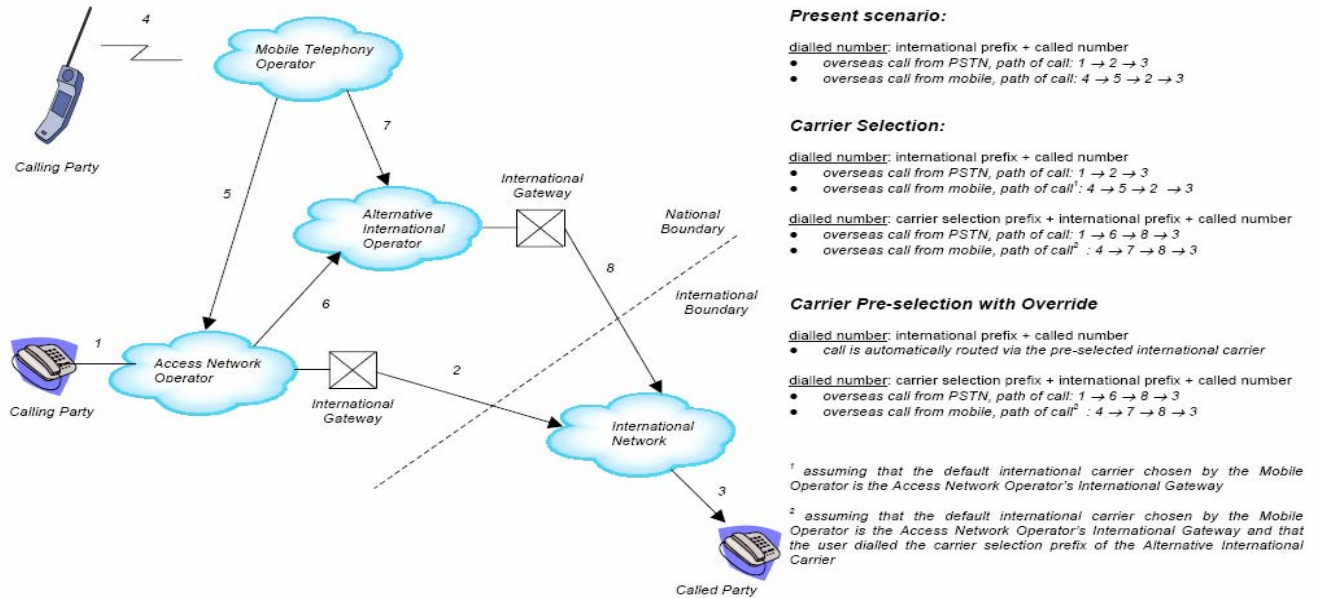
Figure 1 below is used to demonstrate a network with both fixed and mobile services and calls being made in the following manner:

- 1) Using Carrier Pre-selection which is similar to the “Present scenario” shown
- 2) Using Carrier Selection
- 3) Using Carrier Pre-selection with override

Carrier Pre-selection functions the same as the Present scenario shown in Figure 1. In this method of indirect access, the end user dials the international prefix and the called party's international number. The local exchange is programmed such that anytime the international prefix is dialled, the routing of that call is predetermined and sent to an international concessionaire pre-selected by the caller.

Figure 1

Carrier Selection and Carrier Pre-Selection for International Calls



Source: [www.mca.org.mt/filesystem/pushfile.asp?id=155&source=3](http://www.mca.org.mt/filesystem/pushfile.asp?id=155&source=3)

The advantages of Carrier Pre-selection option are as follows:

- It is technology neutral and in principle, could be implemented in all networks;
- It is not costly to implement and can be implemented in a short time; and
- It affords dialling parity.

The disadvantages of Carrier Pre-selection are as follows:

- End users must make separate commercial arrangements with the alternative public international telecommunications providers to use their facilities for international calls;
- End users will only be able to access one pre-subscribed public international telecommunications provider at a time;
- End users do not benefit from special rates offered by competing public international telecommunications providers; and

- End users do not have the flexibility to utilize alternative international telecommunications networks should their pre-selected provider's facilities be out of service for any reason.

The determining factor as to which public international provider's service is chosen will likely be the cost and quality of the call to the destination country at the time of day as indicated by the public international providers in their rate tables.

