

Consultation Paper No. 9/2008



Telecom Regulatory Authority of India

Consultation Paper On Mobile Virtual Network Operator (MVNO)

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PREFACE

The Telecommunication Sector in India has registered remarkable growth. The growth in infrastructure sector like telecom has multiplier-effect on the entire economy. The key to the growth of telecom in India has been policy reforms and competition. The positive regulatory framework has played a major role. Since the liberalization of the telecom sector in 1991 we have come a long way and today there are more than 300 million telephone connections in the country of which around 261 million are mobile connections. The target is to achieve 500 million connections by the year 2010. The Indian telecom network is today the second largest in the world after China.

Mobile Virtual Network Operator (MVNO) model has gained popularity in the last few years and there are over 300 MVNOs registered throughout the world. MVNOs operate through commercial arrangements with licensed Mobile Network Operator (MNO) and buy bulk minutes of traffic and resell them to their own subscribers.

The introduction of MVNO is seen as a natural progression towards enhancing free market principles and contributing to the efficient use of existing telecommunication infrastructures. Following this growing trend of mobile market, various categories of users are emerging with different preferences. It often becomes difficult for a large operator to service such diverse requirements effectively. Such varied requirements could get better addressed by niche operators who can cater to specific customer segments. They may have better knowledge of the local market. In short, the framework of wholesale and retail becomes important.

The new value added services are constantly emerging widening the range and types of services offerings and pricing plans. Large MNOs are able to

manage on its own simple value added services like ring tones. Several niche value added services are better managed by MVNOs who target specific niche markets. MVNOs may help the MNO to widen and deepen its market.

The Department of Telecommunications has sought the recommendations of the Authority regarding MVNO. The recommendations has been sought on need and timing for introduction of MVNO as well as terms and conditions of the license to be granted to such operators.

This Consultation Paper discusses the concept of MVNO, definition, need and timing of entry of MVNO, MVNO models, benefits and examines the technical, licensing and regulatory issues that has to be addressed for introduction of MVNO in India. An overview of the International experience is also provided.

In keeping with Authority's commitment to transparency and wider consultation with stakeholders, the Authority has initiated this consultation process. We invite all stakeholders to participate in the collective thinking process to determine a variety of issues involved in the introduction of MVNO in India. We also seek the comments of all stakeholders on the issues discussed in this Consultation Paper. The paper has been placed on the Authority's website (www.trai.gov.in). Written comments on the issues may please be furnished to Pr. Advisor (RE) by June 3, 2008. For any further clarification on the matter please contact Sh. N. Parameswaran, Pr. Advisor (RE) at e-mail: param.trai@gmail.com, Tel.: 011-23233291, Fax: 011-23235161.

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Chapter 1

Introduction

- 1.1 Department of Telecommunications (DoT) has sought the recommendations of Telecom Regulatory Authority of India (TRAI, hereinafter referred the Authority) regarding Mobile Virtual Network Operator (MVNO). The recommendations have been sought on the need and timing for introduction of MVNO as well as terms and conditions of the license to be granted to such operators. Copy of DOT letter is annexed as **Annexure I.**
- 1.2 Liberalization of the Indian Telecom Sector began in the year 1991. The Indian Telecom Network today is the second largest network in the world after China. As of 31st March 2008 there are more than 300 million telephone connections in the country of which 261 million are mobile connections. Approximately 8 million mobile connections are being added every month. The tele-density which was less than 1 per hundred in 1984 is today over 26 per hundred. The target is to achieve 500 million connections by year 2010.
- 1.3 Till date most of the subscriber additions has been from the urban areas. In future it is expected that there would be significant additions from rural areas. As the market grows both geographically and in numbers the user requirements also vary significantly.
- 1.4 The various categories of users are now clearly emerging with different preferences. One view point is that it is difficult for a large operator to service such diverse requirements effectively and these may get better addressed by niche operators who can cater to specific customer segments. They have better knowledge of the local market. The framework of wholesale and retail becomes relevant.

