

## MNP – Watch Margins, Not Market Share

Indian telecom industry, like many others, is in the process of implementing mobile number portability (MNP) which allows subscribers to switch operators while retaining the number. The DoT has recently selected Telcordia & Syniverse as 3<sup>rd</sup> party neutral operators for providing porting services in the two zones, and has plans to introduce MNP beginning from Metros in August-09, which we believe would be delayed beyond 2009.

While MNP implementation is underway, the street has allayed fears of rise in competitive intensity, tariff war, market share loss by large telcos, etc. Therefore to understand the the likely implications in India, we have studied and analyzed the impact of MNP in few international markets like Canada, Japan, France, South Korea and Taiwan where MNP has been experienced. From our study it is evident that post MNP (1) the **churn rate in most of the markets have clearly shown an increase**, but only for short-term (6-12 months) (2) majority of countries have seen **large operators losing subscriber market share to competition** (3) operators have increased **focus on subscriber acquisition and retention measures including, aggressive advertising, higher distribution commissions, improving quality of networks, tariff reduction, etc. which has led to fall in EBIDTA margins** (4) **Porting charges and porting time are critical** as the two are inversely proportional to the use of MNP.

### Few advantages may partially nullify the MNP impact in India...

Few characteristics of Indian wireless market act advantageous to existing operators and may partially nullify the MNP impact, such as (1) low penetration (~33%) might allow all players to grow (2) lowest tariffs (US\$0.02) provide limited scope for pricing war (3) 92% of subscribers use pre-paid services where churn rate is already high at 45-54% (4) High competitive intensity with ~10 players in each circle where top 5 control 80% of the market, limiting scope of meaningful market share shifts.

### Market share shifts wouldn't really matter...

The launch of low entry-cost schemes by RCOM and Idea has resulted in extraordinary subscriber growth, but is mainly aimed at getting additional spectrum in our view. Such subscriber additions and market share gains would have little importance given very low revenue and profit contribution from such subscribers. In such a scenario, we believe that couple of percentage point shift in subscriber market share would not really concern.

### Operators focus to increase towards post paid and retention

We believe that in post MNP business environment operators would focus on (1) loyal and number sensitive post-paid subscribers, who form ~8% of industry subscriber base but ~35% of industry revenues (2) Subscriber retention than acquisition as it is more rewarding in terms of revenues and also cost (subscriber acquisition cost).

### ...But watch out for margins

Similar to the trend witnessed globally, **we believe that there could be around 100bps contraction in EBIDTA margins of all major mobile operators** post MNP due to one or more of the following reasons (1) aggressive advertisement spend (2) higher distribution commissions (3) more bundled offerings to attract/ retain subscribers resulting in lower RPMs and hence margin drop (4) Improving network quality and service experience resulting in both higher capex and higher network opex.

### Porting Time & Porting Charges are critical to success of MNP

Porting charge & porting time are inversely proportional to the usage of porting services in a country. For instance, high porting charge of say Rs1000 or high porting time of about 10-15 days could discourage subscribers from using MNP, affordable and faster service could encourage more use/ misuse of MNP. While the porting time globally has only reduced over time, we believe that porting charges would be critical to the success of MNP in India as well.

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## What has been the global experience of MNP?

Globally MNP has been implemented in many countries including Japan, France, the UK, the US, Singapore, Taiwan, Canada, Australia, Italy, Hong Kong, Pakistan, etc. In most of the countries MNP has been introduced at high penetration levels post moderation in subscriber growth. However in India MNP is being introduced at the time when India is still long way to go in terms of the penetration and strong subscriber growth still continues. We believe Indian companies are at an advantage given the early MNP implementation as the lower penetration provides an opportunity for all players to grow, unlike developed economies where subscriber growth is almost a zero sum game.

Country	Penetration during MNP	MNP implementation
South Korea	72.90%	Jan-04
Japan	71.96%	Oct-06
Taiwan	87.77%	Oct-05
Canada	61.00%	Mar-07
France	64.20%	Jun-03
Singapore (partial portability)	15.70%	Apr-97
Hong Kong	48.10%	Mar-99
Australia	61.00%	Sep-01

Source: Emkay Research

While the regulatory authorities in India have drawn firm plans of implementing MNP, concerns remain on whether the large operators would lose market share to smaller players especially the new entrants. In order to provide better insights into the post MNP environment in the wireless industry, we have studied and analyzed few countries/markets that have implemented MNP and characteristics of those markets vis-à-vis India.

We have analyzed the pre and post MNP era of few companies from 5 countries that include Canada, France, Japan, South Korea and Taiwan to understand the likely impact of MNP. Important findings of our analysis are

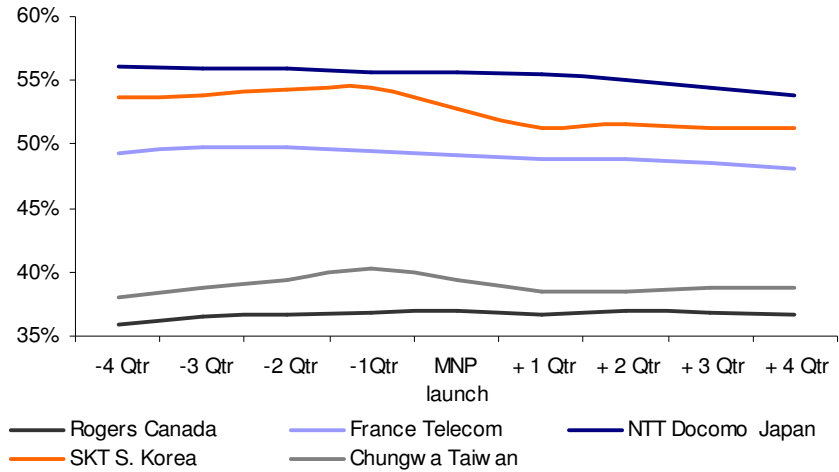
- 1) In most of the countries, the **large mobile operators have lost market share** post the implementation of MNP but not seen a reduction in subscriber base.
- 2) Focus has shifted to **adapting competitive measures like tariff reductions, better tariff packaging and addressing network constraints**. For eg. Rogers Canada (the largest wireless operator in Canada) carried a campaign "*Most Reliable Network*" which helped retaining subscribers and maintaining market share.
- 3) Larger and well established players tend to spend more to attract competitor's subscribers as well as on subscriber retention, resulting in higher operating costs and **reduced EBIDTA margins**. For eg. For many operators worldwide, the subscriber acquisition costs and marketing expenses shot up post MNP introduction causing EBIDTA margin contraction.
- 4) The **churn rates have increased for a short period post implementing MNP**, however have returned back to normal rates over 6-12 months period
- 5) Porting charges and porting time also play crucial rule in the success of MNP in a country. The **use of MNP service is inversely proportional to both porting charges and porting time**. (Discussed in detail separately).

