Mobile Number Portability in South Asia

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BIOGRAPHIES
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ABSTRACT
This paper explores Pakistan’s experience in introducing Mobile Number Portability (MNP) and will investigate the suitability of introducing the same in India and the Maldives. The study identifies the preconditions necessary for introducing MNP, based on a review of the literature. MNP in the three countries studied will be analysed based on these preconditions, and supported by feedback from regulatory officials and operator representatives, as well as a large sample study, teleuse@BOP3, carried out in six-countries in 2008. The paper suggests that MNP may not have a significant impact on changing the mobile market, given the large proportion of Bottom of the Pyramid (BOP) users who have little number loyalty.

Keywords
Bottom of the Pyramid, Number portability, India, Maldives, Pakistan

INTRODUCTION
This paper investigates the preconditions necessary for implementing Mobile Number Portability (MNP) in emerging South Asia. MNP is a service that enables a mobile subscriber to switch operators while retaining his/her phone number.

To date, number portability has been adopted in about 60 developed countries with mature telecom markets, including several developed Asian countries (Keynote Capitals, 2009). MNP was introduced in the early part of 2000 in most of Europe and the USA, while Singapore was among the earliest countries to adopt the facility in 1997 (Buehler, Dewenter & Haucap, 2005). The first South Asian economy to have adopted the service has been Pakistan in 2006, while India has recently followed suit in the latter part of 2010. Unlike the developed and mature telecom markets of the US, Europe and South East Asia (such as Japan and Korea), the bulk of mobile users from these developing economies, especially in South Asia, are considered to be low-end, non-premium customers (Zainudeen et al, 2007). Their basic aim is to be able to communicate in the most inexpensive manner, and as such, they adopt a variety of cost-minimising strategies; one such strategy is the use of multiple mobile SIMs from different operators, in order to avail of on-net call tariffs and benefits (LIRNEasia 2008). Friends-and-family calling networks, which facilitate cheaper calls and messages between select phone numbers, are also used as part of their cost-saving communication strategies.

On the contrary, high-end, premium or business customers make up a very small portion of the market in South Asia. These subscribers do not engage in cost-saving strategies on the same level as their poorer counterparts; their main aim is to communicate inexpensively, with as little hassle as possible. It is also significantly more important for these users to retain their numbers, as switching to a new service provider will entail reprinting business cards, sign boards and other paraphernalia on which their numbers are displayed, and updating websites with new contact information.

Given such a market structure in South Asia, the relevance and effectiveness of MNP is cast in doubt. It must also be noted that introducing this service is not technically or financially simple and it can have disruptive effects on competition within the market, putting significant pressure on developing markets. Furthermore, there are several preconditions, regulatory and otherwise, necessary for the success of MNP, many of which are lacking in these telecom markets.
With all of these issues in hand, it is imperative to investigate the applicability of MNP services in emerging telecom markets in South Asia. Based on the above discussion, the paper will consider the cases of Pakistan, India and the Maldives and the implications of MNP in these markets.

Analysis will be based on a review of the literature available and supported by semi-structured interviews with key stakeholders, i.e. regulators and operators, from the three countries studied. This paper will also make use of the findings from a multi-country survey, teleuse@BOP3, conducted by LIRNEasia. The research was carried out in mid-2008, consisting of 9,750 sample representatives from the BOP, i.e. from Socio-Economic Classification D and E, in India, Pakistan, Bangladesh, Sri Lanka, the Philippines and Thailand. The survey included both quantitative and qualitative components, in addition to an innovative diary method for collecting data on call patterns and telephone use. A questionnaire was administered by trained professionals in multiple languages and locales within the countries in the study, and focus group discussions were utilized to reinforce the results of the survey. The study aimed to provide insights into telephone ownership and use, and its implications to Mobile 2.0. The data from this study will be used to understand the BOP views and concerns of switching numbers and MNP in general. Along with the information sourced from key stakeholders in South Asia, these survey findings will be used to support the recommendations for implementing MNP in the region.