1.5 The Authority had given its recommendations to allow resale in the International segment i.e. International Private Leased Circuits (IPLC) in December 2005. These have been accepted by the Government and the Government (Department of Telecom) requested the Authority to give its recommendations on terms and conditions for the resale in the IPLC segment. The Authority gave its recommendations on terms and conditions for resale in the IPLC segment to the Government in March 2007. The decision of the government is awaited on this.

1.6 MVNO figured during the consultation process on Infrastructure Sharing. The key comments of the stakeholders were following:

- Active infrastructure sharing is not a pre-requisite for launch of MVNO,
- MVNO should be allowed to access the core network of the cellular operators which will result in CAPEX and OPEX saving and optimal utilization of resources,
- MVNO can go with the customer services development whereas the network operator can concentrate into the development of core network,
- Indian market is not ripe for introduction of MNVO.

There was general consensus that MVNO should be addressed separately.

Keeping in view the comments and the fact that it has major licensing implications, it was recommended by the Authority that MVNO should be dealt separately. Accordingly, it was then stated in the recommendations on Infrastructure sharing that spectrum sharing should not be form part of infrastructure sharing for the present.

1.7 The Authority gave its recommendations on Infrastructure Sharing in April 2007. Based on these, the Guidelines on Infrastructure Sharing have been

- issued by DoT on 1st April 2008. As per the Guidelines – “Sharing of active infrastructure amongst Service Providers based on the mutual agreements entered amongst them is permitted. Active infrastructure sharing will be limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system only. Sharing of the allocated spectrum will not be permitted. The licensing conditions of UASL/CMSP to be suitably amended wherever necessary to permit such sharing.” The Service Provider can share passive infrastructure in accordance with the provisions of license of BSO's, CMSPs and UASL. The procedure for SACFA clearance has been further simplified.
- 1.8 The mobile sector utilizes the finite and scarce resource of spectrum. Today there are around ten to twelve UASL licensees in each operational service area and six to eight mobile service providers per service area are effectively offering services in the country. The finite resource of spectrum has now become a serious constraint in the telecom market.
- 1.9 The concept of MVNO has been prevalent in other countries since 1990s and to date there are in excess of 300 such service providers registered throughout the world, the majority of which can be found in Scandinavia, UK, Germany, France, Australia, USA, Hong Kong and Malaysia.
- 1.10 The New Telecom Policy, 1999 (NTP-1999) had envisaged resale in the Telecom Services market at an appropriate time. This Consultation Paper on MVNOs is being brought out to discuss the need and timing of introduction of MVNO and the various issues relating to the introduction of MVNO in India, elicit views of all the stakeholders before finalizing the recommendations. The Chapter 2 deals with the types of MVNO. The regulatory and licensing issues are covered in Chapter 3 and International experience in Chapter 4. Chapter 5 consolidates the issues for consultation.

Chapter 2

Mobile Virtual Network Operator Types

2.1 Definition

2.1.1. MVNO model has gained popularity in the last few years. MVNO operates through commercial arrangements with licensed Mobile Network Operators (MNO). The MVNO provides the telecom service under its own brand to the subscribers. MVNOs do not have their own spectrum. The key difference between a simple reseller or a franchisee and MVNO is that MVNOs add value and sell either niche or generalized value added services to subscribers¹.

2.1.2 There is no uniform definition on what constitutes a MVNO. Regulatory bodies around the world have adopted various definitions and different forms of regulatory intervention depending on the extent to which an MVNO relies on the facilities of the MNO. According to the Finnish Ministry of Transport and Communications the difference between MNO and MVNO is that the latter lease the right of use of radio spectrum from the licensed mobile network operators. Some of the definitions adopted by different organizations are:-