Note: All of the above findings are represented with necessary data in next section.

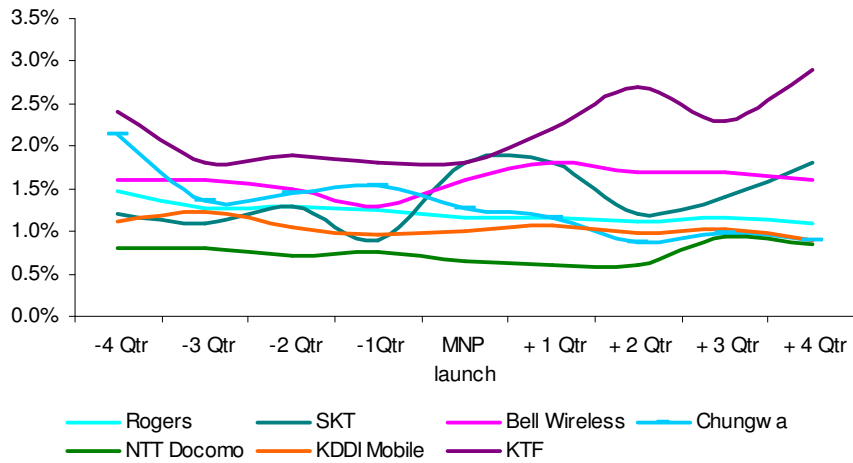
**Market share decline of large players evident**

The largest wireless operator in 4 out of the 5 countries that we analyzed has seen loss of market share (upto 400bps) after launch of MNP. However, data also clearly indicates that these operators have gotten aggressive to take measures to protect market share fall by aggressive retention measures in the form of large advertisement spends, tariff reductions, differential service packaging and higher distribution commissions, which have diluted the EBIDTA margins by 3-10 percentage points.

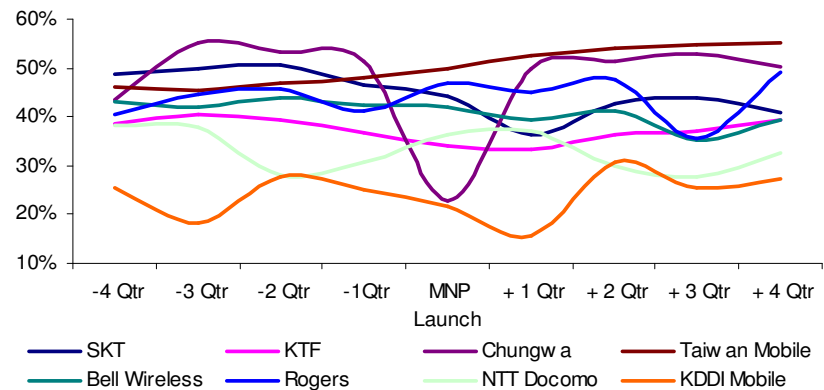
**Market share of largest players post MNP**



**Churn rate during MNP implementation**



**EBIDTA % pre & post MNP**



Source: Company, Emkay Research

### Porting charges play critical role...

Porting charge is one time fee that a subscriber pays for switching the operator/ network while retaining the existing number. In countries like Finland, Ireland, Spain, UK, Saudi Arabia, etc. number porting has been offered for free, where as in countries like Australia, Germany, Pakistan, Hong Kong, Japan Taiwan, Italy, Austria, etc the porting has not been complimentary. It is evident from the experience world over that higher porting charges are inversely proportional to the use of porting services by the subscribers. It has also been observed that in some countries the recipient operator absorbs the porting charges than passing it on to the subscribers, for ex: Italy, Finland, Sweden, Denmark, etc. Hence, while higher porting charges would reduce the industry churn, lower/ no charges could result in extraordinary churning.

We believe that porting charge would be critical factor to the success of MNP in the Indian wireless market. For instance, if the porting charge in India is fixed at Rs1000, the prepaid subscribers with average ARPU of Rs~200 would have low/no incentive to opt for the MNP service than a post paid subscriber. However, a lower charge of say Rs50-100 could result in sharp increase in the operators subscriber churn. There also remains a possibility of 'No portability charge' if the recipient operator absorbs the porting cost burden, in which case there could be excessive /misuse of resources.

