



**Reliance
Infocomm**

New Delhi
August 30, 2005

The Secretary
Telecom Regulatory Authority of India
A - 2 / 14, Safrdajung Enclave
New Delhi - 110 029

Reliance Infocomm Limited
1st Floor, Gopal Das Bhawan
28, Barakhamba Road
New Delhi-110 001
Tel: 011-30331525
Fax: +91-11-30331540

Kind Attn: Advisor (MN)

**Subject: Response to Consultation Paper on Mobile Number Portability
dated July 22, 2005**

Dear Sir,

With reference to the above we are pleased to enclose our detailed response to the issues raised by the Authority in its consultation paper.


Our key submissions are as follows:

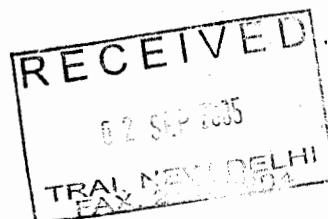
1. Today there is significant competition in the mobile market already
2. Introduction of MNP would also entail huge investments and the resultant benefits from MNP may not be commensurate with these investments
3. Subscriber tariffs would also have to be increased to support introduction of MNP
4. It would be important to take a comprehensive view keeping in mind the current exercises on review of Fundamental Plans, establishment of Interconnection Exchange etc which could affect the current routing and interconnection systems
5. It may also be relevant - in line with international practice - to consider introduction of number portability in the fixed line segment first. Especially since there is negligible competition in this sector today.

We hope you will take the views comprehensively while finalizing your recommendations on this issue.

Thanking You.
With regards,

For **Reliance Infocomm Limited**


Authorised Signatory
Gajendra Upadhyay
RiM: 0 93122 25690



Number Portability (NP)

1. INTRODUCTION

Number Portability allows telecom consumers to change their service type (from fixed to mobile or mobile to fixed), location (from one geographic location to another) and service provider (offering competitive services) while retaining the same telephone number. Portability is primarily implemented with the aim of putting competitive pressure on operators in markets without sufficient competition.

With portability, consumers can shift easily to other operators who offer better prices, services or features.

However, the fundamental reasons – both technical and economic – for introducing mobile number portability do not exist in our country yet.

TECHNICAL

Introduction of number portability would require significant changes in the existing Numbering and Routing plans of the country since the current numbering and routing plans are not flexible enough to accommodate porting of numbers. Both the numbering and call routing procedures will need to be re-designed and modified for portability to be supported.

In fact the Telecommunications Engineering Centre (TEC) is currently re-examining all the National Fundamental Plans and should examine issues relating to NP also. TRAI should also address how the concept of an Interconnection Exchange (which is currently under consideration of the Expert Committee) would fit into the implementation of NP.

We also feel – as explained in detail later – that as part of the consultation exercise the TRAI should seek views on whether we should first go for fixed number portability or start with mobile portability. The mobile market today is highly competitive and the rates are the lowest while this is not the case with fixed.

2. RELEVANCE OF NUMBER PORTABILITY IN INDIA

Competition in the Indian mobile market is extremely robust today with anywhere between 4 to 7 networks operational in each of the telecom circles. The table below illustrates this:

Type of Circle	Number of Operators	Subscriber Base (Mns)
Metros	6 to 7	15.72
A	5 to 6	21.22
B	> 4	18.47
C	4 (except Assam & J&K, with 2 each)	3.72

Nowhere in the world does any market support more than 3 to 5 mobile operators – even in highly competitive markets like the US and Europe.

To take this illustration a little further, if we use the Herfindahl Hirschman Index (HHI) as the basis for assessing the level of competition in the market, India's HHI is 0.16 (as of 31st July 2005). This clearly shows that our mobile market is vibrant and extremely competitive.

Even the tariffs hovering in the range of Re. 1 per minute – are among the lowest in the world and this is the reason why mobile average revenue per user (ARPU) at Rs 390 per month (which is lower than US \$ 10) is the lowest in the world.

This ARPU is only going to decrease further as network roll out continues and operators expand into rural and remote areas, especially since our national objective continues to be to keep tariffs affordable and to increase penetration into markets with lower paying capability.