¹ *MVNO - Policy Issues by Dr. D.P.S. Seth, Communications Today, April 2008.*

Organization	Definition of MVNO according to the organization
MVNO Directory ²	A mobile network operator without a physical land based infrastructure, such as base stations, with the country where the MVNO operates.
Oftel ³	An MVNO is an organization that offers mobile subscription and call services to customers but does not have an allocation of spectrum.
ITU ⁴	A mobile Virtual Network Operators (VNO) is an operator that offers mobile services but does not own its own radio frequency. Usually, this operator has its own network code and in many cases issues its own SIM card. The mobile VNO can be a mobile service provider or a value-added service provider.
Pyramid Research ⁵MVNO provides mobile voice and data services to end users through a subscription agreement, but which does not have access to the spectrum
Malaysian Communications & Multimedia Commission (MCMC) ⁶	...an organization that does not have assignment of 3G spectrum but is capable of providing public cellular services to end users by accessing radio networks of one or more 3G spectrum holders....
OVUM ⁷	An organization that offers mobile services to customers, has its own mobile network code, issues its own SIM card, operate its own MSC, does not have its own radio frequency allocation.
Office of the Telecommunications Authority of Hong Kong (OFTA) ⁸	At a highest level an MVNO may be viewed as an organization that offers mobile subscription and call services to customers but does not have an allocation of spectrum, rather it relies on hosting its service on a licensed Mobile Network Operator.
US Federal Communications Commission (FCC) ⁹	An MVNO arrangement is one in which “a network operators acts as a wholesaler of airtime to another firm, which then markets itself to users just like an independent operator with its own network infrastructure.”

² MVNO Directory, MVNO Defined, available at <http://www.mvnodirectory.com/mvnodefined.html>

³ Oftel, Statement on Mobile Virtual Network Operators, October 1999

⁴ ITU, Regulatory treatment of mobile VNOs, available at <http://www.itu.int/osg/spu/ni/3G/resources/MVNO/index.html>.

⁵ InfoDev, Definition of a Mobile Virtual Network Operator, available at http://www.ictregulationtoolkit.org/content/practice_notes/detail/1985

⁶ Malaysian Communications and Multimedia Commission, Guideline on regulatory framework for 3G mobile virtual network operators, February 16, 2005.

⁷ OVUM, MVNOs – competition policy and market development, ITU Workshop on 3G mobile, 2001.

⁸ OFTA ‘Open Network’ Regulatory Framework for Third Generation Public Mobile Radio Services in Hong Kong, Discussion Paper for Industry Workshop, 2001, p.14, available at <http://www.ofta.gov.hk/en/3g-licensing/discuss-mvno.pdf>.

⁹ FCC, Report & Order: 2000 Biennial Regulatory Review Spectrum Aggregation Limits For Commercial Mobile Radio Services, WT Docket No. 01-14, December 18, 2001, foot note 145.

2.1.3 Generally the MVNOs deliver their own SIM cards and take care of branding, marketing, billing and customer care. The difference arises whether an MVNO has its own infrastructure such as:-

- Mobile Switching Center (MSC)
- Home Location Register (HLR)
- Intelligent Network (IN) Platform.

or does not own infrastructure but based on services provided by it such as:-

- Only pre-packaged services.
- Tariff and service design control or
- Service implementation and differentiation

2.1.4 The level of technical independence defines the services and the differentiation the MVNO is able to offer. Common in both approaches is that the more service creation elements an MVNO has, the more 'true' MVNO it is¹⁰.

2.1.5 In general MVNOs can be grouped in four (non exclusive) ways: facility based, target market, strategy based and plan based.

Facility based MVNOs. Facility based MVNOs have some network infrastructure of their own whereas non-facility based MVNOs do not own any network facilities and are, thus pure resellers.

Target market based MVNOs also has two categories: those that operate as discount MVNOs and those that service life style based market niche segment. In the face of intensifying mobile (and in particular pre-paid)

¹⁰ *Mobile Virtual Network Operator strategies by Arnukka Kiiski, Heikki Hammainen, Helsinki University of Technology*

competition the long term sustainability of pure discount based strategy by merely offering low prices without any form of product differentiation may have to be closely evaluated. In contrast, life style MVNOs target specific niche markets demographics and differentiate their services from those offered by their competitors. The purpose of adding value for members of the niche market segment that they serve is to increase the long term viability.

Strategy based MVNOs are categorized according to their specific categories. The strategies of these categories of MVNOs may vary widely. For example, they may consist of low cost international MVNOs, brand extension MVNOs, subprime credit MVNOs, youth focused MVNOs and network carrier MVNOs. Again the ultimate purpose of the different strategies is product differentiation and market segmentation.