Country	MNP implemented	Porting time	Porting charges
Turkey	Nov-08	23 hours	Free
Ireland	Jun-05	20 minutes	maximum EUR2.05
USA	Nov-03	Max 2 hours	NA
Australia	Jun-05	3 minute	Free
UK	Jan-99	2 hours	Upto 30 GBP
Pakistan	Mar-07	4 to 21 days	Rs500
Japan	Oct-06	NA	5000 Yen
Taiwan	Oct-05	NA	NT\$240
Canada	Mar-07	few hours	Not regulated
Finland	Jul-03	5 working days	Euro 10
Germany	Nov-02	4 working days	Euro 26
Italy	Apr-02	5 working days	Euro 10
Malaysia	Oct-08	Upto 5 working days	RM25
South Africa	Nov-06	1 day	Free

Source: Emkay Research

### ...and also the porting time

Porting time would be another critical factor which determines the success of MNP in a country. Porting time is more often determined and monitored by the regulatory bodies. In a scenario where the rules on the same are not enforced or are too liberal, the service providers can delay the switchover or bring about some sort of barrier such as high charges. In some countries like France, the porting time has been as high as 30 days where as the average has been around 3-5 days. The delay or higher porting time gives an opportunity to the donor operator to improve services, incentives or offer better deals and eventually retain the subscriber. A tedious porting process could also discourage the subscribers from opting MNP services. We understand that globally the regulators conscious effort has been to shorten and improve the porting time and process in order to assure better customer service and experience.

**Good to know:** Porting time in UK was 5 working days when MNP was introduced in Jan 1999, since then it has been reduced to 2 working days now. Ofcom, the UK regulator has recently announced the reduction of porting time to 2 hours from 1<sup>st</sup> Sep' 2009.

Porting in US normally takes 20 minutes v/s regulatory ceiling of 2.5 hours.

The world average of mobile MNP turn-over time is about eight days.

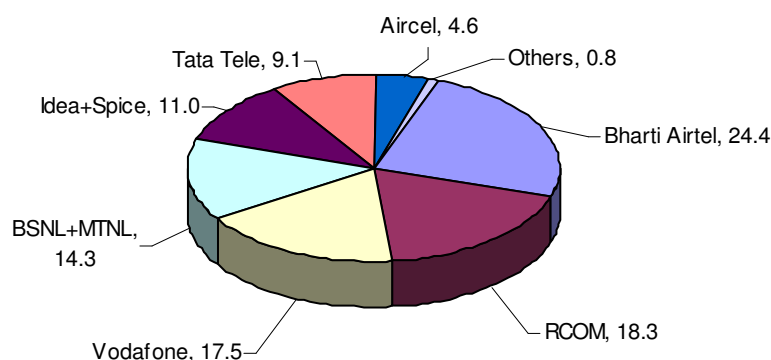
### MNP: Its likely impact in India vis-à-vis market characteristics

**Lower penetration an advantage:** The wireless penetration in India is at ~32% and with record >10mn subscribers being added every month, we believe that the penetration and hence the subscriber growth has still a long way to go. This is at an advantage to all the existing players as they would continue to benefit from the penetration led growth. In many countries, MNP has been implemented after attaining healthy penetration levels with which focus had changed more towards retention than subscriber acquisition.

Low penetration in India is an advantage to the players in the industry as the opportunity is large to really bother about growth from competitors share. We believe that there is a long way to go before the subscriber growth becomes a zero sum game.

**Market share shift from the leader cannot be ruled out:** Indian wireless market is intensely competitive with ~10 players operating in each circle. The top 5 players constitute ~80% of the wireless subscribers in the country. The strong players are continuing to get stronger with increased market shares and there is no clear dominance of any player or a significant difference in the market share between the large players. The largest player, Bharti Airtel, has ~25% share which is not significantly higher than the nearest competitors. However a couple of percentage points shift in market share of large player like Bharti would not make material difference in its financial performance given the recent low entry price schemes launched by few operators which would have little financial implication due to very low incremental revenue and profitability.

#### Indian wireless subscriber market share % as on Jan. 2009



Source: TRAI, Emkay Research

**Prepaid dominates; churn already high:** In India, unlike many countries with MNP experience, the pre-paid subscribers contribute 92% of the wireless subscribers in the industry. The already high monthly churn rate of pre-paid at 3-4% (40-45% annually) indicates that the prepaid subscribers are not sensitive to number portability.

**Tariff's unlikely to be the differentiator:** The mobile tariffs in India at Rs0.62 per minute (1.3 cents) is already the lowest in the world and has been declining consistently quarter after quarter. Such low tariffs provide limited scope for an operator to attract consumers purely on the grounds of pricing. What has been a practice and would continue to be is the packaging of services differently in order to attract the subscribers. It is clearly evident from the recent GSM launch of RCOM that players may not resort to pricing as strategy to garner subscriber market share, in our view.

## How would the MNP pan out in India? What would telco's focus on?

The MNP implementation process in India is already under progress and if the regulator's guidelines are to be believed, the MNP would be implemented in India by June 2009 in Metro circles and further in rest of India, over the next 6 months. However, with the MNP licensees yet to be appointed and the creation of centralized database and regulations on various issues such as porting time, porting charges, etc. a delay in implementation cannot be ruled out.

### 1) Fight to grab the high ARPU post-paid subscriber

In India, the pre-paid subscribers contribute ~92% of the wireless subscriber base and the churn rate among them is already high at 3-4% per month (40-45% annually). This indicates that the prepaid subscribers, who are at significantly lower ARPU than post-paid subscribers, are insensitive to number portability.

While just 8% of the mobile subscribers in India are post-paid users, the ARPUs from them are significantly higher at 3-4 times that of pre-paid. Moreover the post-paid subscribers contribute ~32-35% of the mobile industry revenues. The fact that post-paid subscribers are sensitive to number portability is evident from the lower monthly churn rate of ~1% for post-paid as compared to 3-4% in case of pre-paid. We therefore believe that the mobile operators would increase their focus on acquiring the high revenue generating post-paid subscribers post MNP implementation.

