A

Seminar report

On

# Mobile Number Portability

Submitted in partial fulfillment of the requirement for the award of degree
of Bachelor of Technology in Computer Science

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# Acknowledgement

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Secondly, I would like to thank my parents who patiently helped me as i went through my work and helped to modify and eliminate some of the irrelevant or un-necessary stuffs.

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Next, I would thank Microsoft for developing such a wonderful tool like MS Word. It helped my work a lot to remain error-free.

Last but clearly not the least, I would thank The Almighty for giving me strength to complete my report on time.

# **Preface**

I have made this report file on the topic **Mobile Number Portability**; I have tried my best to elucidate all the relevant detail to the topic to be included in the report. While in the beginning I have tried to give a general view about this topic.

My efforts and wholehearted co-corporation of each and everyone has ended on a successful note. I express my sincere gratitude to …………..who assisting me throughout the preparation of this topic. I thank him for providing me the reinforcement, confidence and most importantly the track for the topic whenever I needed it.

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# Abstract

Mobile number portability allows a mobile subscriber to switch operators without changing his/her telephone number. This paper describes and analyzes mobile number portability routing mechanisms and their implementation costs. Cost recovery issues for number portability are discussed in this paper from a technical perspective. We note that rules for cost recovery also depend on business and regulatory factors that vary from country to country.

This paper examines the consequences of introducing mobile number portability (MNP). If the sole effect of introducing MNP is the abolishment of switching costs, MNP unambiguously benefits mobile customers. However, if MNP also causes consumer ignorance, as telephone numbers no longer identify networks; mobile operators will increase termination charges, with ambiguous net effect on the surplus of mobile customers.

Mobile number portability (MNP) requires that mobile telephone customers can keep their telephone number–including the prefix–when switching from one provider of mobile Tele communications services to another. In the absence of MNP, customers have to give up their number and must adopt a new one when they switch operators. As a result, customers face switching costs associated with informing people about changing their number, printing new business cards, missing valuable calls from people that do not have the new number, etc. Based on these considerations, many regulatory authorities have imposed mandatory MNP–or are about to require its introduction–so as to reduce customers' switching costs, attempting to make mobile telecommunications more competitive The world's first country to introduce MNP was Singapore in 1997.

This paper introduces the concept of number portability, explains its different types and benefits, and the technical, operational, and economic issues that might arise out of its implementation in India. The specific issues such as ensuring tariff transparency, the National Numbering Plan, and regulating porting charges, etc. have been raised and will need careful consideration.

# INTRODUCTION

Number Portability will allow subscribers to change their service provider while retaining their old mobile number. Portability benefits subscribers and increases the level of competition between service providers, rewarding service providers with the best customer service, network coverage, and service quality.

## Number Portability: Definition

Number portability is a telecommunications network feature that enables end users to retain their telephone numbers when changing service providers, service types, and/or locations

### Types

There are three basic types of number portability-

- Service operator Portability

- Location Portability

- Service Portability

# III. Wireline LNP Architecture

## 7 Basic components required to deploy MNP

- Service Order Administration

  - Number Portability Administration Center

  - Service Control Point Management Server

  - Local Service Management System

  - Signal Transfer Point

  - Service Switching Point

  - Service Control Point
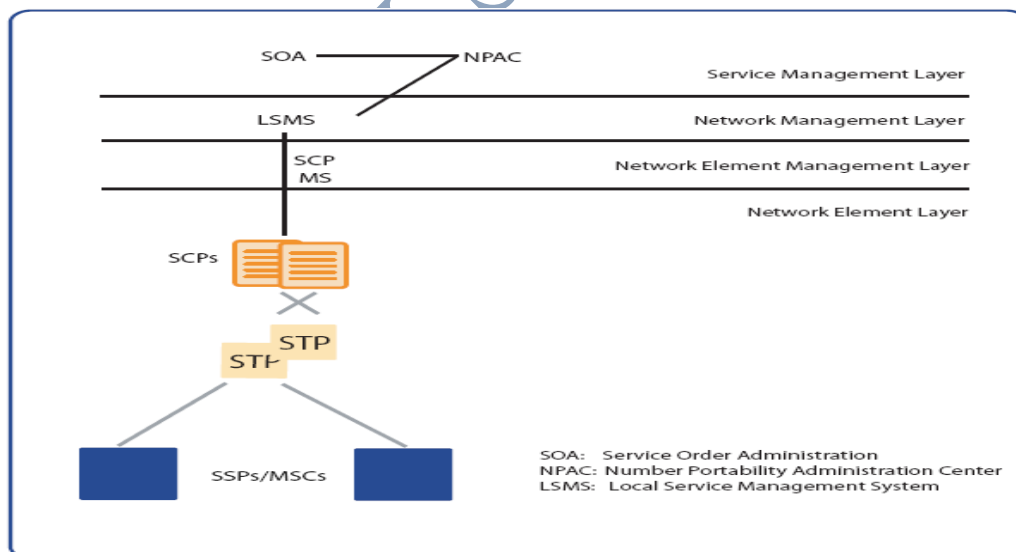
## Service Order Administration (SOA)