Plan based MVNOs may further be divided in two categories i.e. whether they offer pre-paid or post-paid plans.

2.1.6 Considering the Indian telecom scenario, following broad definition for MNVO could be considered:

“MVNO licensee is an entity that does not have assignment of spectrum for Access Services (2G/3G/BWA) but can provide wireless (mobile) Access Services to customers by sharing the spectrum of the Access Provider (UAS/ CMTS licensee)”.

Issue 1. Do you agree with the definition of MVNO given in section 2.1.6 ? If not please suggest alternate definition with justification.

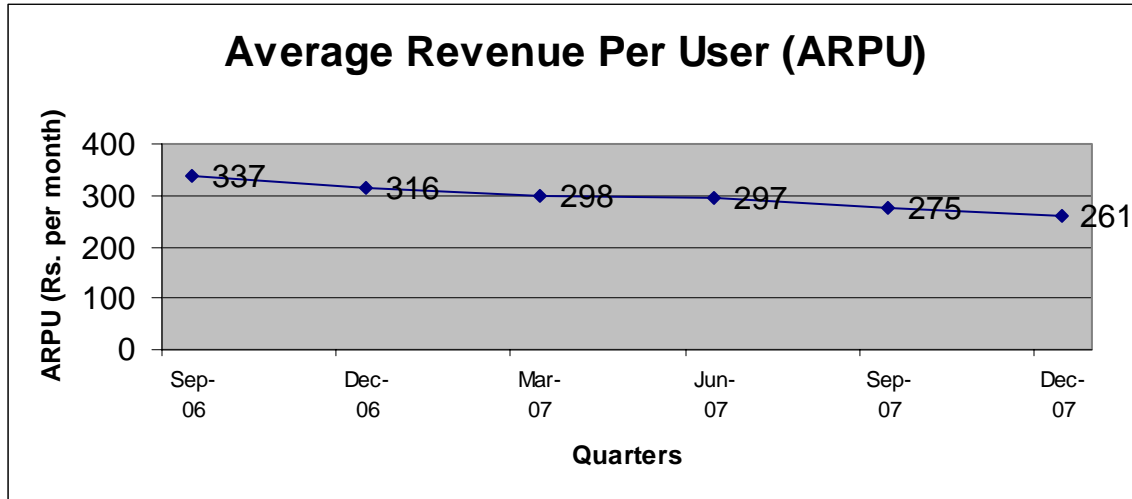
2.2 Need and Timing for Entry of MVNO

2.2.1 The introduction of MVNO is seen as a natural progression towards enhancing free market principles and contributing to the efficient use of existing telecommunication infrastructure. The mobile value added services are still evolving. While the potential of mobile technologies is undeniable, new value added services are constantly emerging widening the range and types of service offerings and pricing plans, the likely applications and usage. Correspondingly, the possible types of services an MVNO might offer and the role they would play in the emerging market would also expand. It is observed that the entry of MVNO in the mobile market raises the level of competition by providing consumers with a wider choice of service providers, a wider range of innovative value added services and more competitive pricing plans.

2.2.2 The goal for an MVNO is to make profit through fulfilling the expectations of the chosen customer segment so that the customers experience a level of service that satisfies their needs.

2.2.3 An MVNO could compete in the market with the MNO. In such a scenario what could be the motivation for an MNO to share its network with the MVNO? International experience shows that there is a valid business case for MNOs and MVNOs to work together. It may be very difficult and too expensive for a large MNO to offer successfully a number of value added services particularly the niche ones, while for an MVNO it could be a successful business proposition. MVNO could provide access service including various types of value added services in some remote areas or specific towns where MNO may not have its presence.

2.2.4 An analysis of the mobile service providers in India clearly indicates that there is a steady decline in the Average Revenue Per User (ARPU). The ensuing graph shows the trends in ARPU for the GSM service providers.



