

## Birds' Eye View on Mobile Number Portability

M. Satya Prasad

Bharat Sanchar Nigam Limited, Visakhapatnam, INDIA

Received: 19/Mar/2020, Accepted: 15/Apr/2020, Published: 30/Apr/2020

**Abstract:** This paper presents about Mobile Number Portability, its Challenges, elements, types and terminology. It also explains in detail various technical steps involved between the Mobile service providers during the process of MNP. It also illustrates the advantages, disadvantages and problems related to MNP for the customer, Telecom Service Provider and the GOI in the process of implementation.

**Keywords:** Telecom Regulatory Authority (TRAI), Mobile number portability (MNP), Mobile Number Portability Service Provider (MNPSP), Licensed Service Area (LAS), Closed User Group (CUG), Mobile identity numbers (MINs), Home Location Registers (HLR), Visiting Location Registers (VLR), Donor Operator (DO), Licensed Service Area (LAS), Mobile Directory Numbers (MDN), Interconnect Usage Charges (IUC), Service Switch Point (SSP), Mobile Number Portability Clearinghouse (MCH).

### I. INTRODUCTION

Mobile Number Portability offers the subscriber the flexibility to retain his telephone number even when he switches to another operator in a service area. Number portability is a feature that allows a mobile subscriber to use the same number across different service providers. The person/user has the liberty to opt for any service provider without the time-consuming exercise of letting the rest of the world know about the change of number. Very often subscribers do not switch to another operator even if the competitor is offering lower tariffs and better services because they do not want to change their number.

In a consultation paper issued in July 2005, TRAI said that subscribers and operators would benefit from the introduction of the number portability system. As per TRAI, "In most service areas in India, subscribers have a choice of operators, however, the subscribers' inability to retain his telephone number when changing operators is an obstacle to competition. Therefore, MNP will benefit subscribers and increase the level of competition, rewarding operators with the best customer service, coverage and service quality."

### II. MNP IMPLEMENTATION IN INDIA:

MNP systems shall be built, operated and owned by neutral third parties, who have been issued separate licenses for MNP service. Till now, Syniverse Technologies and MNP Interconnection are the only companies that have been licensed by the DoT to carry out the MNP implementation in India. The Telecom Regulatory Authority of India (TRAI) has been empowered to issue regulations on the various regulatory aspects related to MNP in India.

TRAI issued the Telecommunication Mobile Number Portability (Second Amendment) Regulations 2010, on 24<sup>th</sup> November 2010 modifying the timeline from 24 hrs to

4 working days for Donor Operator (DO), to verify the details

of porting request and communicate acceptance or rejection of the porting request to the Mobile Number Portability Service Provider (MNPSP). The modification in the timelines from 24 hrs to 4 working days in the regulation 10 of the principal regulations had been necessitated due to the request by the Department of Telecommunications (DoT), citing security reasons. With this amendment to the principal Regulations, the maximum time for porting became seven working days, except in Jammu & Kashmir, Assam and North East licensed service areas, wherein it became fifteen working days.

The Telecommunication Mobile Number Portability (Sixth Amendment) Regulations, 2015 dated 25<sup>th</sup> February 2015 were issued for facilitating inter-service area mobile number portability (Full Mobile Number Portability) in the country.

#### Execution of MNP in India:

In India facility of MNP was launched in the Haryana service area on 25<sup>th</sup> November 2010 on a pilot basis and the same was extended to the entire country on 20<sup>th</sup> January 2011. Initially, the MNP facility was available within the Licensed Service Area (LAS) only. However, following the provisions contained in the National Telecom Policy- 2012 regarding "One Nation – Full Mobile Number Portability", full MNP was implemented w.e.f.3<sup>rd</sup> July 2015. Till January 2018, approximately 344.59 million porting requests have been processed.

For the month of January, the maximum number of requests in Zone-I (North and West India) were received in Maharashtra at 0.7 million, followed by Rajasthan at 0.6 million, and UP-East at 0.51 million. Jammu & Kashmir, which has one of the lowest user bases, continue to receive the lowest number of porting requests at 26,027. Note that TRAI does not provide any operator-wise breakdown for these mobile number porting requests.