### ***3.1.1 Billing***

For this method, the end user must sign up for service with the pre-selected public international telecommunications service provider for use of its facilities. Additionally, business agreements are necessary between the public domestic telecommunications service provider and the public international telecommunications service provider for billing the end users for international calls made using the pre-selection facility.

## **3.2 Carrier Selection**

The following describes the process for an end user making an international call using carrier selection (Figure 1 refers):

1. The fixed line or mobile end user decides to use an alternative carrier to the pre-selected carrier, to make international calls.
2. In making this call, the end user dials a carrier selection code in front of the international called party's number each time to select the desired international service provider to complete that particular call.
3. The public domestic telecommunications service provider uses the dialled carrier selection code to route the call to the desired public international service provider for that particular call.

The advantages of this option are as follows:

- All competing public international telecommunications service providers will have dialling parity.
- New entrants will not be at a disadvantage.
- Cost to implement is not prohibitive from experiences of other countries.
- The end user will have control at all times over which public international telecommunications service provider is used.
- The end user will be able to exploit special rates offered by alternative international service providers.
- The end user will have a greater chance of successfully completing international calls in the event of natural disasters as not all service providers of public and international telecommunications services may be out of service at the same time.

The disadvantages of this option are as follows:

- It favours public domestic telecommunications network providers in that international calls dialled without the carrier selection code will be completed using their international facilities if the international calls do not fail or no announcement is made advising the end user of such mis-dial; and
- Customers have to dial additional digits for every international call which may total as much as seventeen (17) digits (the carrier selection code in addition to the international number). While it is recognized that dialling these additional digits can become tedious and cumbersome for end users, in particular for the elderly, automatic diallers /speed calling features can be used to assist end users in dialling the long string of digits.

### ***3.2.1 Billing***

For this method, the end user must sign up for service with the public international telecommunications service provider for use of its facilities on a call by call basis. Business agreements are necessary between the public international telecommunications service provider and the public domestic telecommunications service provider for the

billing of the end user who uses the services supplied by the public international telecommunications service provider on a call by call basis.

### **3.3 Carrier Pre-selection with override**

This form of indirect access allows the end user to have greater flexibility in choosing a public international telecommunications service provider (Figure 1 refers). As stated earlier, carrier pre-selection pre-determines which public international telecommunications service provider is used by an end user in making international calls. A service feature which allows an end user who has carrier pre-selection to bypass the pre-subscription service feature, and make international calls using an alternative provider, on a call by call basis is called 'carrier pre-selection with override'. This feature provides the end user with an even greater flexibility of choice of international service provider. Additionally, it fosters competition among the international service providers as the pre-selected carrier will wish to minimize the number of international calls the end user will send over a competitor's international facilities.

Carrier Pre-selection with override can be very useful to an end user in the following scenarios:

- a) Failure of the facilities of the pre-selected public international telecommunications network or service;
- b) The pre-selected international service provider or operator goes out of business;
- c) A much better rate is offered by a competing public international telecommunications service provider than the rate offered by the pre-selected public telecommunications service provider.

The advantages of this option are as follows:

- It is fair to new entrants since the dialling procedure is the same as with the incumbent and dialling parity is achieved.

- It offers the end user greater choice of international concessionaires for carrying his international calls.

The disadvantages of this option are as follows:

- Switches, signalling and billing systems will take time to be adapted at the start;
- There are costs for public domestic telecommunications service providers to implement capability;
- There are extra administrative costs when customers choose to use alternative international service providers for calls rather than their pre-selected international telecommunications service provider.

Carrier pre-selection with the override, which may be thought of carrier pre-selection with carrier selection, can provide greater choice on demand to the end user but additional digits have to be dialled to by-pass the pre-selected international provider. When carrier pre-selection or the override facility is used, equal access and dialling parity are achieved.

### **3.4 Country Experiences**

Indirect access has been implemented in a number of countries around the world and a selection of their experiences is summarised in Table 1 below. Generally end users have benefited from being able to choose an international provider to carry international calls and there has been a resulting increase in the level of competition between the public international telecommunications providers in these countries.