2.2.5 The ARPU is decreasing every quarter. The mobile operators have to look for alternate sources to boost their revenues. A number of value added services like ring tones, picture downloads, game downloads etc. are contributing significantly to the revenue of mobile service providers. These are simple value added services which a large MNO can manage on its own. However, there are several niche value added services like booking and delivery of tickets (air, rail, cinema etc.) which can be efficiently offered through a good distribution network which is well spread out in the service area. Also an MVNO who has a well recognized brand name in some other area would have good acceptability. Such MVNOs would help the MNO to widen and deepen its market.

2.2.6 Generally, it is said that, markets which are sufficiently mature and tending towards saturation of demand and where excess capacity is available in the networks are the situations where introduction of MVNO would add value for the customers and the operators. However, it is not limited to this alone. In markets like the Indian Mobile Market, which is highly competitive, the customer acquisition is becoming increasingly difficult and complex. The supply chain or the present network of retail outlets are

unorganized barring the company outlets which are limited in number. In India many of the 22 service areas have large geographical area and a single service area i.e. circle is comparable to an average European country. An MVNO with a strong retail chain may be able to address the issues of customer acquisition and customer care more effectively in its niche area of operations. The fact that many of the existing MNOs are already outsourcing a number of its activities, reiterates this aspect.

2.2.7 Thus, there can be significant benefits to MNOs that offer MVNOs wholesale access to their mobile networks. The benefit arises principally in the form of:

- Extending mobile services to market segment with which MNOs have not had much success previously;
- Market expansion by reaching entirely new or previously un-served/underserved market segment or geographical area;
- Better network utilization and realization of economies of scale;
- Lower operational cost;
- Effective product bundling and cross selling.

2.2.8 The points of concern for MNO would be:

- Cannibalization of the MNOs market share by MVNOs
- Backlash from poor MVNO performance;
- Adverse selection of MVNOs for partnering purpose;
- Greater customer churn.

2.2.9 While some MVNOs emerge from within the telecommunications industry itself, many others actually may have no prior connection with that industry. For example, the latter type of MVNO may be an airline, a sporting goods company, a broadcast or entertainment company, or a seller of popular beverages. The main idea is that such an entity attempts

to leverage its popularity and brand appeal with certain segments of the population to cross-sell telecommunications (and, in particular, mobile) services. Although it may not own network facilities or have any special expertise in providing telecommunications services, an MVNO helps to take the MNO's mobile services beyond a purely telecommunications context. It is this use of cross-over brand appeal that sets an MVNO apart from an ordinary reseller and helps to bind customers. But, MVNOs also help that process along by providing specialized services to niche market segments that MNOs serving broader market segments cannot address efficiently. In this scheme of things, the market segments that MVNOs reach may produce either lower or higher Average Revenue Per User (ARPU) than the traditional MNO, but there is always the possibility of additional positive profits (not just revenue) that require introduction of MVNO. Viewed another way, in this scenario with both product differentiation and price discrimination, overall consumer interest is better served by market deepening and widening.

2.2.10 In general, MVNO and MNO do not compete in the same market. By offering value addition, the MVNO side steps the competition and its services are differentiated clearly from those of licensed operator. MVNO can have its own subscribers without competing with the MNO whose network it uses. For this, if required, MVNO may have its own limited infrastructure in the form of switch or an Intelligent Network platform.

2.2.11 The Indian mobile telephony marketplace is composed of an extremely varied clientele. Service plans and tariffs respond to a wide range of incomes, usage characteristics, and demographics. However, there is little in terms of service differentiation and innovation in the Indian market place. Most of the business is in voice telephony or short message services (SMS). There is a huge potential to identify and serve niche and special segments of the market, such as children, students, different

segments of businesses like the stock market, the elderly or people with disabilities, or business travelers. Hence, MVNOs have the potential to add to current offerings of the mobile services; they will allow an increase in the competition for service provision and benefit consumers by reducing prices and improving the range of services offered.