- Serves as an interface element between carriers' order and provisioning systems and the Number Portability Administration Center (NPAC).

- SOA's primary functions include subscription audit request or management, data administration, data transfer to the NPAC, report generation, bulk file parse and upload, subscription tracking, legacy order entry interface, and logging.

## Number Portability Administration Center (NPAC)

- Number Portability Administration Center (NPAC) is a third-party, neutral database administration function that supports number portability.

- This database is designed to receive information from both incumbent and new service providers, validate that info. and download the new routing information when a customer has been physically connected to the new service provider's network.

## Service Control Point Management System (SCP MS)

- The Service Control Point Management System (SCP MS)   provides interface services between the LSMS and the SCP

- The SCP MS may or may not be physically integrated with the SCP.

## Local Service Management System

- The Local Service Management System (LSMS) is a fault-tolerant hardware and software platform that contains database with routing information to ported telephone numbers.

- The primary functions of the LSMS are subscription management, network data management, service provider data management, error processing and notification, transaction event logging and reporting, transmission of activation/deactivation events to the network elements, and audits.

## Number Portability Database

The Number Portability Database (NPDB) contains all ported numbers within a ported domain as well as routing info. necessary to support number portability. Its function is to provide the association between the called party and the carrier LRN, identifying the switch to which the call should be routed.

## Signal Transfer Point (STP)

- The Signal Transfer Point (STP) receives the LRN query from the SSP/MSC, routes it to the appropriate NPDB, and returns a response to the originating SSP/MSC.)

- The basic core functionality of the STP as a network message router has not been impacted.

## Service Switching Point or Mobile Switch Center

- The Service Switching Point/Mobile Switch Center (SSP/MSC) is owned and operated by the exchange carrier.

- These switch points must be able to generate a LNP query to the NPDB when a call is placed to a telephone number in a ported domain.

- A ported domain here is defined as a Metropolitan Statistical Area (MSA) that has implemented number portability