PRECONDITIONS FOR INTRODUCING MNP

Existing literature on number portability contains extensive discussions on the rationale for introducing this service. From lowering switching costs (in terms of savings in time, money, costs of informing contacts of number change, potential loss of business opportunities; Dick & Basu, 1994; Smura, 2004 Buehler et al., 2005), to improving competition (through the movement of customers between service providers, putting the latter under pressure to provide greater levels of service; Buehler & Haucap, 2004), and creating a level playing field for small and new entrants (Katka, 2004), MNP has many positive features. There are however, two sides to every coin, and this service is no exception. With MNP in place, mobile users are oblivious to the network they are calling, limiting their ability to make use of on-net tariff discounts and deals, if any exist, and it may lead to operators engaging in anti-competitive behaviour to tie customers into long-term contracts among other things. More importantly, MNP is technically costly to implement and many times the benefits achieved by the introduction of MNP have been far lower than the costs incurred (Aoki and Small, 1999).

In most cases, MNP success has been determined by high porting rates. The adoption of MNP in Hong Kong, South Korea and Australia has been touted among the most successful implementations of the facility, simply because these countries achieved high porting rates of over 6 percent, and have reaped significant economic returns. On the other hand, MNP in Ireland, Finland, Malta, UK and The Netherlands has not fared as well, for many reasons. High porting charges, long-winded applications, lengthy porting times, and handset subsidies have suppressed the change of networks (Katka, 2004). The lack of heterogeneous products and services on offer, and the disability to maintain group discount tariffs has also resulted in poor porting rates, even in these locations. Based on a review of the literature, the following factors have been identified as important preconditions for the success of MNP:

Minimum Threshold Market Size

Customers should be willing to switch networks. If the demand for porting to other networks (i.e. if the likely number of ports) is low, there will be no need to introduce such a service. Not only is it costly to do so, in terms of re-working the routing systems, managing the databases and promoting the service to customers, but these costs will be unrecoverable if the service is left unused, and the adoption of MNP is an economic failure. There are many factors which may possibly prevent users from taking advantage of MNP services, including: a) the placement of “artificial” barriers (possibly because of collusive behaviour) instigated by operators to porting numbers, such as creating artificial delays in processing requests; b) a perceived level of distrust in the proper functioning of this service; and c) the financial cost of switching. Taaffe (2004) suggests that a casual attitude or ‘inertia’ towards switching operators by subscribers is another reason for the failure of the MNP service in France. He explains that subscribers are driven to make a change only if their operator charges excessively high call rates or are unhappy with the level of customer service they receive. However, it is also possible for QoS-based competition to stimulate subscribers to consider switching operators.

It is therefore important that regulators determine the minimum threshold market size. According to a cost-benefit analysis of the portability process, it is evident that there is a minimum market size below which will not provide overall benefits; as per the analysis carried out by John Horrocks, an MNP expert, the minimum is computed to be approximately 10 million (Horrocks, 2007a). As such, implementing this facility in countries with small populations and even smaller mobile markets proves to be economically infeasible, because the costs outweigh the benefits by a significant amount. This is clearly the case...
of MNP in Malta, where there has been no impact on competition and prices even after the introduction of the service. The island nation has a population of only about 4 million, a clear indicator that the mobile market size and demand for porting would be too low to be economically viable. However, given that all of European Union had regulations to adopt the service, Malta had little choice but to comply.

**Level of Competition**

The level of competition between operators determines the post-MNP competition and therefore success of the service. Hauccap (2003) stresses the importance of the level of competition and maturity of the market when deciding on introducing MNP. According to his article, the more competition there is, the lower the need for the MNP service, because operators are likely to provide subscribers with the best tariffs and service quality possible. They are likely to find the need to innovate and outdo their competitors in order to retain their subscribers. He states, however, that this does not mean that MNP should not be introduced – the service reduces switching costs for those subscribers who do want to change networks and therefore should be considered a standard service in advanced telecom markets.

Another consideration is how mature the mobile market is. An indication of this would be the levels of mobile penetration; the higher the penetration levels, the less chance for new entrants and/or competitive operators to disrupt the existing market structure. Unless MNP is introduced in such a market, it is unlikely that these operators will be able to survive in the long term. In order to ensure that the market remains competitive and operators are always under pressure to retain their customers, regulators need to push for the MNP facility. This does not mean, however, that MNP should not be introduced in a young and emerging market. The case of MNP in The Netherlands shows that the service need not be relegated to only mature and saturated markets, when competition is diminishing; The Netherlands introduced the service when it had a teledensity of only 10 percent (Madhani 2006). Although it was an economic failure, the low penetration levels had little to do with this factor.