2.2.12 Sometime back, the Authority had made recommendations on the allocation and pricing of spectrum for 3G services. The Authority, going on press reports and industry sentiments, expects that 3G services will begin within the next year. The expected capital expenditure for network deployment is substantial and demand for 3G services might take a while to grow. In this situation, MNOs might have to slow network deployment in order to ensure reasonable returns on their investments. This will decelerate the roll out of 3G services in India. MVNOs open a way for 3G MNOs to recover part of their capital expenditure even as the demand for 3G services grows in India. It is important to ensure that the expanded capacity and the allocated spectrum are utilized efficiently. Further, MVNOs increase capacity utilization of the MNO Radio Access Network (RAN) and can improve spectrum utilization in both 2G and 3G networks, especially important in our spectrum scarce country.

2.2.13 Finally, MNOs are typically telecom firms and they might not have the same brand equity or marketing reach in rural areas as some fast moving consumer goods (FMCG) or services organizations (the railways, public sector banks, or post). If these organizations can become MVNOs, they might be able to extend their own service offerings in rural or semi-urban India and simultaneously assure revenues for MNOs in these areas. This could push network deployment all across the country and hence drive the take-up of advanced wireless services. Hence, MVNOs might be a unique method to drive telecom penetration and subscriber base growth in non-urban areas.

Issue 2: Do you think there is a need to introduce MVNO in the Indian Telecom Market. If yes, is it the right time to introduce MVNO as a distinct service provider with its own licensing and regulatory framework? Please elaborate the comments with appropriate reasoning.

2.3 Regulating MVNOs

2.3.1 The finite and scarce resource of radio spectrum puts a limit on the number of MNOs that can provide services. MVNOs share the spectrum with the MNOs. For introduction of MVNOs, the most important aspect is putting in place appropriate regulatory framework. Should the MNOs be required by regulation to open up their networks for MVNOs and if so, under what terms and conditions? Or, are the MNOs' incentive to lease out their spare capacities sufficient to facilitate entry by MVNOs? In Austria, when one of the four incumbent MNOs opened up its network for MVNO, the other three incumbent MNOs complained to the regulatory authority that introduction of further competitors would be a violation of license conditions and had to be regarded as a hold-up on their specific investment into network infrastructure.¹¹

2.3.2 In the European Union, until now there is no directive that obliges MNOs to grant access to MVNOs. Currently while there is a tendency in favor of MVNOs, no major regulatory actions have been undertaken.

2.3.3 The MNOs' incentives to voluntarily provide network access and invite MVNOs onto their network critically depend on two issues: firstly, the mode of competition and, secondly, the degree of product differentiation.

¹¹ *Incentives to License Virtual Mobile Network Operators (MVNOs) by Ralf Dewenter and Justus Haucap*

Generally, it is seen that MNOs will voluntarily provide network access if the services offered by the prospective MVNOs are sufficiently differentiated, as with a high degree of product differentiation the revenue effects outweigh the competition (or cannibalization) effects.

2.3.4 Regulatory approaches towards MVNOs differ quite substantially between jurisdictions. While, for example, Ireland, Denmark and Hong Kong have made specific regulatory provisions for MVNOs, several Nordic countries require MNOs to provide network access in quite general terms. Other countries such as the USA, the UK, Australia and New Zealand have no access obligations. In Germany, MNOs are required by regulation to enter into wholesale agreements with MVNOs (who basically act as resellers). Differences in regulation also exist with respect to the MVNOs' treatment. For example, some jurisdictions that mandate MVNO access require MVNOs to undertake some minimum investment into their own mobile infrastructure while others have very little infrastructure requirements. The advocates of regulated MVNO access argue that MVNOs may offer innovative service bundles and also facilitate downstream innovations by incumbent MNOs in response to an MVNOs market entry. One other view is that new entrants slowly climb up a ladder of investment if they can enter a market without burdensome investment requirements. Following this line of reasoning, regulated MVNO access may spur investment by new entrants. On the other hand, incumbents MNO's investment incentives are likely to decrease if they have to share their facilities with competitors. Since forced access reduces the rents that an incumbent can appropriate from its investment, the incentives to invest will decrease so that mandated MVNO access may reduce investment by incumbent operators.

2.3.4 When MVNO access is provided for by regulation, it is not surprising that MVNOs have emerged as competitors in markets for mobile

communications services. However, even in the absence of mandatory access provisions MVNOs have successfully entered the industry in many jurisdictions. By now, MVNOs or similar business models exist in almost all jurisdictions with liberalized mobile telecommunications markets.