On March 8, 2006, the Telecom Regulatory Authority of India (TRAI) issued draft regulations to facilitate mobile number portability in India and submitted its recommendations to the Department of Telecommunication (DoT). Finally, the DoT recommended service provider number portability including service portability (portability between GSM and CDMA) for all mobile service operators.

The DoT has divided the whole country into two zones for MNP—**North-West zone** and **South-East zone** and awarded licenses to two vendors to work as MNP clearing house administrators.

Mobile number portability was started as a pilot project in Haryana on 25<sup>th</sup> November 2010 and has been implemented across the Nation from 20<sup>th</sup> January 2011. The New Telecom Policy-2012 (NTP) aims to abolish roaming charges across the country and facilitate nationwide (inter-circle) Mobile Number Portability, i.e. one-nation-one-number with free-roaming. This will allow users to change the operator without changing their mobile number even if they move from one circle to another.

### III. REVIEW OF LITERATURE

Several researchers have been covered the topic of the effect of mobile number portability. The researchers covered the different aspects of MNP:

**Dick&Basu (1994)**, examined the Lower call rates and potentially better services. *Also*, uncover the point that Mobile subscriber switching costs when changes to take advantage of lower call rates and potentially better services. Several articles discuss the composition of switching costs and most suggest that it consists of the time and money expended in moving to a different operator, including having to inform contacts of a number change.

**Aoki and Small (1999)** evaluated the benefits achieved by the introduction.

**Melody(1999)** study the customers able to get acquire and the most optimal levels of quality at competitive prices and unearth the purpose of regulation is to facilitate a level playing field and foster competition so that end-users can acquire the most optimal levels of quality at competitive prices.

**Gangs, Kings, Woodbridge (2001)** examined the dynamic market and as many willing operators. Also find the importance of having a dynamic market and as many willing operators as possible. This will help regulators to work with a group of driven individuals ideally pushing for the facility.

**Gerpot, Rams, Schindle(2001)** reveal that the act as a barrier to changing operators by reducing the attractiveness of switching to better alternatives; the greater the switching costs, the more likely a subscriber will not move to another carrier. For new operators in the mobile sector, high switching costs act as a barrier to winning over subscribers from competing networks.

**Katka (2004)** uncovers that the benefit of this service is that it helps to create a level playing field for small and new entrants. This is perceptibly beneficial to mobile subscribers.

**Samura (2004)** find the MNP service also encourages churn, as mentioned above, which service providers generally strive to keep at a minimum. High churn rates are especially useful for new entrants into the mobile market, because they can acquire subscribers to their networks. MNP helps these firms to acquire new subscribers, but operators are faced with the task of having to retain their existing subscribers, which may sometimes be harder to do.

**Buchler, Dewenter(2005)** uncover that Mobile customers want to switch operators in return for the better quality of service and /or call rates, are benefited by the MNP facility as they do not incur costs to update their networks about a number change.

**Ralf Dewenter & Justus Haucap (2005)** examines the causes and effects of mobile number portability and provides a survey of its implementation in Europe.

**Logo(2007)** uncovered that the reasons for these successes can be attributed to several factors, including low porting times, low or even no charges allocated to subscribers for porting their numbers, promotion of the service by regulators and subscriber awareness of the service.

**Wieland (2007)** concluded that other operators imposed long porting times and even expected subscribers to obtain permission for moving from one network to another.

**Stefan Buehler (2007)** examines the consequences of introducing mobile number portability. As MNP allows consumers to keep their telephone number when switching providers, it reduces consumers' switching costs. However, MNP may also cause consumer ignorance if telephone numbers no longer identify networks.

**Dong H. Shin (2007)** investigate the effect of mobile number portability (MNP) on mobile subscribers in Korea by focusing on subscribers' perceptions and behavior related to MNP.

**Keynote capitals (2009)** reveal that the mobile number portability has been adopted in about 60 developed countries with mature telecom markets, including several developed Asian countries the other emerging nations in the region have also considered the adoption of MNP.