**Table 1 A selection of countries implementing Indirect Access and their experiences**

<b>Country</b>	<b>Country Experience</b>	<b>Type of Indirect Access Implemented</b>
Australia <sup>1</sup>	Competition among the access service providers and the transport carrier providers brought a reduction in costs	Carrier pre-selection with override.
United Kingdom <sup>2</sup>	Carrier pre-selection grew faster than carrier selection. Indirect access was opened to all types of calls- fixed to mobile, fixed to fixed. New entrants served 54.6 % of the international calling market. Cost of calls were reduced.	Carrier pre-selection with override
Switzerland <sup>3</sup>	Limitations in technical standards at the time forced the Swiss to implement carrier pre-selection with override for fixed services and carrier selection for mobile. Fixed line exchanges had to accommodate 22 digits for call by call selection	Carrier pre-selection with override – fixed line Carrier selection - mobile

<sup>1</sup> [www.acif.org.au](http://www.acif.org.au)

<sup>2</sup> [www.ofcom.org.uk/static/archive/oftel/pubilcatio/1995\\_98/competition/cps798.htm](http://www.ofcom.org.uk/static/archive/oftel/pubilcatio/1995_98/competition/cps798.htm)

<sup>3</sup> Working Group on Carrier Selection- Doc CS- Q6 Rev 11- Swiss Network

## **4 Types of Indirect Access to be Considered in Trinidad and Tobago**

The Authority considers that the implementation of carrier selection as the first method of indirect access for international calls will not be fair to the new entrants providing international access because the existing domestic telecommunications concessionaires already offer international calling without having to dial extra digits. In other words, they already offer international calling in a pre-selected mode, as the end user does not have the opportunity to select an alternative public international concessionaire's network or service to carry the international part of the call. Additionally, this option will make it increasing difficult on end users but more so on the elderly population who make international calls to their relatives residing abroad. The time to dial fourteen (14) to seventeen (17) digits accurately can be appreciable. In a study<sup>4</sup> on how human factors work, investigations were done on the errors incurred by having to dial extra digits. It showed the accuracy in dialling numbers of various lengths as follows:

4 digits - 97% correct	8 digits – 47% correct
6 digits – 88% correct	10 digits -14% correct

Implementing concessionaire selection which will require the end user to dial a total of between fourteen (14) and seventeen (17) digits will add to the errors incurred in dialling an international call. While prefix diallers or speed calling features may be used to reduce or eliminate tedious dialling, there is a cost for them which may dissuade their use.

The Authority therefore considers that carrier pre-selection along with the facility to select a competing public international telecommunications concessionaire on a call by call basis (override) is the preferred mode of implementation. The public international telecommunications concessionaire of choice would be pre-determined and programmed into the public domestic telecommunications concessionaire's network so every

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<sup>4</sup> The expanding telephone number Part 1:keying briefly presented multiple-digit numbers by Knut Nordby and others. Behaviour and Information Technology volume 21 part 1 January 2002 pages 27-38.

//taylorandfrancis.metapress.com/app/home/contribution.asp?wasp=4f41f190a9a44170b5257d42e55d69b9 &referrer=parent&backto=issue.3.7:journal.20.55:linkingpublicationresults.1:100652.1

international call made by the end user could be routed automatically to the desired public international telecommunications concessionaire without the end user having to dial extra digits.

In the event that an end user decides to use a competing public international telecommunications concessionaire (not the pre-selected) for an international call, an override code (carrier selection code) would be dialled in front of the international telephone number to route the call to the competing public international telecommunications concessionaire of choice on a call by call basis.

Carrier pre-selection with override is a more user friendly service and offers any new concessionaire of public international telecommunications networks or services an opportunity to compete on equal footing with other established concessionaires by affording equal access and dialling parity. The Authority is recommending this approach to be implemented in Trinidad and Tobago.

The facility to access another public international telecommunications concessionaire on a call by call basis will offer end users a back-up facility for making their international calls should their pre-subscribed concessionaire of public international telecommunications network or services experience a temporary failure or go out of business. It will also be a very important feature in disaster situations where the pre-selected international concessionaire is out of service but a competing international network or service concessionaire is operational.

Carrier Pre-selection with override feature is the recommended implementation of indirect access in Trinidad and Tobago. This option satisfies the mandate of the Authority to provide indirect access and dialling parity for international calls as well as promotes greater competition among the concessionaires and wider choice to end users.

***Statement on the option for Indirect Access***

*The Authority proposes to require the implementation of indirect access using Carrier Pre-selection to complete international calls and on dialling an override code, to use an alternative public international telecommunications concessionaire to complete international calls on a call by call basis.*

## **5 Implementation of Carrier Pre-selection with override**

Carrier pre-selection with override requires dialling plans for implementing the override. The following summarises some of the dialling plan options available and proposes the approach that the Authority considers to be most suitable for Trinidad and Tobago.