2.3.5 At a minimum, the launch and operation of MVNO requires wholesale agreement with MNO, start up capital and capital to cover operational expenditure and consumer acquisition cost. If any of these requirements proves to be a barrier to entry for new firms (MVNOs) attempting to enter the mobile market, such barriers are required to be addressed.

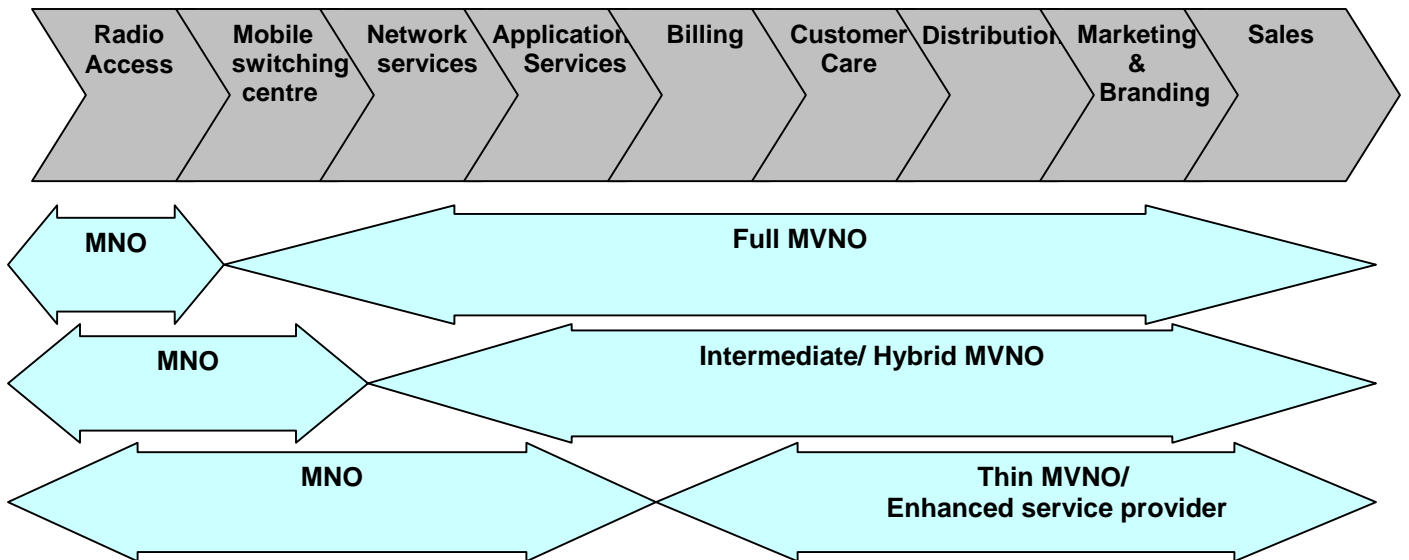
2.3.6 Apart from the barriers for entry of the MVNOs, there is a also need to analyze the exit barrier. The most important barrier to exit is posed by “sunk” asset i.e. asset that lack alternative uses. Not being facility based, MVNOs for the most part do not incur sunk cost or face exit barrier.

2.3.7 The MVNO business model deployed in different countries vary depending on the local conditions and the regulatory regime. While some MVNOs operate their own core network infrastructure including switching, Home Location Register (HLR), billing, customer care, value added services platforms and intelligent network systems, other MVNOs simply repackage network operators’ services and issue their own SIM cards by relying almost completely on the host network’s facilities with a little product differentiation. Accordingly the three types of MVNO models have been differentiated as:

- **Full MVNOs**, which provide their own network core including a Mobile Switching Center (MSC);

- **Intermediate MVNOs**, which acquire a switched service, but either provide their own home location register (HLR) or share a jointly owned HLR with an MNO; and
- **Thin MVNOs**, which only provide additional applications and content and which are not much different from pure resellers or service providers. These thin MVNOs are also called Enhanced Service Providers.