**Dr.V. Kumaravel (2009)** Mobile number portability permits a mobile subscriber to switch operators without changing his / her telephone number. This research paper describes the Impact of Mobile Number Portability on Mobile Users Switch over Behavior-Indian Mobile Market. **Tulin Durukan (2009)** Mobile number portability is defined as a system that allows consumers to change the operator without the necessity of changing the mobile phone number. The aim of this study, the effects of mobile number portability applications are examined theoretically at first. Then, the relationships among "mobile number portability application satisfaction", "perceived public illumination activities" and "knowledge (information level) about the application" with "the intention to change the operator (switching intention)" are scrutinized and the results are interpreted.

**Sanjeet Singh (2010)** the paper evaluates the customer perception and expectation from MNP. "Mobile Number Portability" means the facility, which allows a subscriber to retain his mobile telephone number when he moves from one cellular service Provider to another irrespective of the mobile technology or from one cellular mobile technology to another of the same Access Provider. The study mainly concentrates in north India and the companies, which are available and popular in north India.

**A K Talukder (2010)** Growth in the telecommunications population directly impacts the economy. Advanced economies have discovered that mobile number portability (MNP) helps the economy. Keeping this in mind, this paper proposes a technology solution for SMS data portability in the MNP scenario. It provides experimental results to support such a claim.

#### IV. TYPES OF NUMBER PORTABILITY

Mobile number portability enables consumers to retain their mobile numbers when changing service providers, service types and/or locations. Number portability can be of different types.

**Table 1: Types of Number Portability**

Type of Portability	Details
Location-based	This enables a mobile subscriber to use the same number when shifting from one geographical area to another
Operator-based	This makes it possible for a mobile subscriber (or a fixed telephony subscriber) to shift from one mobile (or a fixed) service provider to another in the same area and retain his original number too
Service-based	Enables subscribers of a company to use the same numbers across different mobile technologies — Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA) based Wireless in Local Loop (WLL)
Convergence-based	Allows usage of the same number while shifting from fixed to mobile telephony
Total number portability	Enables usage of the same number across different technologies, geographical regions and national boundaries and is the ultimate aim of number portability. It will also be the most difficult to implement and would require a collaborative effort on the global scale among different service providers. It will be a combination of different types of portability options

Number portability when used to transfer numbers from one service provider to another is called Mobile Number Portability. MNP is already being used in developed markets, which are mature and have a much higher teledensity.

#### V. NUMBER PORTABILITY WOULD MEAN

To implement nationwide by wireline and wireless providers, portability will remove one of the most significant deterrents to changing service, providing unprecedented convenience for consumers and

encouraging unrestrained competition in the telecommunications industry. In short, this is the best method to increase the efficiency of the service provider by increasing the competition, thereby ensuring better services in all respects.

**I.For subscribers:** From the subscribers' perspective, this is a deceptively simple and very welcome change, because they can change wireless service providers without worrying about notifying friends, family and business contacts that their wireless number is changing. Also, being able to 'port' a number from one provider to another eliminates the hassle and expenses of changing business cards, stationery, invoices and other materials for businesses.

**II.To service providers:** From the wireless carrier's perspective the change is anything, but simple. Virtually all of the wireless carriers' systems are affected. Especially any system that relies on mobile identity numbers (MINs) or mobile directory numbers (MDNs) will be affected. Examples of critical systems and processes that would be affected are billing, customer service, order activation, call delivery, roamer registration and support, short messages service center, directory assistance, caller ID, calling name presentation, switches, maintenance, and CSC systems, home location registers (HLRs) and visiting location registers (VLRs).

#### VI. THE CHALLENGES

**I.Huge Costs:** The telecom services sector in India invested nearly Rs 50,000 crore to implement the MNP wherein a substantial share would be required for the mobile services market.

**II.Customer Retention/Increased Competition:** The service providers are also on guard against the risk of losing customers and revenues in the post-MNP era.

**Infrastructure Upgrade:** To support MNP, a company has to upgrade both its hardware and software capabilities, which will amount to some cost.

**III.Cost Recovery and Bill Reconciliation/Query Processing:** When a customer plans to shift, the old service provider (OSP) has to perform a query to identify if there are any billing amounts pending, which they need to recover before the subscriber moves to the new service provider (NSP).

Several issues need to be cleared by the regulator before implementing the MNP. Primary among these are the limited mobility versus mobile services, carrier access code (CAS), finalization of the Interconnect Usage Charges (IUC), etc.