**Regulatory Control**

It is imperative that the telecom regulatory agency is an independent and powerful entity (Iqbal, 2007). The regulator should be able to wield significant authority over the sector and be committed to driving the facility in order to ensure that MNP is successful. When MNP in Finland was failing, regulators stepped in to ensure that operators did not provide handset subsidies and long-term contracts; they also imposed a requirement for user-friendly and free porting of numbers between networks, in order to encourage subscribers to switch providers (Smura, 2004). Ofet in UK and regulators in The Netherlands played a very minimal role in the implementation phase of MNP, leading to a poorly regulated and implemented facility (Horrocks, 2007b). It is evident, therefore, that the regulatory authority needs to have the necessary resources and power in order to drive the initiative and ensure that subscribers as well as operators are at the receiving end of a fair deal.

In summary, regulatory bodies should ask the following set of questions when considering the introduction of the MNP service:

- How high is demand for MNP from both subscribers and operators?
- How big is market size? Is it below the minimum threshold market size?
- What is the level of competition?
- What kind of pricing model is in place?
- Will MNP spur further competition?
- How strong and independent is the regulating body?

**MNP in South Asia**

Analysing the three countries studied in this paper against the preconditions defined above, it is evident that both Pakistan and India meet the specified requirements, while Maldives falls short on at least two of them (market size and competition). Table 1 summarises the preconditions that can help make or break the introduction of the facility.

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<th>Pakistan</th>
<th>India</th>
<th>Maldives</th>
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<td>Minimum threshold market</td>
<td>145 million population and 34.5 million mobile</td>
<td>1.18 billion population and 471.73 million</td>
<td>396,000 population and 457,770 mobile</td>
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Pakistan

MNP was introduced in 2006, and to date, MNP in Pakistan has been deemed a ‘success’ by regulatory officials. However, porting rates are between 2-3 percent even with an average porting time of approximately 4 days; average prepaid porting, to date, is between 2-3 percent while postpaid porting, the group most likely to appreciate the service has only been between 0-1 percent. This has been less than what was anticipated prior to the launch of MNP, and industry specialists acknowledge that the impact of service has not been as expected in general.

Analysing the conditions that were prevailing in the Pakistani mobile market at the time of introducing this service, it is understood that the minimum threshold market size, level of competition and regulatory control were aligned such that the timing was right for the service. With a population of 145 million (Population Association of Pakistan, 2002) and a mobile telecom market of 34.5 million in 2006 (approximately 23 access paths per 100 people in 2006; PTA, 2006), there was enough potential demand to propel the service and ensure that it could be an economic success. Furthermore, with a national HHI of 0.33 indicating reasonable competition between the then six mobile operators, the introduction of MNP was seen to have been useful to push this further, creating more churn in the market. Pakistan already had among the lowest prices for calls and SMS in the world, and while the impact of MNP on price competition, it had to be acknowledged, would be low, it was hoped that it would have a significant impact on service competition. With the support of the PTA, a strong and independent regulatory agency which was making significant strides in developing the telecom environment in Pakistan, the preconditions, as specified, were in place for the launch of MNP.

India

India launched MNP in late 2010, and it is still too early to tell if the service has been a success or failure. Although much hype surrounded the launch, operators resigned to the view that it may not have the expected outcome on changing the face of the market. Considering the reconditions in place, it is evident that India, like Pakistan, was ready for the service. Having a population of over 1.18 billion (India Stat), the Indian marketplace exceeds the minimum threshold market size of 10 million by a large margin. Even though access paths per 100 people is relatively low, with only 40.31 having access to mobile phones in the country (TRAI, 2010), the market is large enough to guarantee that demand for MNP can be economically viable.

There is still relatively intense competition in the Indian telecom market, nevertheless, data suggests that competition between operators at a circle level, as gauged by HHI, has fallen between 2003 and 2007 (TRAI), while overall competition at the national level was said to have stagnated at 0.16 in 2009. ARPUs have also been falling in the last few years and prepaid ARPUs are now as low as USD 2-3 as of 2007 (Pluggdin 2007). According to a study by LIRNEasia (2009a), India.