## Working of MNP

All Cell phones have special codes. These codes identify the phone, the phone's owner, & the service provider. Cell phones use high frequency radio signals to communicate with cell towers located throughout the calling area. These phones operate in the frequency range of 806-890 MHz.
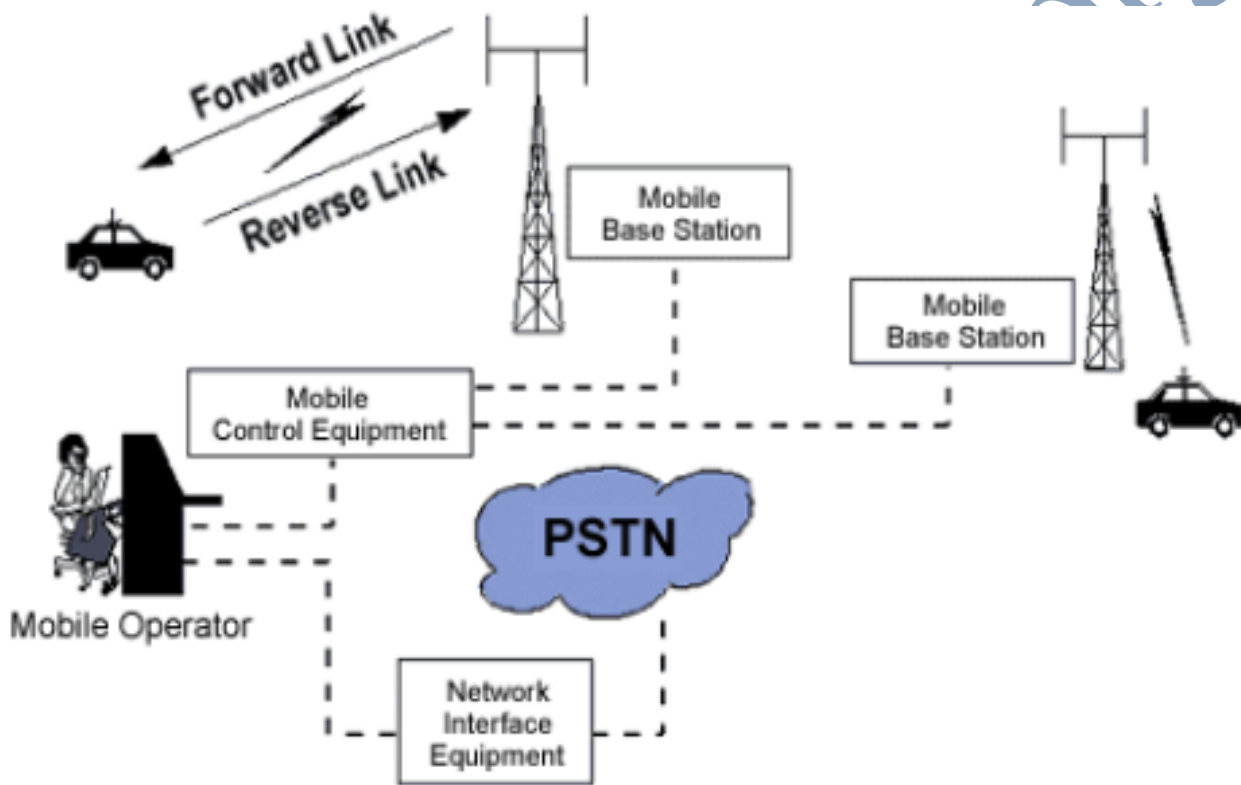