The regulator must ensure that there is absolute transparency in the charges for the person calling a ported number and another receiving the call on a ported number. Only such clarity will ensure widespread usage among Indian mobile users and make MNP a widely used feature.

**IV.Number Portability Administration Center (NPAC):** The authority responsible for maintaining NP solutions in different regions. Both the OSP and NSP carriers will have access to their wireless network, order entry and point of

sale terminals. Further, the two competing carriers' WNP architectures will be connected at two points:

- Intercarrier communications process (ICP)
- Number portability administration center (NPAC).

In number portability the "donor network" provides the number and the "recipient network" accepts the number. The operation of donating a number requires that a number is "snapped out" from a network and "snapped into" the receiving network. If the subscriber ceases to need the number then it is normal that the original donor receives the number back and "snaps back" the number to its network. The situation is slightly more complex if the user leaves the first operator for a second and then subsequently elects to use a third operator. In this case the second operator will return the number to the first and then it is assigned to the third.

Calls to ported numbers are completed when a customer who calls a ported number sends the dialed number to a provider's Service Switch Point (SSP), where it is identified either as a local call or not. If the call is local, the switch has the NPA-NXX in its routing table as portable, so it sends a routing request to the Signaling Transfer Point (STP) which accesses a local database that is updated by an LSMS (Local Service Management System) which holds all routing for all ported numbers to which the carrier is responsible for completing calls. If routing information is found, a response is sent to the "query" containing the information necessary to properly route the call. If it is not a local number, the call is passed on to the STP and routed until it gets to a local carrier who will perform the "query" mentioned earlier and route the call accordingly.

**VII. ELEMENTS of MNP**

MNP Clearinghouse (MCHA) & its Disaster recovery site  
 NP Database (NPDB) & its Disaster recovery site with security provisions  
 NP gateways at the operator's end  
 NPDB at the operator's end

**I. Database Management for MNP:**

All implementations of mobile number portability involve the use of databases that contain information about the networks and associated ported numbers. This information is used for a call to determine the correct terminating network of a ported number. Databases relating to Number Portability are typically managed either in a centralized or in a distributed manner. Logically Centralized Database with regionally located databases is set up and managed by a neutral third party setup by operators. Logically Centralized approach may serve as a common platform for ordering, provisioning and notification process of number portability.

**II. Synchronization of Database Updation of different operators:**

Port information is kept in a centralized master of Reference Database. Any update to the Reference Database is broadcasted more or less in real-time to all

operators. (Push method).Alternatively, the Reference Database can be downloaded by operators (Pull method).

**VIII. NUMBER PORTING ORDERING PROCESS**

**I. One-stop shopping process:**

The customer only needs to contact the recipient operator and authorize this operator to handle the porting

**II. Two-stop shopping process:**

**1st step:** The customer requests the existing mobile operator, the cancellation of his contract and a Porting Authorization Code (PAC);

**2nd step:** The customer applies a new contract with the new operator and asks him to port his number with the PAC.

**IX. TECHNICAL SOLUTIONS**

**I. Direct Routing (All Call Query):**

Routing of a call directly from the originating network to the terminating mobile network, which requires the originating network to determine the correct destination for a given number.

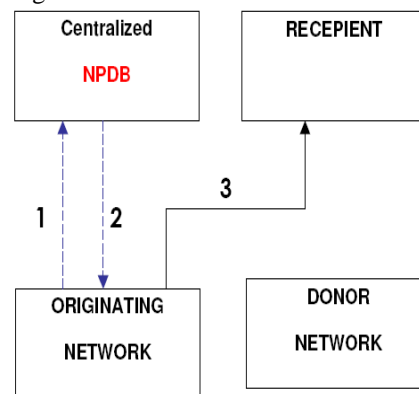


Figure 1: All Call Query

**II. Query on the release:**

The donor network after confirming that the number is ported returns a message to the originating network indicating that the number is moved. The originating network then queries a database to obtain information identifying the correct terminating network

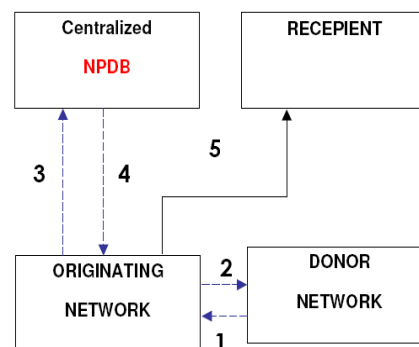


Figure 2: Query on release

**III. Onward Routing:**

The donor network identifies the correct terminating mobile network and routes the call onwards to that network.