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Table 1: Preconditions for MNP

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<th>Level of competition (HHI at the national level)</th>
<th>0.33</th>
<th>0.16</th>
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<tr>
<td>Regulatory control (Overall TRE scores)</td>
<td>3.4</td>
<td>3.0</td>
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1 Sources: Population (Population Association of Pakistan, 2002; India Stat; CIA The World Fact book); Mobile subscribers (PTA, 2006; TRAI, 2010; TAM); TRE scores (Wilson, 2008; Malik 2008; Galpaya, 2008).

2 Source: Author; the Hirschman-Herfindahl Index (HHI) is an indicator of the amount of competition between firms in a market.

3 As per the Telecom Regulatory Environment (TRE) scores achieved, in 2006, Pakistan was judged the best of all five countries studied – it scored 3.1 in the mobile sector while India and Sri Lanka both scored only 2.9 out of 5 (LIRNEasia, 2006).

4 In 2006, the Pakistan telecom sector was awarded the GSMA Award in recognition of its progressive telecom policies (Bhatti, 2006).

5 Source: Author.
has a low monthly total cost of ownership (TCO), with average prepaid subscribers spending as little as USD 6.04 per month. This indicates that operators probably follow a budget telecom network model, and operate on very low cost margins.

On the regulatory side, TRAI, which was set up in 1997, has played a significant role in the performance of the sector in the last decade. Although it falls under the jurisdiction of the DoT and does not have unchecked independence to make its own decisions in order to regulate the telecom sector, TRAI has been key in the development of the wireless market.

Maldives

Maldives has a population of about 300,000 scattered across several small islands. There are two mobile operators and mobile penetration was 140 percent in 2008 (ITU, 2009). Both operators were supportive of the move towards such a feature in the market, with Wataniya, the second operator in the Maldives, always pushing for this service (Wataniya, 2007). The small island-nation considered introducing the facility and conducted a feasibility study in October 2007, but gave up on the idea because the excessive financial costs outweighed the expected benefits (Galpaya, 2008). Given the limited size of the population alone, the regulatory agency, Telecom Authority of Maldives (TAM), made a good decision by withdrawing the plans to implement the facility.

LESSONS FOR THE REGION

MNP is considered a must-have facility in most western, developed markets, due to the flexibility and freedom it provides to mobile subscribers. Unlike the mobile markets in South Asia, these economies have achieved high levels of penetration and competition and are able to withstand the policy implications of the introduction of the service. Countries in South Asia, on the other hand, are yet to achieve universal service provision and access, and lack the necessary factors that will ensure the success of MNP. As such, this facility may not be as important as it is in this region, given the topography, existing market structures and subscribers.

Furthermore, existing market structures in South Asia may not be as suited to MNP because of the large numbers of prepaid or low-end users. Their phone use patterns and requirements are rather distinctive, compared to high-end postpaid subscribers, commonly found in the developed western markets. For instance, a large proportion of the Pakistan and Indian mobile market is made up of those users from SECs D and E. These subscribers are mostly on prepaid connections and use the phone for very specific purposes such as relationship maintenance and for business (such as farming and trading). Not everyone has a phone within the subscriber’s social network and many tend to use their mobile phones as a shared device, with friends and family (LIRNEasia, 2009b). Affordability and tariffs are key and these subscribers use their discretion in deciding what type of calls they make and SMS messages they send, when they will make these calls and for how long. As such, these subscribers are inclined to adopt as many cost saving strategies as they can in order to keep their monthly spend on mobile telecoms at a minimum.

According to the findings of the T@BOP3 study, the most popular strategy is to make calls from mobiles to other mobiles when rates are lower (on-net, off-peak); the second most popular strategy is missed calling or as is commonly known in South Asia, ‘ring-cuts’. The fact the MNP will reduce user awareness on where their calls are being routed, will limit their ability to make use of on-net tariffs. However, this can only be overcome if mobile markets move towards undifferentiated pricing schemes between services providers.