Given the fact that introduction of Number Portability is likely to entail huge additional investments by all operators to augment their network and create subscriber databases and also to implement and sustain new routing and switching arrangements, we feel that balancing the twin objectives of achieving lower tariffs and introducing number portability may not be possible.

The lower paying capability of the Indian consumer therefore has to be kept in mind while thinking of NP. The stark difference between India and other countries is easily established if one were to compare the Indian GDP per capita and mobile telecom penetration levels with that of other countries where mobile number portability was introduced (as illustrated in Table 2 below).

TABLE-2

Country	MNP introduction Year	Mobile Teledensity	Operators	GDP per capita (US \$) (in 2003)
Netherlands	1999	10%	4 in 1999	25810
Singapore	1997 & 2003	24% & 83.1%	3-4	19544
HK SAR	1999	64.14 % (99-2000)	> 4	23024
Australia	2001	54% Approx.	4	21123
USA	2003	54.58%	> 4	35537
Germany	2002	71.64%	4	27027
France	2003	69.59%	3	24288
UK	1999	45% Approx.	4 (in 2003)	23304
South Korea	2004	70.09% (end 2003)	3	10411
India		6%	7	425

Source: ITU Statistics & TRAI publications, Merrill Lynch Global Statistics, 2003

Further, it can also be seen that despite the lower paying capacity of the Indian subscriber, the Indian market is far more competitive than any of the other countries mentioned above – with the effect that ARPU's are also the lowest.

3. MOBILE NUMBER PORTABILITY OR FIXED PORTABILITY

3.1 However, without diluting our stand above on the very requirement for Number Portability in India, if the TRAI and the government feel it necessary to introduce Number Portability it should start with fixed number portability (FNP), since there is hardly any competition in the fixed line market (as shown in Table -3 below).

TABLE – 3

Fixed Line Penetration operator wise		
Service Providers	July -05 (Mns)	Market Share
BSNL *	37.25*	77.95%
MTNL	4.11	8.60%
Tata	3.23	6.76%
Bharti	0.97	2.03%
Reliance	1.86	3.89%
HFCL	0.21	0.44%
Shyam	0.16	0.33%
Total	47.79	100.00%
	<i>Including WLL(F)</i>	

** BSNL data is an approximation based on June 2005 figures*

3.2 As can be seen from the above, there is effectively only one operator in most areas in the fixed line business with over 80% market share. Using the HHI yardstick again, this translates to almost a monopoly in fixed line market.

3.3 Therefore introduction of Number Portability should start with the fixed line segment. This will bring true benefit of choice to consumers. It is also true that subscribers of fixed line telephones have to live with poor network coverage and poor quality of service (QoS) since there is little or no choice.

3.4 As pointed out in the consultation paper itself, internationally most countries have introduced number portability in their fixed line networks first - because that is the natural progression before introducing mobile portability.

- 3.5 Even in Singapore though mobile number portability was introduced first in 1997, it could not be implemented and had to be reintroduced in 2003 – that is only after the fixed number portability came into being in 1999.

4. COSTS

As mentioned in the introduction, the introduction of number portability will entail huge additional investments. At a rough estimate, the additional investments in infrastructure for introduction of portability in India would involve an expenditure of Rs 5000 – 7000 crores for the industry as a whole.

This is excluding the cost of mobile handsets when porting mobile numbers between the GSM and CDMA networks, which would involve additional costs for subscribers over and above the infrastructure cost.

5. INTERNATIONAL EXAMPLES

Though the consultation paper highlights a few international examples, it does not really provide the entire picture on introduction of number portability globally. For example, portability has generally been introduced in markets where there aren't enough operators though the tele-density may have been high. In many cases, it was introduced to spur the entry of other operators to give a fillip to competition.

6. In India, therefore with are more than 6 operators in metros, 5-6 in Category A circles, more than 4 in Category B circles, and 4 in Category C (barring 2 circles which have currently 2 operational operators with LoIs given to another 2), there are more than adequate number of players and enough competition in each telecom circle.
7. A detailed status report on number portability in other countries is enclosed in Annexure – I

Notwithstanding our contentions above, our point wise response to TRAI queries in the Consultation Paper are provided below.