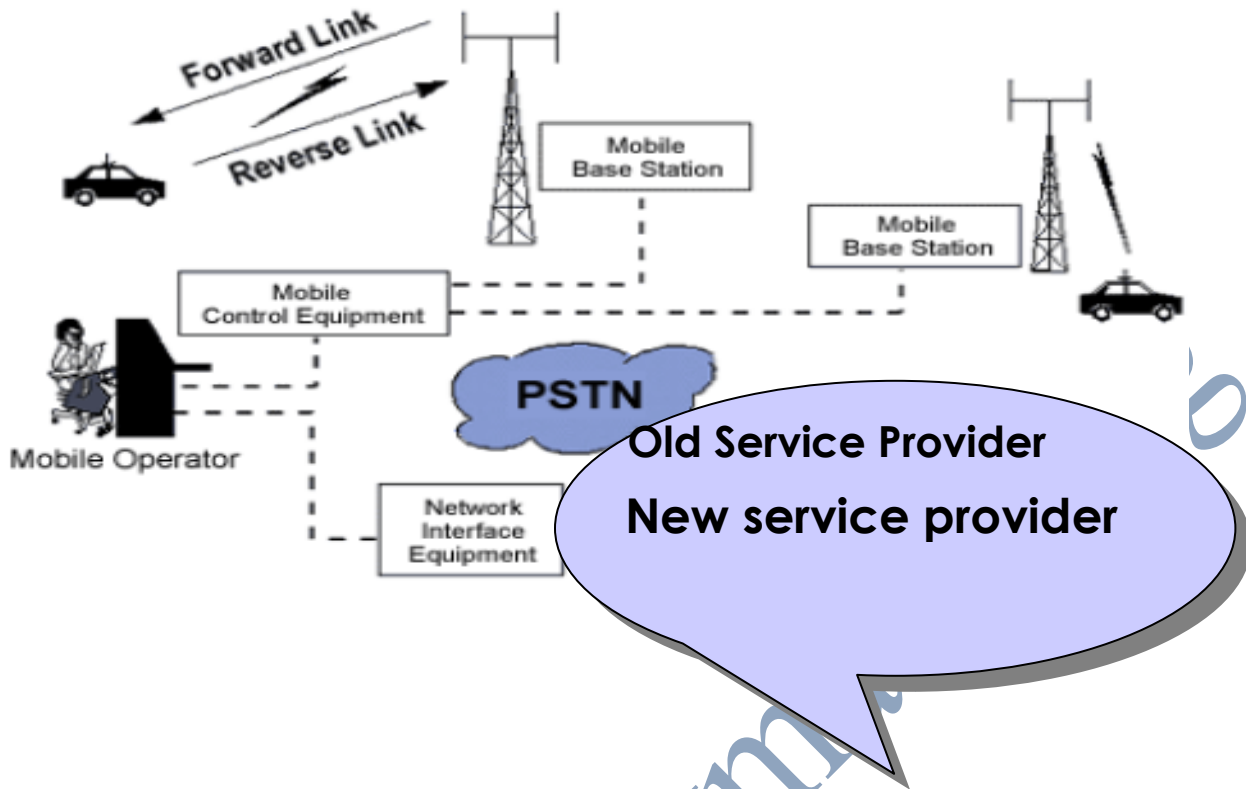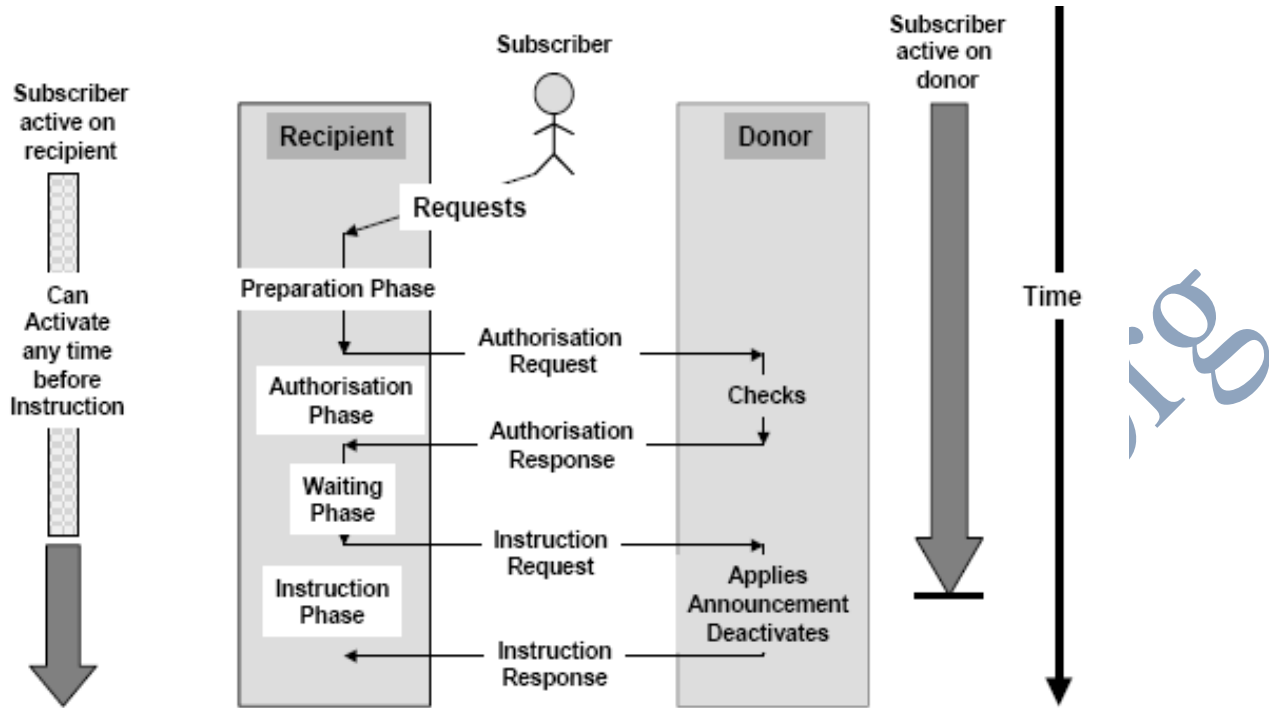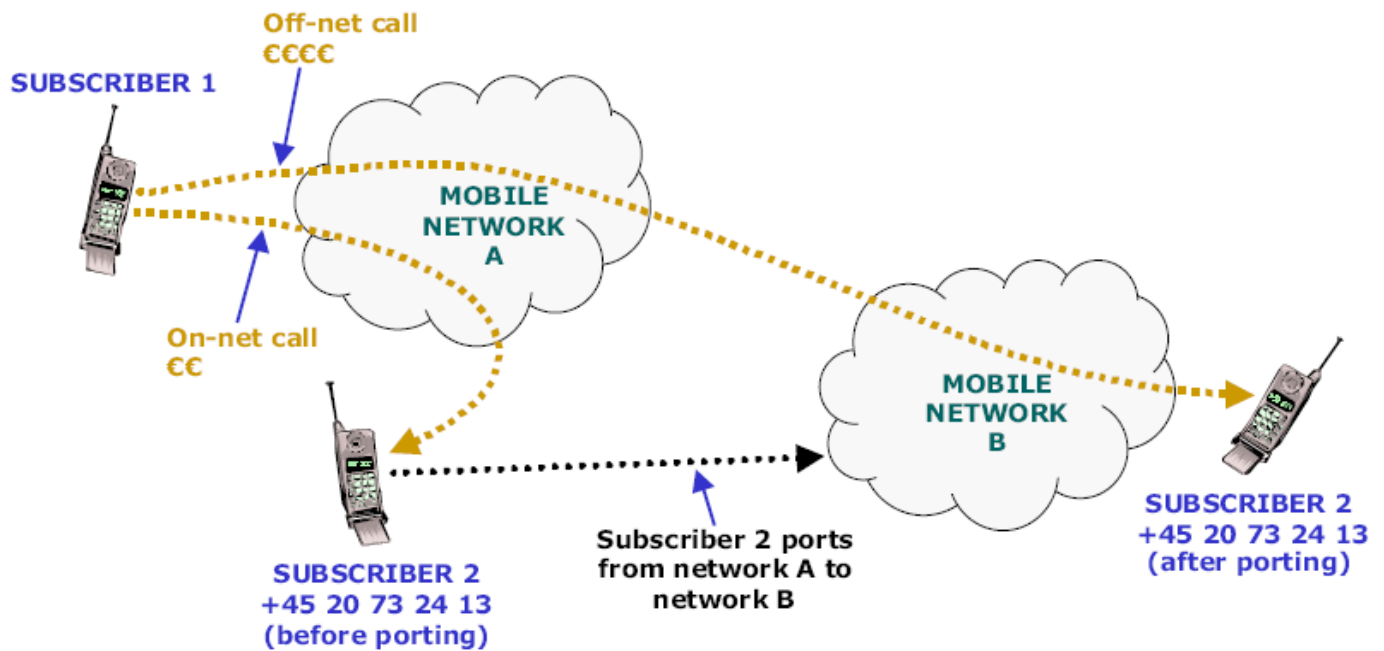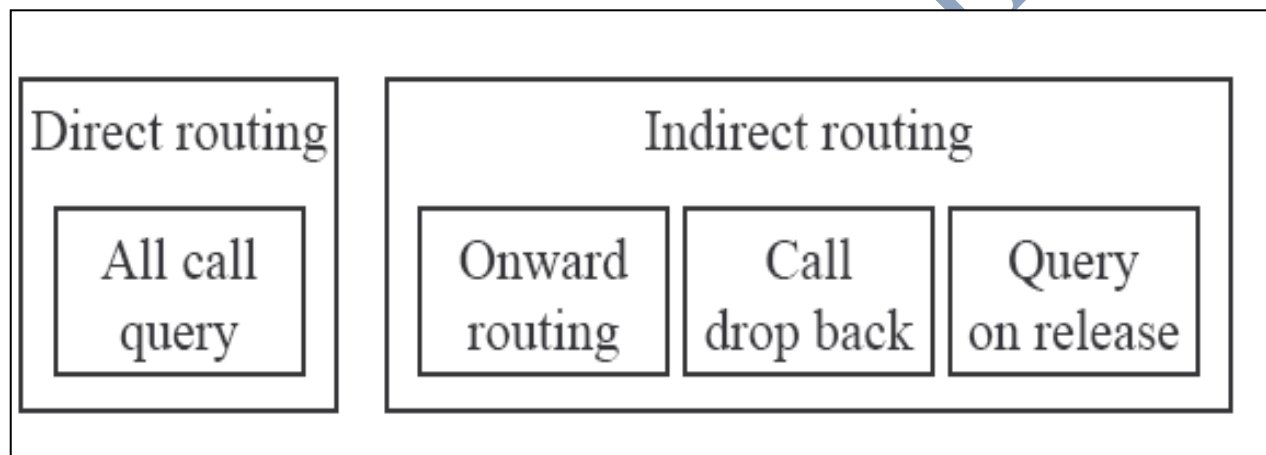
## Porting Process