### **5.1 Dialling Plan Options**

If a carrier pre-selection with override is implemented, the numbering scheme used must have the following characteristics:

1. Numbering scheme must be equitable for all concessionaires
  - In determining the numbering scheme it must be recognized that shorter codes are more end user friendly particularly for the elderly
  - A prefix/suffix range needs to be identified
  
2. The length of the carrier selection codes needs to be established
  - The length of the code is determined by the number of competitive carriers expected
  - The use of short codes may be considered

It should be noted that the recommended length of the carrier selection code in the NANP is seven (7) digits. There are three basic methods to identifying carriers:<sup>5</sup>

- the identifying code may be outside of the called party's number
- the identifying code may be inside the called party's number
- the identifying code may be the entire E.164 number

#### ***Identifying code outside of called party's number***

This option will lend itself to prefix /suffix method of identifying the concessionaire of choice, and will not alter the called party's number. Pre subscription would be available and end users would be able to override their pre-subscription on a call by call basis by dialling an override code.

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<sup>5</sup> <http://www.itu.int/ITU-T/worksem/ip-telecoms/nnar/nnar-carrier-sel-supp.txt>

### ***Identifying code inside the called party's number***

Having the identifying code within the dialled number would have an impact on the quantity of available numbers as blocks of codes have to be reserved for carrier identification and may be assigned to concessionaires who may not use them. This could lead to wastage of numbering resources. Additionally, this approach could have a negative impact on the availability of numbers for assignment to subscribers.

### ***Carrier identification done using the entire E.164 number***

This method requires the analysis of the entire 15 digits of the E.164 number for carrier identification instead of the usual 7 digit analysis for international calls.

The most popular approach of the three identified above is the use of an identifying code outside of the called party's number as a prefix carrier identification code. The Authority therefore considers that it would be the most appropriate approach to be adopted in Trinidad and Tobago.

### ***Statement on Carrier Selection Code for Override***

*The Authority proposes that the carrier selection code to be used to override a pre-selected concessionaire should be a prefix carrier access code and carrier identification code.*

## **5.2 Length of Carrier selection Code**

Trinidad & Tobago is a participant of the North American Numbering Plan (NANP). The North American Numbering Plan Administrator (NANPA) recommends that the end user in the USA dials 101XXXX as a carrier selection code. The Authority is proposing that a shorter code be used in Trinidad and Tobago in the format 101X where 101 is the carrier access code and X=1-9 is the carrier identification code.

***Statement on Length of Carrier Selection Code for Override***

*The Authority proposes that a four digit carrier selection code for override be used in Trinidad and Tobago in the format 101X where 101 is the carrier access code and X=1-9 is the carrier identification code.*

### **5.3 Services to which Indirect Access would apply**

The Authority considers that indirect access should be implemented using carrier pre-selection with override as the option of choice for fixed line and mobile customers making international calls.

***Statement on the services to which Indirect Access would apply:***

*The Authority proposes to require the implementation of indirect access by domestic fixed and domestic mobile telecommunications concessionaires in Trinidad and Tobago to facilitate access to all international concessionaires by subscribers.*

### **5.4 Slamming**

Slamming is an illegal practice in which a subscriber's choice of carrier is changed without his authorization. This practice is addressed in the Authority's "*Draft Consumer Rights and Obligations Policy*".

***Statement on End User Subscription Process:***

*The Authority proposes that the procedures for subscribing to Carrier Pre-selection with override on a call by call basis shall be efficient and simple so that end users are not prevented, intimidated or dissuaded from exercising their choice of international concessionaire for making international calls.*

## **5.5 Compatibility with Number Portability**

Carrier pre-selection with override on a call by call basis can coexist with service provider number portability as the operational requirements for both features to operate are similar. A subscriber wishing to change his service provider may have his incoming calls re-routed by a centralised database of ported numbers to his new switch location. Similarly, carrier pre-selection may be implemented by a centralised database of carrier identification codes.

Whenever an end user wishes to change service provider without changing their telephone number, their pre-selected choice of carrier for international calls can be programmed into the new service provider's local switch equipment so that they will have the same access to the public international telecommunications concessionaire of their choice.