ARPU	Q307	Q407	Q108	Q208	Q308	Q408	Q109	Q209
GSM	316	298	297	275	261	264	239	221
Pre-paid	262	250	248	230	219	224	204	189
Post-paid	632	613	655	632	628	638	600	584
CDMA	196	202	206	173	176	159	139	122
Pre-paid	159	168	168	138	140	124	110	95
Post-paid	456	447	482	450	499	489	436	432

#### Proportion of Pre-paid subscribers

GSM	85.0%	86.0%	88.0%	89.0%	90.0%	91.0%	92.0%	92.0%
CDMA	88.0%	88.0%	88.1%	88.9%	90.2%	90.8%	91.5%	92.1%

#### Bharti Airtel mobile churn

Pre-paid	4.8%	3.6%	4.0%	3.8%	3.9%	4.3%	3.8%	3.2%
Post-paid	1.2%	1.0%	1.1%	1.1%	0.9%	1.0%	1.0%	1.1%

Source: TRAI, Company, Emkay Research

### 2) Focus on improving networks/ service experience

The Indian mobile industry is witnessing robust growth in subscribers and the operators are taking full advantage of the strong growth without fully adhering to the service quality which is evident from the increase in network congestion, call drops and also from the TRAI report on Quality of Service (QoS). With tariffs in India (at Rs0.60/ minute) already the lowest in the world, there remains limited scope to compete on the pricing front. Moreover all players in the market have quickly reacted and matched the competitor on pricing. Hence we believe that going forward, subscribers' choice for an operator/ network would depend on better service experience than pricing. And in order to provide the subscribers with better network and service experience, the operators would spend greater amount of time and money (capex) to improve the network quality. Better service experience could also benefit the operators with increased usage by the subscribers.

### 3) Differential service packaging would continue to be the focus

As mentioned earlier, with already lowest tariffs in the world and also tariff indifference between operators, there remains limited scope to compete on pricing front. Hence to attract subscribers from competitor's network, we believe that the operators would resort to more innovative packaging of services. For instance, the recent launch of prepaid scheme by RCOM GSM is an ideal example of differential packaging (which includes free limited airtime and free on-net calls), without competing on tariff front. With MNP in place, we believe that operators would go for more and more innovative packaging to attract subscribers from the competition and are unlikely to opt for tariff competition because the competitors would quickly match the tariffs but the move would dent the industry profitability.

### 4) Importance on retention over subscriber acquisition

Although the penetration led subscriber growth remains strong in India, the low usage by the incremental subscribers is putting pressure on the overall usage (MOU) and dragging down the ARPUs. With continued reduction in entry price points and insignificant contribution by an incremental subscriber in the revenue as well as usage, the operators would shift their focus from subscriber acquisition to retention.

### 5) Impact on Financials: watch out for margins

MNP implementation provides freedom to subscribers to choose the operator and the network of their choice whilst retaining their number. Since tariff difference have not lasted for long (all operators have quickly matched competitors tariffs), the operators focus would increase towards providing subscribers with better service experience. Hence we believe that the operators focus on improving quality of network would result in increased capex (although not significant) and also opex.

We also believe that with the introduction of MNP, the operators could resort to one or more of the following, (1) target competitor's subscribers by providing attractive schemes resulting in lower RPMs and hence margins (2) increase distribution commissions to gain market share (3) Provide periodic offers and freebies to attract /retain subscribers. With rising competitive intensity, the probability of operators using any one or combination of the above remains highly likely which would negatively impact the EBIDTA margins. On the contrary, improved network and service experience could also result in increased usage. Our analysis of global companies with MNP experience reveals that the EBIDTA margins have reduced post MNP implementation.

### 6) Operator portability – a focus on circle market share

As per the TRAI guidelines on MNP in India, **operator portability** would be introduced in India which would facilitate the subscribers to retain the existing number within the circle/ licensed service area (LSA). However the extension of MNP to inter-circle over a period of time cannot be ruled out. Since MNP would initially be restricted to operator portability within the LSA, the market share of large player within the LSA would be at focus and need to be watched out than pan India market share. Within the 22 circles, the focus of the large operators would be on high revenue/ ARPU circles, in our view.

#### Circle wise wireless subscriber market share as on Jan-09 (All data in % and Total subs in '000)

Circles	Bharti Airtel	Vodafone	RCOM	BSNL/ MTNL	Idea	Tata Tele	Aircel	Others	Total subs
Andhra Pr	30.6	13.1	18.0	10.2	17.1	10.9	0.0	0.0	28,056
Assam	25.6	1.7	26.6	15.2	0.0	0.5	30.3	0.0	5,275
Bihar	37.5	1.8	29.3	12.8	2.9	8.6	7.1	0.0	18,284
Kolkatta	22.5	24.5	23.5	11.6	0.0	13.8	4.2	0.0	10,662
Delhi	22.5	19.3	15.7	9.2	11.4	21.8	0.0	0.0	20,299
Gujarat	17.3	33.4	16.9	10.4	16.2	5.8	0.0	0.0	22,789
Haryana	14.2	23.8	14.6	16.1	17.0	14.3	0.0	0.0	8,737
Himachal Pr	31.1	0.6	32.6	23.0	4.3	4.4	4.1	0.0	3,017
J&K	49.9	0.0	0.0	27.4	0.0	0.7	22.0	0.0	3,041
Karnataka	43.4	15.7	18.2	9.4	7.1	6.1	0.0	0.0	22,110
Kerala	14.2	19.5	17.6	16.1	27.5	5.1	0.0	0.0	14,843
Madhya Pr	23.4	0.9	31.4	12.8	25.1	6.4	0.0	0.0	18,480
Maharashtra	19.7	15.0	13.7	11.8	25.0	14.8	0.0	0.0	28,163
Mumbai	15.2	23.3	23.4	11.7	3.3	12.1	0.0	11.0	18,195
North East	28.9	2.5	16.0	20.2	0.0	0.2	32.1	0.0	2,914
Orissa	35.7	3.1	25.9	16.5	0.0	8.3	10.6	0.0	7,603
Punjab	27.0	15.1	9.5	18.8	17.3	9.4	0.0	2.8	13,750
Rajasthan	30.7	22.7	14.2	12.9	5.7	11.7	0.0	2.1	20,902
TN + Chennai	23.4	18.8	14.3	11.0	0.0	3.4	29.1	0.0	33,726
Uttar Pr (E)	22.4	24.6	19.0	21.0	7.3	5.8	0.0	0.0	24,799
Uttar Pr (W)	12.6	23.5	17.7	12.9	21.6	11.6	0.0	0.0	17,384
West Bengal	23.6	31.0	19.8	11.9	0.0	6.3	7.4	0.0	14,062
<b>All India</b>	<b>24.8</b>	<b>17.7</b>	<b>18.6</b>	<b>13.1</b>	<b>11.2</b>	<b>9.2</b>	<b>4.7</b>	<b>0.8</b>	<b>357,092</b>