POINT WISE RESPONSE

1. *What is the anticipated impact of Number Portability on Customer satisfaction and increased competition between services and operators?*

For the Customer:

While from the customer's point of view, a major hindrance to move from one service provider to another would be removed, the impact in real terms is unlikely to be significant, especially because there is already sufficient competition in the market. Also there would be additional costs to be borne by the customer which could be a hindrance.

Further, in India with multiple access technologies, moving from GSM to GSM or CDMA to CDMA would be less expensive compared to moving from GSM to CDMA or vice versa. This will limit the choices of portability to mobile customers.

For the Operator:

A significant increase in the following costs:

- a) network infrastructure
- b) customer acquisition and re-verification
- c) Likelihood of increased Bad Debts
- d) Further decrease in ARPU

2. *The following technical options have been discussed in the consultation paper. Please indicate your preference with reasons:*
 - a. *All-Call-Query*
 - b. *Query-on-Release*
 - c. *Onward Routing (call Forwarding)*
 - d. *Call-Drop-Back*
 - e. *Any other solution*

All – Call –Query is the best option for Mobile Number Portability. The query should be based on the standard protocol acceptable to the Mobile Operator preferably with IS 41 (CDMA)/MAP (GSM).

3. *In the past, some countries have followed the approach of implementation of short-term solution, with parallel planning for a long-term solution. Several other countries have opted directly for long-term solution. The issues associated with either approach are discussed in this paper. Please give your opinion, with reasons on the path India should adopt.*

As already explained in Point 3 of our introductory remarks, most countries begin with fixed number portability followed by mobile number portability. This is the preferred long term solution and should be adopted by India too. It is therefore suggested that no intermediate step is introduced and we should opt for a final long term solution. Else there would be additional cost and commercial implications.

- 4. In case of a Centralized Database approach, who should be responsible for the setup, Ownership, administration and management of such a Database? Should the administration and operation of a centralized Database be assigned to a third party duly licensed by the licensor as another service provider (OSP) on the lines of a clearing-house, or should some other approach be adopted.*

An OSP approach governed by DOT would be the right choice. The OSP should have the responsibility to establish, operate and maintain the central database. All users should connect using SS7 connectivity to access this for routing information.

In USA, the OSP's are called Service Bureau who set up the Databases, which provide the Local Routing Numbers (LRN).

- 5. How the Database should updates between different operators to be synchronized? Where could the central Database be located?*

Different countries have adopted different models. OSP (as mentioned in Point 4) would be responsible to maintain the Ported Numbers. In general the Recipient Service Provider would send the request which needs to be cleared by the Donor Service provider and then only the OSP database would be updated intimating both the Donor and Recipient. In case the ported Customers service is terminated the number should be released from the database with necessary intimation.

- 6. What should be the level of centralization (Metro, Circle, National) for a Centralized Database? Should this be a permanent arrangement or be subject to later revision.*

Keeping in view the existing Numbering Plan, the Central database needs to be on a licensed circle basis.

- 7. How should NLDOs and ILDOs handle the routing of calls to support number portability?*

If IS41/GSM (MAP) is used then the response of the query would provide a Local Routing Number (LRN similar to MSRN/TLDN), which is a routable number to the Terminating Service Provider. The NLD/ILD operator would not require to do any query to this central database hence there would be no impact on the NLD/ILD Operators.

- 8. Are the existing interconnection arrangements (such as signaling) between mobile-to-mobile, mobile-to-fixed networks sufficient to achieve number portability or are any changes required?*

As suggested earlier the query to the central database would be IS41/GSM (MAP) and the transport layer would be SS7, hence SS7 connectivity to the central database needs to be done by either a Signaling Service Provider (which do not exist) or by any existing service provide who has such a capability.

It would be necessary to have a study on a National Level Signaling Network to facilitate SS7 interconnectivity between operators as well as the OSP providing the MNP system.

9. *Are there any technical issues in the portability of services such as SMS, data, voicemail or fax?*

All Circuit switched service (Voice and Fax) and SMS would use the same mechanism. There would not be any impact on Data services as the Recipient Service Provider would do IP allocation. This would be similar to MIN/IMSI allocation as necessary for Voice.