Concessionaires are requested to bear in mind that number portability will be introduced in Trinidad and Tobago in the future and that there is likely to be commonality of mode of operation with the proposed Indirect Access approach.

## 6 Costing Regime

The Authority considers Indirect Access to be an interconnection service and therefore should be governed by the Interconnection Regulations. The costs for Indirect Access should therefore be derived in accordance with the Authority's Costing Methodology.

### *Statement on Cost Recovery*

*The Authority proposes that the implementation of carrier pre-selection with override on a call by call basis shall incorporate cost recovery mechanisms for public telecommunications concessionaires in accordance with the Authority's cost methodology or cost model.*

This section summarises the different types of costs associated with the implementation and functioning of Carrier Pre-selection with override, and the parties to which those costs should apply.

### 6.1 Carrier Pre-selection Costs

The following indicates the costs which, in the Authority's view should be associated with the domestic telecommunications concessionaire providing indirect access<sup>6</sup>:

- Software upgrade to exchange equipment
- Installation of additional exchange equipment where necessary
- Modification of subscriber data field
- Modification of billing systems
- Upgrading of customer care systems
- Upgrading of fault reporting and repair systems

The Authority also considers that the end user should only have to pay a one time administrative fee for the installation of this feature..

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<sup>6</sup> [www.telecomportal.com/Assets\\_papers/Number\\_portability/EC-Number\\_Portability\\_99.pdf](http://www.telecomportal.com/Assets_papers/Number_portability/EC-Number_Portability_99.pdf).

## **6.2 Carrier Selection ('Override Feature') Costs**

The override feature gives the end user the ability to select an international telecommunications concessionaire of choice. Therefore the concessionaire should make the override facility available to the end user and the end user should pay only on a per use basis.

The following indicates the costs which, in the Authority's view, should be associated with the domestic concessionaire providing the 'override feature' using carrier selection<sup>7</sup>:

- Initial programming of routing tables
- Upgrade of software on exchanges
- Upgrade of hardware on exchanges

End users should only be required to pay for the following:

- Initial administration costs to install the carrier selection service on their line
- Per use costs (consumption costs)

## **6.3 Establishment costs**

Establishment costs are costs incurred by the domestic telecommunications concessionaires in making the services available and include:

- system establishment costs which are costs associated with setting up an IN platform or a national database
- per concessionaire establishment costs which are costs incurred in modification of accounting and billing systems or implementation of an IN database

In the European Union the allocation of costs has been influenced by the manner in which the obligations were imposed<sup>8</sup>. Where obligations had been only imposed on operators with dominance, some of these operators (eg. in the Netherlands for carrier

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<sup>7</sup> [www.telecomportal.com/Assets\\_papers/Number\\_portability/EC-Number\\_Portability\\_99.pdf](http://www.telecomportal.com/Assets_papers/Number_portability/EC-Number_Portability_99.pdf) . See also Appendix 3

<sup>8</sup> [www.telecomsportal.com/Assets\\_papers/Number\\_portability/EC\\_Number\\_Portability\\_99.pdf](http://www.telecomsportal.com/Assets_papers/Number_portability/EC_Number_Portability_99.pdf).

selection and in Finland for carrier pre-selection) were permitted to pass on at least some of their system set up costs to indirect access providers.

It appeared that inter-operator charges for carrier selection and pre-selection did not seem to have impeded the development of competition in countries where they had been implemented.

***Statement on system establishment costs and per concessionaire establishment costs***

*The Authority proposes to require that all public telecommunications concessionaires contribute to system establishment costs in accordance with a methodology to be prescribed by the Authority and to bear their own establishment costs.*

## **7 Methodology for Implementation of Indirect Access**

In order to properly inform the implementation of indirect access, the Authority shall perform the following activities:

1. Engage the relevant concessionaires in discussions after this first round of consultation with regards to the implementation of indirect access in Trinidad and Tobago.
2. Determine the readiness of the concessionaires' networks to implement the Authority's preferred method of indirect access.
3. Determine a schedule for the implementation of indirect access.
5. Educate the public on the various types of indirect access and their benefits
6. Assess the end user demand for indirect access<sup>9</sup>

The responses obtained from these consultations will inform the Authority in guiding the implementation process for indirect access. An implementation plan will be developed by the Authority in consultation with concessionaires and other stakeholders.