Furthermore, obtaining a new connection has now become so cheap and accessible, that an urban male respondent was likely to have three SIMs while a rural male respondent had two; urban female respondents were also likely to have 2 SIMs while their rural counterparts had only one connection. In India, 9 percent of all BOP mobile subscribers own more than one SIM, while in Pakistan the corresponding figure is 23 percent (Figure 2). This is so even in the Maldives – which was not part of the teleuse@BOP3 study – where subscribers tend to have SIM cards of both operators in order to avail of on-net call plans (Galpaya, 2008). What is interesting is that these subscribers are not from SECs D and E, yet they employ the same strategies for saving money on communication.

6 The methodology takes into consideration usage charges (voice and SMS), line rental, connection charges (depreciated over a three year period), and applicable taxes.
The study also found that multiple SIM use was to primarily make use of discounts for calling on the same network; subscribers also relied on many connections to avail of better network prices (18 percent of Pakistan’s BOP subscribers and 10 percent of India’s BOP subscribers responded in the affirmative). Another reason for having many phone subscriptions is to be able to connect to different social groups, such as girlfriends and boyfriends.

Given this use of multiple connections, it could be said that there is very little number loyalty among SEC D and E users, meaning that few subscribers from this segment of the population will be keen on retaining their numbers to port to different networks. However only 32 percent of all Pakistani BOP mobile subscribers and 26 percent of Indian BOP mobile subscribers said that they would definitely not consider switching even to a cheaper package, indicating that even with this type of widespread multiple SIM use, there is some kind of operator loyalty. This could be considered a type of ‘subscriber lock-in’, also discussed below, and is supported by the fact that 54 percent of all Pakistani BOP mobile subscribers and 40 percent of Indian BOP mobile subscribers will not change their operators (even if they offered a cheaper package), simply because they want to retain their number. The qualitative data from the study explains that this is not because of heightened ‘number loyalty’ as is evident in developed markets, but because of the need to make best use of on-net calling and SMS schemes and group discount plans.

One of the biggest barriers to porting from one network to another is the significance of social networks. According to the survey, BOP subscribers are highly dependent on their social networks and use their mobile phones (and other forms of communication) especially for relationship building activities. Mobile phones help foster these social interactions through special Friends and Family (F-n-F) network promotions which allow subscribers to make calls and send SMS to select numbers on the same network at lower rates than otherwise. Also, younger male respondents were found to be instrumental in the choice of connection purchased/obtained for their parents, families and friends. As they influence their own social networks to take up a certain connection, this then ties them in to one network with group deals that can be availed. As such, MNP will hardly have any impact in such a set up, because very few members of a social network will want to leave the comforts of a group plan in order to avail of better services or even call tariffs (unless the whole group decides to make the move).

Another reason why MNP may not be the most suitable service for implementation in South Asian markets is because operators follow the ‘budget network model of service provision’. This model enables service providers to operate at very low costs and therefore charge low tariffs from their subscribers too. This is how Bangladesh, Pakistan, India and even Sri Lanka have managed to have the lowest total monthly costs of phone ownership (Nokia, 2008). With low and falling ARPUs, operators have to now differentiate their mobile connections based on QoS and the VAS they provide. Pricing mechanisms are so low, that price wars in these markets will become less frequent, except for when an operator releases a special promotion rate or discount package (which is likely to be for only a limited period of time). Coupling this model, with the knowledge that the bulk of all subscribers are prepaid and are cost-conscious, there is little that operators can do to retain

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7 Source: LIRNEasia 2008.
them. Service providers can focus on building up their brand image and emphasizing brand loyalty, while providing high QoS and network coverage. Service providers trying to poach the subscribers of other operators can attempt this too, but this may not be enough just yet, at least, to entice BOP subscribers and even regular prepaid customers to port their numbers out of their familiar networks.

In any case, it could be said that the importance of MNP may be declining, due to falling of switching costs. Number changes are getting easier and the use of email and other technologies makes it easier for subscribers to notify their networks about their new numbers. In the case of business, many use word processor templates for their invoices and letterheads, which can be edited within seconds, in the case of a change in phone numbers. Additionally, the cost of having multiple SIMs, and running parallel accounts, is so cheap that subscribers will not miss an MNP facility.

ACKNOWLEDGEMENTS

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