10. *What problems do you foresee with the current National Numbering Plan in implementing number portability that may necessitate the modification of the existing National Numbering plan?*

Presently the Numbering Plan for mobiles is on a circle basis and for fixed on an SDCA linked numbering basis. If we allow MNP across circles then we need to converge on a National Numbering Plan not limiting to a circle. Also as suggested by us, if fixed number portability is introduced, then the SDCA numbering will have to be also revised to either circle level or national level. Moreover interconnect requirement for termination of calls for roaming with BSNL as implemented today needs to be re-evaluated. MNP if introduced at all should therefore be on a Licensed Circle basis that too after implementing fixed number portability

11. *Should number portability related charges be regulated? If not, then what measures will ensure that the portability charges are not set such as to discourage portability?*

Number Portability related charges should not be regulated. Since the costs would be incurred by operators, the charges should ideally be forborne and left to market forces – but an indicative price can also be considered subject to operators being free to offer other prices. However there are chances that this facility may be misused resulting in unnecessary porting (thereby leading to increased bad debts of operators). To reduce misuse a regulatory mandate would be required to **prescribe a minimum time frame** for which a subscriber has to remain on a particular network before porting to another network. This would also curtail fraud.

Our suggestion on the charging mechanism would be to levy a charge for every number that is ported to minimize the cost burden for implementing MNP. Regulation should also ensure operating level, service level and interconnection rules for inter carrier porting.

12. *What measures will ensure tariff transparency.*

Tariff transparency for a ported number – in terms of informing the customer that the called number is now on another network – can be ensured through a recorded announcement to this effect. However, the customer would have to check for the applicable tariffs for calling a number on the recipient network.

13. *Considering that the Indian market is a growing market and number portability offer the possibility of attracting customers by an efficient operator, should it be mandated that the cost of the number portability should be absorbed by recipient network.*

Cost for MNP implementation should be apportioned in two parts, one from the subscriber, and the other from the Recipient Service Providers. However there needs to be certain inter porting

charge levied between the Donor and Recipient Operators to circumvent administrative cost for customer porting.

14. *Please share any additional information that you might have above number portability implementations in countries and jurisdictions around the world, and what we might learn from these experiences.*

The Indian Mobile Market has a technology agnostic implementation quite similar to that of the USA. From an MNP aspect it would be fruitful to evaluate the methods and processes adopted in USA in this aspect.

Other examples from different countries is enclosed in Annexure-I

15. *Give your comments, with reasons, as to when number portability should be introduced in India?*

Ideally mobile number portability should be introduced only after fixed line portability has been implemented. Also, generally MNP has been introduced in markets with higher mobile penetration (> 40%). It also needs to be kept in mind that in our country without MNP the growth of Mobile subscribers has continued at a scorching pace because of the robust competition in the market. Also, there has to be a consensus among operators for introducing portability and the cost aspects of MNP need to be carefully studied and understood.

16. *Should MNP be implemented progressively by service area or directly across the nation at one time?*

The license fee for mobile service varies based on Circle for categories A, B and C. The categorization was based on the business potential of these circles. To facilitate competition it would be appropriate to implement MNP in the 4 Major Metro (Mumbai, Delhi, Kolkata and Chennai) first. As the Numbering Plan is on a geography basis this would not create complexity on existing routing arrangements.

17. *What will be the effect, if any, on the different aspects of implementation if phased roll-out is adopted:*

Taking USA as an example where both CDMA and GSM network exists, contrary to all other major countries with GSM, MNP would possibly be more expensive both for the operator to implement as well as the customer to avail of it since new terminals would need to be purchased for changing between technologies.

India is a very cost sensitive market and the cost of porting may actually be a deterrent. Keeping this in mind it would be appropriate to test it in markets, which are less sensitive to prices.