The following functions and capabilities must be available for the proper functioning of Indirect Access<sup>10</sup>:

- Carrier interfaces
- Pre-subscription database management
- Third party verification
- Message driven processing
- Switch request process flow
- Capacity and performance
- Bad debt management
- Report generation
- Switching requirements

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<sup>9</sup> Appendix 4 Proposed questionnaire

<sup>10</sup> InterConnect Communications Numbering Master Class, 2005

In consulting with the industry, the Authority shall determine the necessary specifications and provisions that would ensure that the above issues are adequately addressed prior to implementation of Indirect Access.

The implementation plan shall take into consideration the results of the consultations.

The implementation plan shall abide by the following principles:

- The implementation plan shall include the development, by all stakeholders and concessionaires, of the necessary procedures for successful provisioning of indirect access.
- The identification of any market segment in which indirect access is to be implemented first.
- Clear milestones and deliverables shall be defined in the implementation plan.
- The implementation shall be in the shortest practical timeframe, while ensuring that the preferred mode of indirect access is implemented in an efficient and cost effective manner.

## Appendix 1

DSTI/ICCP/TISP(2001)4/FINAL

**Table 1. Call by call carrier selection (as of 1 May 2001)**

	Long Distance	International	Local	Fixed to Mobile
Australia	Implemented	Implemented	Implemented	Implemented
Austria	Implemented	Implemented	Implemented	Implemented
Belgium	Implemented	Implemented	Implemented	Implemented
Canada	Implemented	Implemented	Implemented	Implemented
Czech Republic	Scheduled for implementation in 2002	Scheduled for implementation in 2002	Scheduled for implementation in 2002	Scheduled for implementation in 2002
Denmark	Implemented	Implemented	Implemented	Implemented
Finland	Implemented	Implemented	Implemented	Implemented
France	Implemented	Implemented	Not implemented (to be implemented on 1 January 2002)	Implemented
Germany	Implemented	Implemented	Not implemented	Implemented
Greece	To be introduced not later than 1/1/2003	To be introduced not later than 1/1/2003	To be introduced not later than 1/1/2003	To be introduced not later than 1/1/2003
Hungary	Not implemented	Not implemented	Not implemented	Not implemented
Iceland	Implemented	Implemented	Implemented	Implemented
Ireland	Implemented	Implemented	Implemented	Implemented
Italy	Implemented	Implemented	Implemented	Implemented
Japan	Implemented	Implemented	Implemented	Not Implemented
Korea	Implemented	Implemented	Implemented	Implemented
Luxembourg	Implemented	Implemented	Not implemented	Implemented
Mexico	Not implemented	Not implemented	Not implemented	Not implemented
Netherlands	Implemented	Implemented	Implemented	Implemented
New Zealand	Implemented	Implemented	Implemented	Implemented
Norway	Implemented	Implemented	Implemented	Implemented
Poland	Implemented	Not implemented	Not implemented	Not implemented
Portugal	Implemented	Implemented	Implemented	Implemented
Slovakia	Not implemented	Not implemented	Not implemented	Not implemented
Spain	Implemented	Implemented	Implemented	Implemented
Sweden	Implemented	Implemented	Implemented	Implemented
Switzerland	Implemented	Implemented	Implemented	Implemented
Turkey	Not implemented	Not implemented	Not implemented	Not implemented
United Kingdom	Implemented	Implemented	Implemented	Implemented
United States	Implemented	Implemented	Implemented	Implemented

Source: OECD.

## Appendix 2

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**Table 3. Carrier pre-selection (as of 1 May 2001)**