Source: COAI, AUSPI, Emkay Research

Note: above data does not include the CDMA subscribers of BSNL & MTNL.

### 7) Porting charge does matter

Porting charges play an important role in the success of MNP in a country. The global experience reveals that porting charges have been inversely proportional to the success of MNP in a country. Therefore while, higher portability charges could restrain subscribers from using MNP facility, lower charges could lead to excessive use/ misuse of MNP. For instance, if porting charge in India is fixed at Rs1000, the prepaid subscribers with average ARPU of ~Rs200 may not use the service. However, an affordable charge of Rs50-100 could result in higher usage of portability services resulting in higher subscriber churn.

### 8) Tariff transparency to reduce

In an MNP environment, subscribers lose the capacity to distinguish between on-net and off-net calls on the basis of the prefix of the number. Hence MNP would reduce tariff transparency for mobile users due to the price difference that exists between on-net and off-net calls, thereby enabling operators to enjoy tariffs for on-net calls at parity with off-net calls.



**Status of MNP in India**

The DoT has expressed its intention of implementing MNP in phased manner beginning from the metro circles (Mumbai, Delhi, Chennai and Kolkatta) from August 2009 (v/s earlier schedule of June 2009). The 22 telecom circles have been divided into two zones as under:

**Classification of circles into MNP zones**

Zone 1 (North & West)	Zone 2 (South & East)
Gujarat	Andhra Pradesh
Haryana	Assam
Himachal Pradesh	Bihar
Jammu & Kashmir	Karnataka
Maharashtra	Kerala
Punjab	Madhya Pradesh
Rajasthan	North East
Uttar Pradesh (E)	Orissa
Uttar Pradesh (W)	Tamil Nadu + Chennai
Delhi	West Bengal
Mumbai	Kolkatta

Source: TRAI

Key conditions/ features of MNP in India include:

- 1) A telecom service licensee cannot hold any equity, directly or indirectly, in the bidder Company. Further, the bidder shall also not likewise hold any equity, in any of such licensed telecom service providers / licensee companies.
- 2) One time non-refundable fee of Rs10mn is required to be paid by the MNP licensee.
- 3) The licensee will have to pay license fee at 1% of AGR with moratorium for the first two years. The MNP license shall be valid for a period of 10 years.
- 4) The TRAI guidelines indicate that intra service MNP (facilitates changing operators within service area) would be implemented in each service area. MNP would be initially implemented in Metro circles within 6 months of awarding the MNP license and would be extended to rest of India in a phased manner.

*The DoT has finalized MNP licenses to Telcordia for South & East India and Syniverse for North & West India. The DoT has chosen All Call Query (ACQ) as the technical solution for implementing MNP (details in annexure).*

*While the telecom ministry has announced implementing MNP by Aug-09 (v/s Jun-09 earlier), we believe that it would be delayed beyond 2009.*

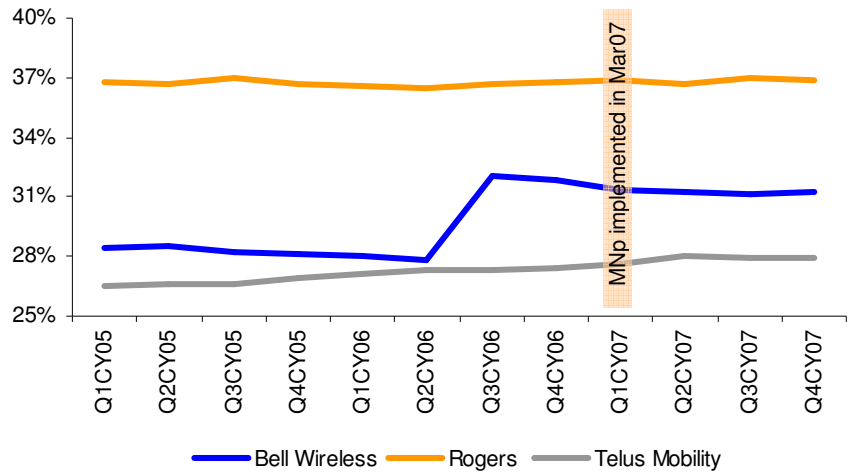
Annexure

Country wise analysis of the market share, churn, and EBIDTA margins

1) **Canada:** MNP implementation March 2007.

**Market Share:** Three large operators Rogers, Bell and Telus Mobility control 96% of the Canadian wireless market. Post MNP, the market share of the largest player Rogers, has remained stable where as the 3<sup>rd</sup> largest Telus gained market share of ~70bps at the cost of Bell.