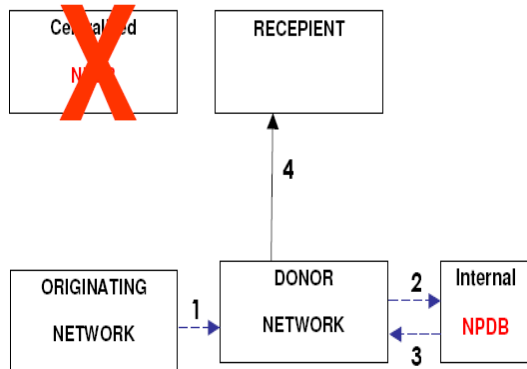


Figure 3: Onward Routing

**IV. Call Drop Back:**

The donor network after confirming that the number is ported releases the call back to the originating network together with the information identifying the correct terminating network.

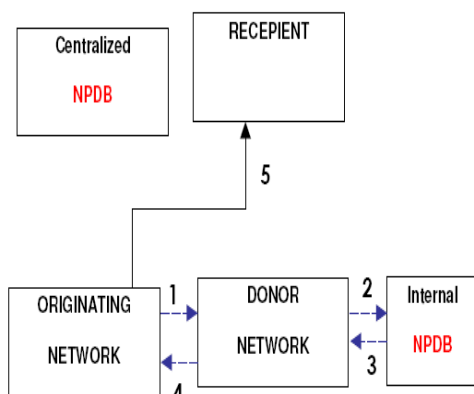


Figure 4: Call Drop Back

**X. COSTS ASSOCIATED WITH NUMBER PORTABILITY**

The costs incurred in the provision of number portability may be broadly divided into three categories

**I. The System Setup Cost (CAPEX of Database Setup) & OPEX:**

These costs ensure that all or most users can use number portability. These may be the costs of establishing /maintaining routing databases, conditioning existing networks, upgrading network switches and modifying existing software. These are the costs that a provider may incur in establishing the capacity to provide number portability on its network and in its associated operational support and administration.

**II. Administration Cost (Customer Transfer Cost):**

These are customer transfer costs or porting costs. They include the costs incurred by service providers in closing an existing account, setting up a new account and coordinating the network operators in the switching over

of the mobile number and routing of the calls; costs of new handsets or SIM cards and caller costs (the additional delay in setting up a call to a ported number).

**III. Call Conveyance Cost (Not Relevant in case of Direct Routing):**

The costs of additional conveyance of calls to ported numbers in the case that they must transit the donor network.

**XI. BASIC TERMINOLOGIES USED IN ANY PORTING PROCESS**

Table 2: Terminologies used in MNP

Terminology	Description
Donor network	The initial network where the number was located before ever being ported
Originating network	The network where the calling party is connected
Recipient network	The network where a number is located after being ported
Number Portability Database (NPDB)	Collection of all the ported numbers. It provides a unique routing number in response to a query from any network operator. The store of ported numbers with their relevant routing numbers
Routing number	A specific number that is derived and used by the network to route the call towards a ported number
The new service provider (NSP)	It is the recipient carrier i.e. the new service provider to which the subscriber wishes to subscribe
The old service provider (OSP)	The donor carrier is the old service provider, which the subscriber wishes to leave

**XII. PROCESS OF MNP**

1. First, send your mobile no. to 1900 via SMS in the format:
  - a) PORT <99XXXXXXXX>this SMS will be charged as per your SMS plan. 1901 will send you a reply SMS, you will receive a UPC (Unique Porting Code). The UPC will be an 8 digit alpha-numeric code. You will also receive the date till when the UPC will remain valid.
  - b) Visit the nearest outlet of the operator you want to switch over to with your UPC.
2. You have to fill and submit the prescribed Mobile Number Portability form to the new operator at the operator outlet and you will get the pre-provision SIM card of the new operator. You may be asked to submit a photo ID and address proof and processing fees.
3. Post-paid subscribers will be asked to submit a copy of their latest bill too.
4. The number portability has to be completed within 2 working days.