Mobile Number Portability – International Status

Netherlands

MNP was introduced in 1999. According to the TRAI Consultation Paper, the mobile penetration was 10% at that time. However, an interesting observation on the Netherlands mobile market projects that till 1998, there were only 2 operators – KPN and Libertel, which dominated the mobile communication market. Two new operators entered this market in early 1999, and in subsequent years, one more carrier entered the market. It is worthwhile to mention that as per ICRA's report (March 2001), the doubling of operators from 2 to 4 in the mobile market in 1998/99 brought about a 5 times increase in subscriber base from 1.72 Mn in 97 to 9 Mn by August 2000. Mobile penetration increased from 9% in 97 to 57% by August 2000. This clearly implies that MNP was sought to be used as a tool by OPTA (Regulator) to bring about competition in a non-competitive market. However, the stupendous increase in mobile penetration that took place cannot be attributed to the introduction of MNP, as its introduction was only useful in creating a conducive market for new entrants vis-à-vis the dominant mobile operators. Hence, the conclusion that market maturity is not important for the introduction of MNP is premature in the light of the Netherlands example itself.

Furthermore, OPTA introduced fuller NP – i.e it mandated that service providers port Fixed, Digital Mobile and non-geographic numbers.

Singapore

Singapore introduced MNP in 1997, when the mobile tele-density was 24%. But it was recently reintroduced in 2003, when the mobile tele-density was 83.1%. The implementation of MNP has had limited implications on prices because IDA's directives have not been highlighted enough regarding the implementation of a true MNP platform. As such, operators did not highlight the availability of MNP, which has resulted in lower-than-expected operator-to-operator migrations.

Thereby implying that at both times, the mobile phone penetration was relatively high compared to India, to consider implementation of MNP. Moreover, Singapore has 3-4 mobile operators only.

Hong Kong

HK introduced MNP in 1999. The mobile tele-density of HK in 1999-2000 period was 64.14%, which signifies that MNP is a feasible option when the market is relatively saturated/well-penetrated.

Australia

It introduced MNP in September 2001 when the mobile tele-density was approximately 54%. Australia was also a well-penetrated mobile market at the time of introduction of MNP. Moreover, it also had only 4 mobile operators in 2001.

USA

It took about seven years for NP to be rolled out in the United States. In 2003 when MNP was introduced, the mobile tele-density of USA was 54.58%, signifying maturity and high penetration of the market.

As of August 1, 2005, since the introduction of wireless number portability in 2003, at least 818,000 people have transferred numbers from their land lines to cell phones. But only about 10,000 have transferred numbers from cell phones back to land lines, according to the Federal Communications Commission through last December. In December 2004, USA had a total of 181 million wireless subscribers and 178 million wireline subscribers. The call by call cost of a ported number varies from US 24 Cents to 54 Cents state to state, telecom firm to another telecom firm. This cost applies to all subscribers and not just those subscribers that have opted for number portability.

Source: <http://www.nj.com/news/jjournal/index.ssf?base/news-0/11228874528940.xml&coll=3>

Moreover, wireline subscribers can port their number to a wireless service also. However, the exact time taken to port the number varies wherein the operators claim it to be 3 hours, but some consumer surveys and websites state that 3 days is what a consumer needs to effectively port services or service providers.

Source: http://www.tnl.net/blog/entry/Number_Portability_FAQ

The FCC Consumer Information journal on Local Number Portability defines its charge as:

This is a fixed, monthly charge through which local telephone companies may recover certain costs of providing long-term number portability service. Recoverable costs include the costs of creating new facilities, physically upgrading or improving the existing public switched telephone network, and performing the ongoing functions associated with providing long-term number portability. The FCC determined that incumbent local telephone companies may, but are not required to, recover certain costs of providing number portability through a monthly charge on their customers.

Based on these estimates and the assumption that every operator in USA starts charging a number portability charge, the subscribers in USA may end up paying in the range of US\$90 million to US\$190 million a month. This would be a large cost for implementing number portability and therefore its application to India should be based on the number of subscribers (teledensity) and the Purchasing Power Parity (PPP).

Germany

In 2002, when MNP was introduced, the mobile tele-density was 71.64% and there were only 4 operators.

France

When MNP was introduced in 2003, the mobile tele-density was 69.59%, with the market having only 3 operators.