Mkt share - Canada

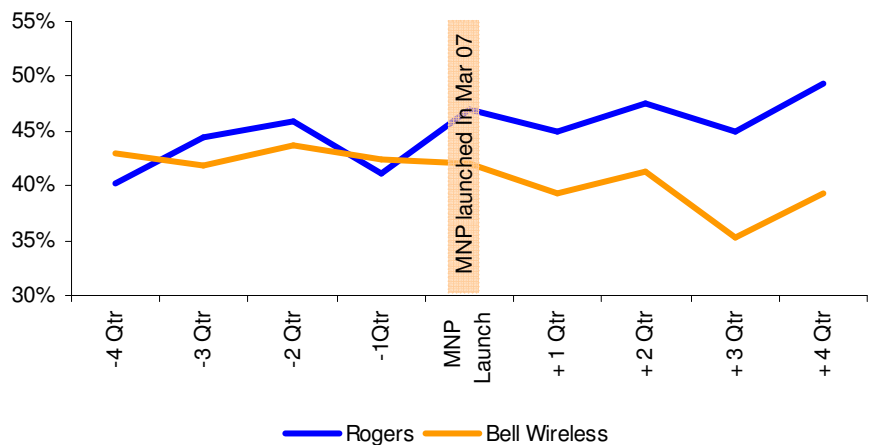


Source: Company, Emkay Research

#Bell Wireless acquired Aliant Mobility during Q3CY06

**EBITDA margin:** While the EBIDTA margins for Rogers remained stable, but that of Bell declined by 300bps over 12 months post MNP implementation.

EBITDA % - Canada

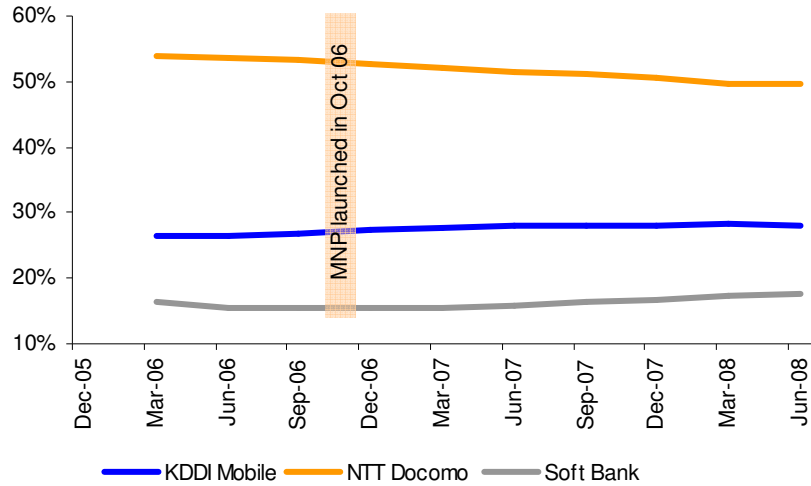


Source: Company, Emkay Research

2) Japan: MNP implemented in October 2006

**Mkt Share:** Top three operators control 95% of market share in Japan as well. Post MNP implementation, the market share of the largest player NTT Docomo has declined by ~400bps where as the relatively smaller players like KDDI and Soft Bank have benefited from the same.

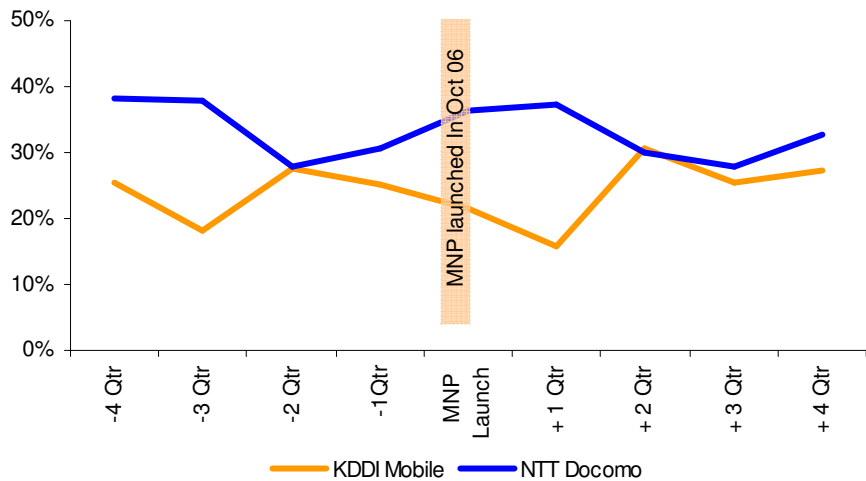
Mkt share - Japan



Source: Company, Emkay Research

**EBIDTA:** While MNP implementation did not have clear indication on Docomo's margins, but the margins of KDDI showed sharp drop of 10 percentage points post MNP launch.

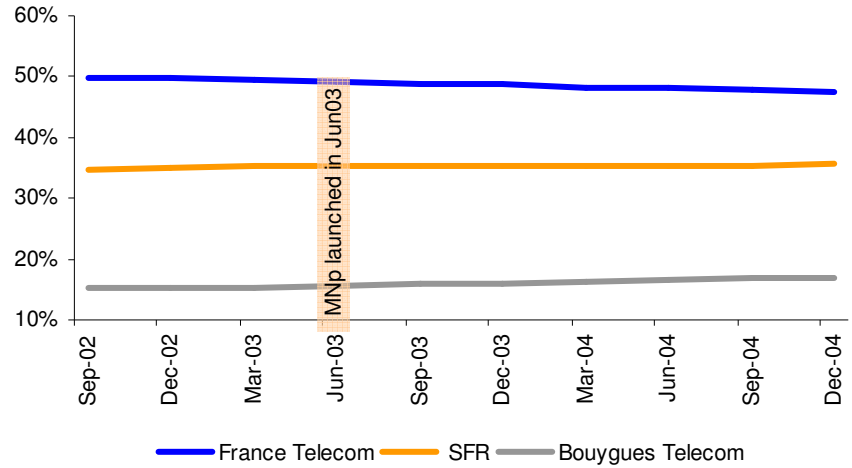
EBITDA % - Japan



Source: Company, Emkay Research

**3) France:** MNP implemented in June 2003

Market share: France wireless market is a three player market consisting of France Telecom, SFR and Bouygues Telecom. Post MNP implementation France Telecom lost ~140bps of market share to Bouygues Telecom over 12 months from MNP implementation. The market share of SFR has remained stable.