5. You will receive an SMS mentioning the time and date of porting.
6. You will run the new pre-provision SIM card. Once the porting process is complete, you will receive another SMS from the new operator.
7. Your mobile phone will be switched off at the time of porting, nearly about 1-2 hrs.
8. You can change your operator only once in 3 months. So, use the service carefully.

### XIII. HOW FAST IS THE MNP SERVICE

TRAI has said that operators should get it done within 2 days, it may vary due to many factors and the use of the old or new SIM is an issue as of now. Important Terms are:

**I. Unique Porting Code (UPC):** It is the code generated by the customer which is required at the time of porting to a new network.

**II. Port Out:** When a customer goes to a different operator from your network, it is called Port Out.

Ex. Airtel user goes to BSNL without changing his mobile number.

**III. Port In:** When a customer comes from a different operator to your network.

**IV. Donor Operator (DO):** Donor Operator is the Original Operator of the customer or the operator from whom the customer is porting out.

**V. Recipient Operator (RO):** The new operator to which the customer is going to/porting is the Recipient Operator.

**VI. Mobile No. Portability Clearinghouse (MCH):** Any interaction between the Donor and Recipient operator happens through MCH.

**Syniverse for Zone-I** will serve circles– Haryana, Punjab, HP, Mumbai, Rest of Maharashtra, UP East, UP West, Gujarat, Rajasthan.

**Telecordia for Zone-II** will serve circles– Tamil Nadu, Kerala, Orissa, Karnataka, Andhra Pradesh, Madhya Pradesh, Kolkata, Rest of Bengal, and Bihar.

### XIV. BENEFITS OF MOBILE NUMBER PORTABILITY

1. As a user, you can leave one mobile network and go to another one, if you are not satisfied with the service. **Your mobile number remains the same;** you just change to better mobile networks that appeal to you. The customer also does not lose his / her old numbers and contacts.
2. Increased competition among network providers to retain customers. The competing network will try to induce the user to switch to them while the existing network will try to retain its customer base and keep you, the customer, happy by providing better options. Ultimately, it is the customer's decision whether he /she wants to port the number or not.
3. Expect more rate cuts, better services and other frills in the MNP environment.
4. MNP in India would lead to better quality services and a change in the attitude of the operators towards

addressing grievances to retain subscribers. At the outset at least 15-20% would like to shift to alternate operators with attractive plans. Some network operators will plan to acquire high net worth individuals who earlier didn't want to switch to another operator as they didn't want to change the number.

### XV. BENEFITS OF MOBILE NUMBER PORTABILITY TO USERS

1. People will not have to change the number for changing the operator.
2. One will not have to inform all the people in their phonebook about the operator change because this will not change the number anymore: When you change the operator, it is your matter from now and you need not tell anyone or let anyone know which telecom operator you are taking service from.
3. You can save money by having the best plan you like: while some people hardly leave the city they live in and want more features, others might travel a lot and need better signal reception. Mobile Number Portability allows both types of users to have the same number without having an additional headache.
4. Due to operators offering free talk time and data usage, there will also be monetary benefits to the users for a short time.

### XVI. BENEFITS OF MOBILE NUMBER PORTABILITY IN INDIA TO TELECOM OPERATORS

#### **I. Savings in expenses for reserving a number-series:**

Operators pay some price to reserve the number series in a telecom circle so that they can use the number series to create new mobile phone numbers. Due to the Mobile Number Portability, operators will no longer have to pay the price to reserve a specific number series in a particular zone, even if there are very few users using that series. This would mean cost savings.

#### **II. Less struggle for newcomers:**

If an operator is entering a new telecom zone, he will not have to struggle for a (relatively) long time for getting enough users to keep itself in business. Usually, new telecom operators offer a better price to value ratio for the customers. Before Mobile Number Portability, they had to wait for a significant time before they could get a sufficient number of users to sustain their business. Since Mobile Number Portability offers users a relatively faster and easier way to change operators, it is expected that it will play a significant role in getting new operators a good number of customers.