Figure 8: Overview of procedure

## Technical Solutions

- o Number Pooling

- o Number portability database (NPDB)

- o Routing Mechanisms

## Routing Mechanisms

## Reasons Behind MNP or Advantages

Price war

– Competition on price instead of differentiated services

– Heavy marketing campaigns, free giveaways and airtime

• Ban on handset subsidies

– As well as SIM-locked phones and long service contracts

• Single-rate call plans

• Easy and costless MNP process for end-users

  ▪ MNP should reduce switching costs and strengthen competition

## Number portability subscriber benefits may be categorized as:

a. Type 1 benefits

..Accrue to subscribers who retain their telephone number when switching an operator, and include cost savings from having to change mobile number. Such subscribers are able to avoid the costs of reprinting stationary, informing callers, changing signs and lost business.

b. Type 2 benefits

..Are those that arise out of efficiency and service quality improvements and any associated price reductions resulting from increased competition.

c. Type 3 benefits

..Are those that accrue to callers to porting users who are able to avoid the need to change entries in their diaries, directories, databases and abbreviated dialers. They would also dial fewer wrong numbers and make fewer directory inquiries

## MNP Implementation Status
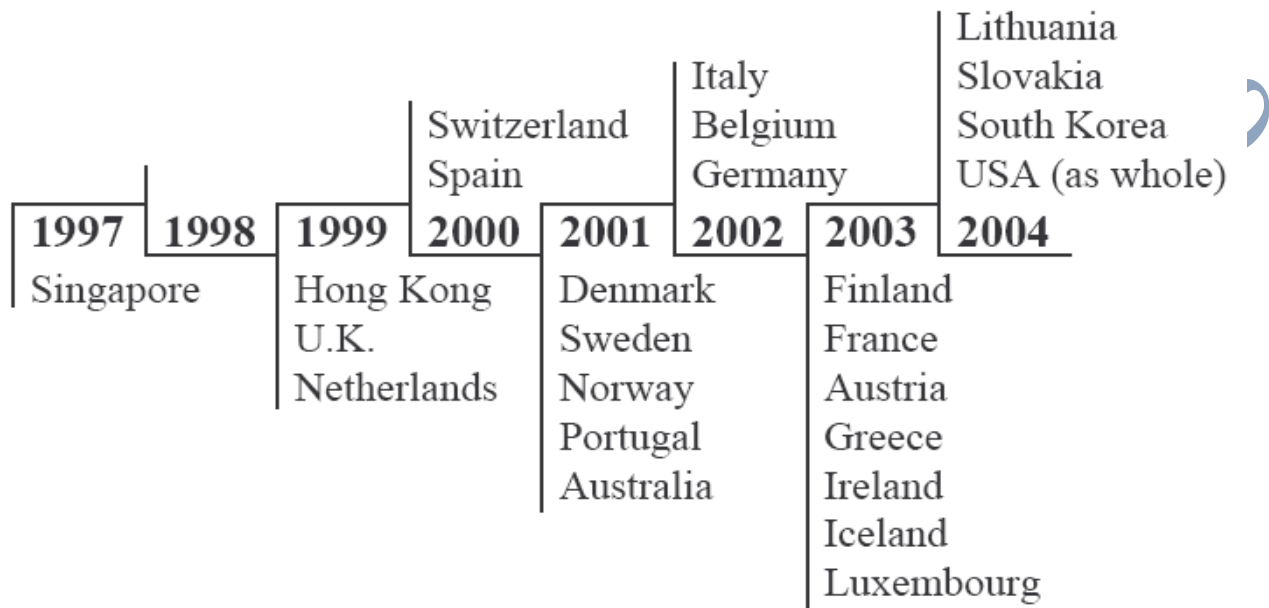


## Overview of Technical Choices in Other Countries

Call routing to ported mobile numbers planned or adopted in European countries vary considerably in technique. Table below illustrates this variation across various countries and for which information is available:

Table 4.2: Technical solutions for MNP used in various countries

| Routing from a fixed network to a mobile network | | Routing from a mobile network to another mobile network |
|---|---|---|
| **Belgium** | all call query | all call query & query on release |
| **Denmark** | all call query & query on release | all call query & query on release |
| **Finland** | onward routing | onward routing |

| France | Phase 1: onward routing, phase 2: all call query | phase 1: onward routing, phase 2: all call query |
|---|---|---|
| **Germany** | onward routing & all call query | all call query |
| **Hungary** | all call query & query on release | phase 1: onward routing & all call query, phase 2: all call query |
| **Ireland** | onward routing | all call query |
| **Italy** | onward routing & all call query | all call query |

## Conclusion

MNP does not generate churn, it only removes one barrier from the way of free. As such, it brings challenges and opportunities for old and new telecommunications providers.

To be successful in the competitive telecommunications environment, carriers have to carefully analyze their network and administrative infrastructures, select the best MNP solution for their needs and exploit the benefits of increased customer choice that NP provides.

## References

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