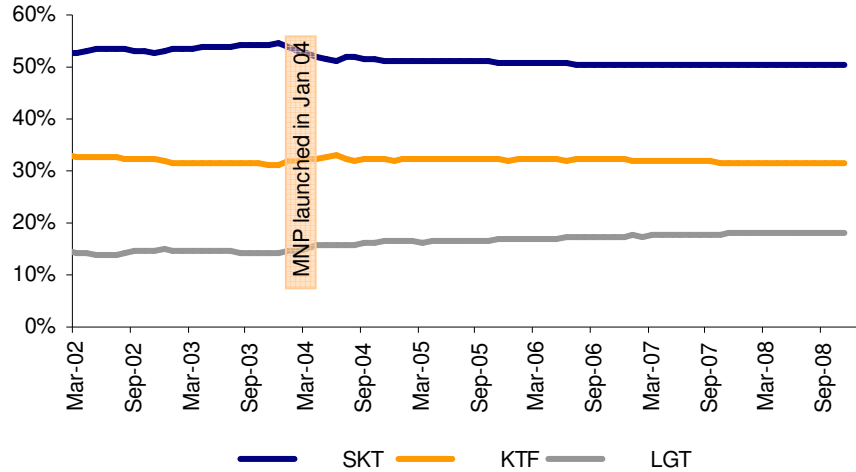
**Mkt Share - France**

Source: Company, Emkay Research

## 4) South Korea: MNP implementation January 2004

**Mkt share:** South Korean mobile market consists of 3 players SK Telecom, KTF and LGT. Post MNP implementation the largest player SK Telecom lost ~300bps market share to its rivals KTF (100bps) and LGT (100 bps)

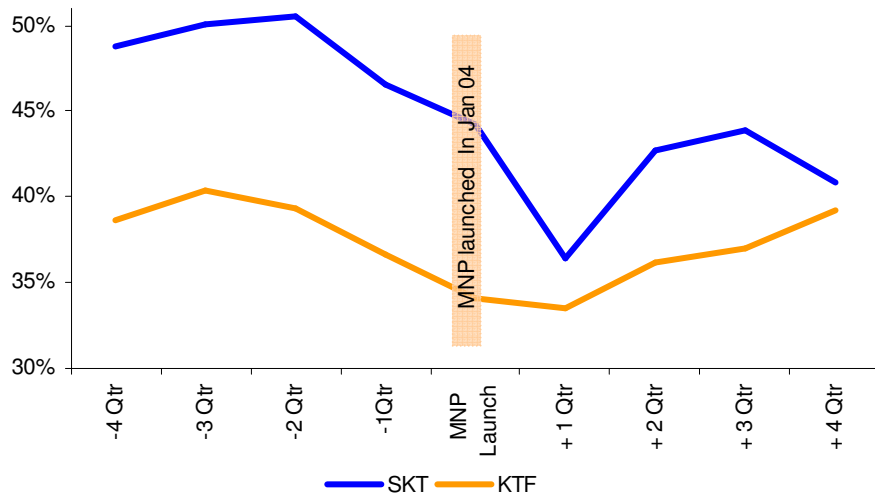
## Mkt share South Korea



Source: Company, Emkay Research

**EBITDA margin:** Post MNP implementation the EBITDA margins of SKT declined by over 10 percentage points and that of KTF by 300bps led by higher distribution commissions and aggressive advertisement expenses.

## EBITDA % - South Korea

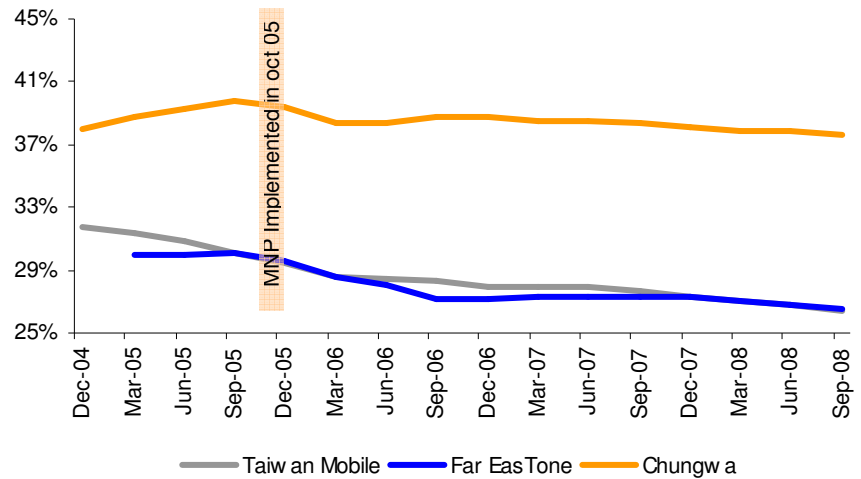


Source: Company, Emkay Research

## 5) Taiwan: MNP implementation October 2005

**Mkt share:** In Taiwan, four new entrants were allowed to enter the market and the timing of the same coincided with that of MNP implementation. The new players FITEL and APT gained market share where as all three large and established players lost ~300bps market share.