### XVII. BENEFITS OF MOBILE NUMBER PORTABILITY TO THE GOVERNMENT OF INDIA

#### **I. More competition means more revenue:**

Mobile Number Portability will attract a lot of competition and that will invite even more companies from the outside than what already is. More competition will make the

government hike the prices for the different series they offer to the telecom companies.

### **II. More investment in the market:**

Mobile Number Portability is sure to make the market more competitive. More competition will mean more trade on the shares and a better economy. It invites new opportunities for investment in different sectors especially technological sectors by the companies.

## **XVIII. PROBLEMS OF MOBILE NUMBER PORTABILITY IN INDIA TO USERS**

Although the Mobile Number Portability is a great technology, it may cause a few problems for the users. They might be as follows:

1. The switching from one operator to another requires you to pay Rs.5.74/-, Just like some say it, "Nothing comes for free". So you have to pay some charge to the new operator for using their service. It is expected that operators would ask you the maximum amount, Rs.5.74/- for changing to their service. While this is not certain, even the possibility of the same is a disadvantage.
2. You still have to follow the same old procedure of going to a shop, getting a new SIM and so on: If you thought that you would just send an SMS and you will change your operator which you are on the train, you are wrong. You still have to go to the front end office and get a new SIM. So you cannot retain your old SIM (and all the phone numbers and messages stored in it).
3. It takes time for the switch to take place: So if you want it to happen immediately, you cannot do it. Nothing is in your hands after you have started the process of changing the operator. One would have to wait for 2 working days for the switch to happen.
4. Since it has not been made clear that when can a person use his new SIM card after applying to the new operator, it may cause problems to the users in some scenarios: Today you get a new SIM and start using the moment you buy it. This will not be possible since the new SIM you buy will not be active unless the number is transferred to the new operator, which may take the time of the old operator is snail-paced.

## **XIX. PROBLEMS OF MOBILE NUMBER PORTABILITY IN INDIA TO OPERATORS**

While the operators gain the most out of this service, they also lose it the most. Following are some of the things which make the matter complicated for the operators:

**I. Technology change:** Since Mobile Number Portability in India will ask the telecom operators to use a slightly different technique that is already in use, they will have to invest in newer equipment to support Mobile Number Portability.

**II. More competition with other companies:** The competition between operators will become fierce as they can lose the customers anytime.

**III. Underlying network changes:** Changing the current call routing scheme (that is technical) needs some readjustments in the networking within the operator's network. This is challenging especially when they do not want the service to be disrupted which the technology is being changed under the hood. It would be like changing the engine of the car while it's running.

## **XX. CONCLUSION:**

In the telecom sector it was common that the new companies have more sale promotion offers to allure customers, while old players did not have much to offer. Now the game changed. Every company is trying to eye on the other company's customers and trying to retain its users. MNP has directly affected the Telecom industries with Mobile number portability scheme; the ultimate king is the customer. Now he can change his service provider without any worries. Over the past decade, the number portability of various types has been implemented in a range of countries. The detailed history of number portability implementation in each country is unique, but later implementations had the advantage of being able to take into account the experiences of earlier implementations.

Recently IDC had conducted a study, which revealed that 30 percent of mobile users are ready to change their operator if given a better option. TRAI said that the introduction of number portability will also benefit operators as they will strive to offer better service to prevent churn. International experience proves that there is substantial improvement in the QoS after the introduction of MNP. The roadmap to MNP requires the cooperation of all the stakeholders.

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**AUTHORS PROFILE:**

**M.SATYA PRASAD, Assistant  
General Manager** in BSNL



Visakhapatnam. After Graduation in Electronics, I completed a Bachelors's degree in Education and a Masters's of Business Administration with a specialization in Marketing & HRM. Presently doing a Doctorate in

Management at Andhra University, Visakhapatnam. I had a vast experience in the field of Telecommunications worked in various wings like IP Switching, Transmission, Mobile Communication, Data Communication, Marketing and Entrepreneur Business.

Academic Experience: Initiated the first time in BSNL Skill development MOU's with Universities and Engineering Colleges and signed a good number of MOU's. Nearly 7000 students were done interim ship/ project work in ECE Engineering stream from 2004 to 2019 under my guidance in Optical Fiber Communications, Mobile communications and in Wireless Technologies including Employability Enhancement Training Programme (EETP) sponsored for AICTE.

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