UK

In 1999, UK had approximately 27.1 million mobile subscribers, and a mobile tele-density of 45% approximately. Of these, Vodafone had 8.7 million while BT Cellnet had 7.4 million subscribers and they were growing at a average CAGR of 60% each. They were the dominant operators at that time and hence introduction of MNP would have served more as an entry-facilitating competitive tool for new mobile entrants in UK mobile market.

Japan

The Japanese government has sought to implement mobile number portability (MNP) in 2006, which mobile operators are taking into consideration as they begin a new fiscal year. For instance, fixed-mobile convergence strategies are being seen as a strategic tool to maintain market

share in expectation of MNP implementation. As voice becomes increasingly commoditized in Japan with the advent of voice over broadband, MNP will impact the competitive landscape by increasing the competitive pressures on margins. Entry and exit of new carriers has largely been facilitated by revisions made to the Telecommunications Business Law that took effect in April 2004.

Brazil

The mobile teledensity of Brazil is 37.5% and it is yet to introduce any form number portability. Though, the Brazilian regulator, Anatel, continues to seek greater competition between operators in but, given a variety of ways to pursue such competition, Anatel chose to focus on spectrum regulation while putting off initiatives such as Number portability and local loop unbundling.

Colombia

The possibility of introducing number portability to the Colombian market was voted down in the Colombian Senate in March 2004. Nevertheless, different industry players, including the CRT (Regulator), have continued to discuss the issue. Operators — particularly mobile operators — have fought this measure, saying it will cost too much to implement number portability. Furthermore, they claim, this cost will ultimately be transferred to the client, making the service more expensive, as occurred in the United States. Others have argued that since the Colombian government's main policy objective in this sector is to increase tele-density in the country, an increase in prices will obviously be counterproductive for the government's goal of increased coverage and penetration. As a result, this initiative is likely to be dropped and number portability may not be adopted in this market at least for the next couple of years.

Spain

In December 2004, the Spanish Cabinet approved new regulations stipulating that fixed and mobile operators must process number portability requests by subscribers in a maximum period of four business days. Since number portability was put in place in 2000, more than 3m mobile and 1.2m fixed subscribers have made use of the option to keep their existing number when changing service providers. There are only 3 mobile operators in Spain – Telefonica (incumbent), Vodafone (30% market share) and Amena (20%).

Canada

Over the past several years, certain countries in Europe and Asia have mandated wireless number portability ("WNP"). In 2004, the U.S. wireless industry also implemented WNP. WNP involves porting wireless phone numbers to other wireless companies, but can also involve porting phone numbers between wireline and wireless companies. The implementation of WNP systems and capabilities imposes significant costs on the carriers in a country. The CRTC recently stated that it intends to review the matter in its 2005/2006 planning period (April 1, 2005 to March 31, 2006). The federal budget was released on February 23, 2005. In the budget speech, the government stated that it would request the CRTC to move expeditiously to implement WNP. In a letter dated March 18, 2005 to the CRTC, the Minister of Industry noted that WNP was already on the CRTC's 2005-6 work program and stated that he was therefore confident that the CRTC would deal with this matter in an expeditious manner.

The letter noted that the government understands that WNP includes wireless-to-wireless, wireline-to-wireless and wireless-to-wireline number portability. This implementation of WNP would require carriers, including Wireless, to incur implementation costs that could be significant and could cause an increase in churn among Canadian wireless carriers. On April

21, 2005, the Canadian Wireless Telecommunications Association (CWTA) announced that Canada's wireless carriers, including Wireless, agreed to implement number portability in Canada, and have begun the planning efforts required to achieve this result.

The CWTA is contracting an independent consultant to complete a comprehensive project plan outlining specific milestones for this process. It is expected that the plan will be completed by September 1, 2005. Upon arrival of the plan and agreement on a common start date, it is the intention of the CWTA and the wireless carriers to begin the implementation of the plan. A firm date on the implementation is not known at this time pending the development of the project plan.

South Korea

MNP was introduced in 2004. In 2004, marketing costs surged 47% after SK Telecom spent heavily to keep its subscribers from migrating to the only rival two operators – KT Freetel and LG Telecom, following the introduction of mobile number portability on Jan 1, 2004. Its also worth mentioning here that even the South Korean tele-density was as high as 70.09% in December 2003.