	Long Distance	International	Local	Fixed to Mobile
Australia	Implemented	Implemented	Not implemented	Implemented
Austria	Implemented	Implemented	Implemented	Implemented
Belgium	Implemented	Implemented	Implemented	Implemented
Canada	Implemented	Implemented	Partially implemented (major centres)	Implemented
Czech Republic	Scheduled for implementation in 2002	Scheduled for implementation in 2002.	Scheduled for implementation in 2002	Scheduled for implementation in 2002
Denmark	Implemented	Implemented	Implemented	Implemented
Finland	Implemented	Implemented	Implemented	Implemented
France	Implemented	Implemented	Not implemented (to be implemented on 1 January 2002)	Implemented
Germany	Implemented	Implemented	Not implemented	Implemented
Greece	To be introduced not later than 1/1/2003	To be introduced not later than 1/1/2003	To be introduced not later than 1/1/2003	To be introduced not later than 1/1/2003
Hungary	Not implemented	Not implemented	Not implemented	Not implemented
Iceland	Implemented	Implemented	Implemented	Implemented
Ireland	Implemented	Implemented	Implemented	Implemented
Italy	Implemented	Implemented	Implemented	Implemented
Japan	Implemented	Implemented	Implemented	Not implemented
Korea	Implemented	Not implemented	Not implemented	Not implemented
Luxembourg	Implemented	Implemented	Implemented	Implemented
Mexico	Implemented	Implemented	Not implemented	Not implemented
Netherlands	Implemented	Implemented	Implemented (but the area code needs to be dialled)	Implemented
New Zealand	Implemented	Implemented	Implemented	Implemented
Norway	Implemented	Implemented	Implemented	Implemented
Poland	Not implemented	Not implemented	Not implemented	Not implemented
Portugal	Implemented	Implemented	Implemented	Implemented
Slovakia	Not implemented	Not implemented	Not implemented	Not implemented
Spain	Implemented	Implemented	Implemented	Not implemented
Sweden	Implemented	Implemented	Implemented (but the area code needs to be dialled)	Implemented
Switzerland	Implemented	Implemented	Implemented	Implemented
Turkey	Not implemented	Not implemented	Not implemented	Not implemented
United Kingdom	Implemented	Implemented	Implemented (with auto- diallers until the end of 2001)	Implemented (with auto- diallers until the end of 2001)
United States	Implemented	Implemented	Implemented	Implemented

Source: OECD.

## Appendix 3

**Table 3 – Costs Incurred in Provision of Carrier selection and pre-selection**

	System set-up cost	Per-operator set-up	Per-line administration	Additional conveyance	Cost incurred by NRA
<b>Carrier selection</b>					
<i>Costs involved</i>	<ul style="list-style-type: none"> <li>Expansion of digit capacity of switches</li> <li>Programming of switches to statistically distribute non CS traffic</li> <li>Adaptation of customer care and billing systems</li> <li>Adaptation of inter-operator billing systems</li> <li>Adaptation of maintenance and customer support procedures</li> </ul>	<ul style="list-style-type: none"> <li>Initial programming of routeing tables</li> </ul>	None	None	<ul style="list-style-type: none"> <li>Allocation of routeing prefixes</li> </ul>
<i>Significance of costs</i>	High proportion of total costs	Very small proportion of total costs	None	None	Negligible
<i>Main party incurring cost</i>	Medium impact on the dominant local loop operator, low impact on indirect access providers	Low impact on the dominant local loop operator			Very low level of costs incurred by NRA
<b>Carrier pre-selection</b>					
<i>Costs involved</i>	<ul style="list-style-type: none"> <li>Modification of subscriber context</li> <li>Adaptation of customer care and billing systems</li> <li>Adaptation of maintenance and customer support procedures</li> </ul>		<ul style="list-style-type: none"> <li>Modification of subscriber information</li> </ul>	<ul style="list-style-type: none"> <li>Additional call processing</li> </ul>	<ul style="list-style-type: none"> <li>Allocation of pre-selection codes</li> </ul>
<i>Significance of costs</i>	High proportion of total costs	None	Very small	Negligible	Negligible
<i>Main party incurring cost</i>	High impact on the dominant local loop operator, medium impact on indirect access providers		Medium impact on the dominant local loop operator, very low impact on indirect access providers	Very low impact on the dominant local loop operator	Very low level of costs incurred by NRA

Source:

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[http://www.telecomportal.com/Assets\\_papers/Number\\_portability/EC\\_Number\\_Portability\\_99.pdf](http://www.telecomportal.com/Assets_papers/Number_portability/EC_Number_Portability_99.pdf)

## Appendix 4

The following are suggested questions for the market survey

1. Should end users have the capability to select which public international telecommunications concessionaire will carry their international calls?
2. Will you be willing to dial seven additional digits to the international telephone number you are calling so as to get a lower per minute rate for your call?
3. Are you willing to pay an additional charge for the choice to select which public international telecommunications concessionaire will carry your international call?
4. Will you prefer to receive one itemized bill showing both international calls made using an alternative public international telecommunications concessionaire as well as your local calls?
5. Will you prefer to receive two separate itemized bills, one for your international calls made using alternative public international telecommunications concessionaires and one for your local calls?