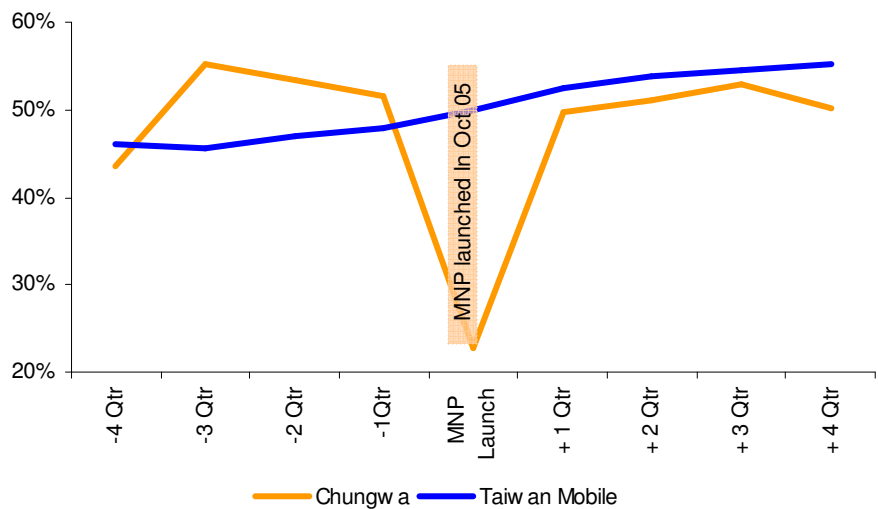
## Mkt Share - Taiwan



Source: Company, Emkay Research

**EBITDA margin:** While the EBITDA margin of Taiwan Mobile showed no impact of MNP, Chungwa's EBITDA margins dropped sharply by 28-30 percentage points which was due to decline in mobile revenues and sharp rise in marketing and admin expenses. However, it was a one quarter pain for Chungwa after which the margins recovered back to normal levels.

## EBITDA % - Taiwan



Source: Company, Emkay Research

**MNP: Mobile Number Portability**

Mobile Number portability (MNP) enables the subscribers to change their service providers or their location while retaining their original mobile phone numbers. MNP increases competition among service providers and forces them to improve their service standards to check subscriber churn. Number portability is not only limited to operator switchover but also enables a subscriber to switch between services or locations while retaining the original telephone number, without compromising on quality, reliability and operational convenience.

**Types of portability****1) Operator portability**

This is the ability of a subscriber to retain within the same service area an existing telephone number even if he changes from one service provider to another. This type of portability is for the same service, i.e., fixed-to-fixed or mobile-to-mobile. Different categories of operator portability follow from these different types of numbers, and fixed-number portability (FNP) is the portability of landline telephone numbers and mobile number portability (MNP) is the portability of mobile telephone numbers.

**2) Service portability**

Service portability is the ability of a subscriber to retain the existing telephone number when changing from one service to another service, say, from fixed to mobile services. This will not only benefit users but also those service providers who continually upgrade and innovate. Additionally, it is a source of competition between all telecom operators, whether fixed or mobile.

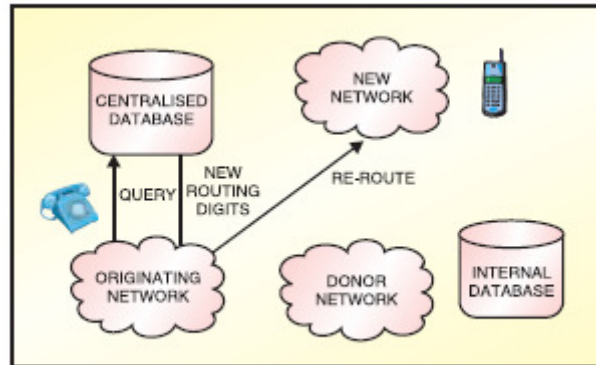
**3) Location/ Geographic portability**

Location portability is the ability of a subscriber to retain an existing telephone number when changing from one physical location to another. Location portability has varying levels of complexity depending on whether the porting is occurring within or outside an exchange area and/or charging area. Location portability is not required in the existing mobile services as long as the subscriber moves within the service area, i.e., circle.

The MNP solution adopted for implementation of MNP is also critical as it has direct cost implication to the wireless service providers. The four methods for call routing are (1) All call query (2) Query on release (3) Onward Routing and (4) Call Dropback.

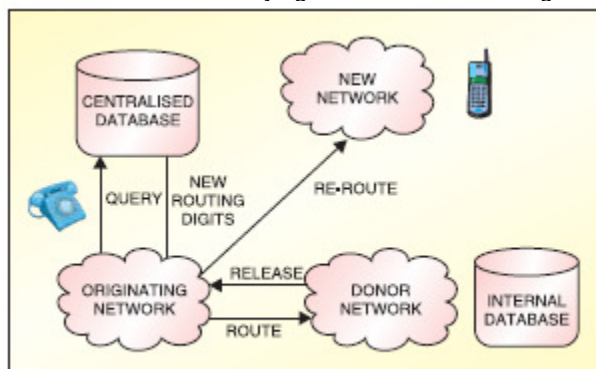
In *All Call Query*, the calls are routed directly from the originating network to the correct terminating mobile network, requiring the former to determine the appropriate network for a given number.

DoT has chosen *All Call Query* solution for MNP in India



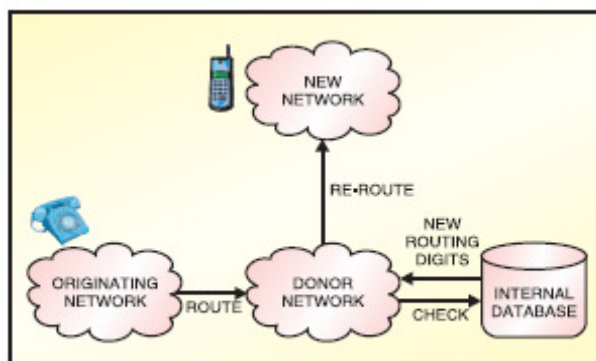
*All-call-query method*

In *Query on Release*, the mobile network originally associated with the called number identifies that the number is ported and 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.



*Query-on-release*

In *onward routing*, the mobile network originally associated with the called number identifies the correct terminating mobile network and routes the call onward.



*Onward routing*

In *call drop back*, the mobile network originally associated with the called number identifies that the number is ported and releases the call back to the originating network together with information identifying the correct terminating network.



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