2.3.8 The borders between these three different types of MVNO are illustrated in Figure 1 below.



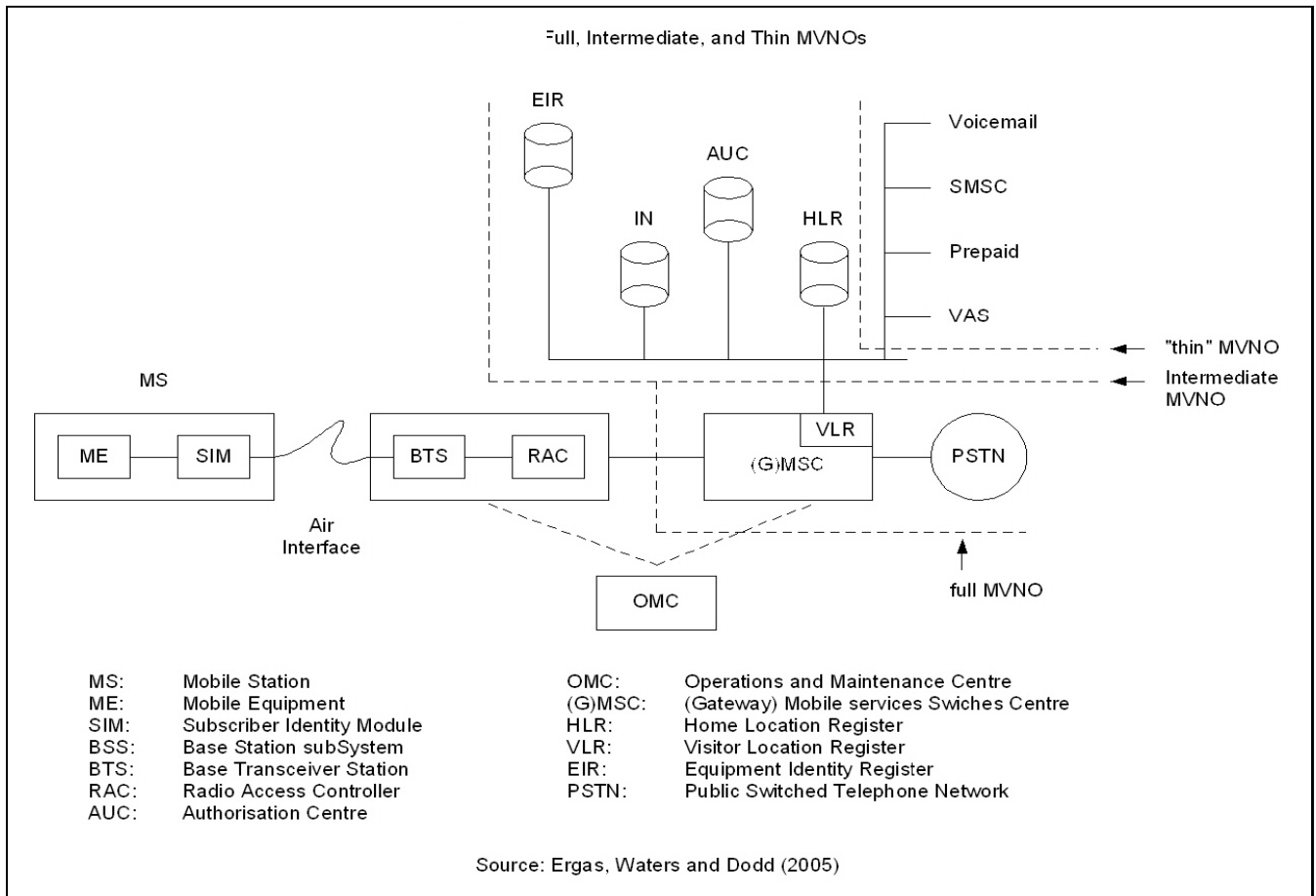


FIGURE - 1: MVNO Models

2.3.9 It may be argued that excessive regulation of MNOs may have detrimental effect. These could include serious losses of allocated efficiency (by distorting price cost relationship) and dynamic efficiency by discouraging investment and innovation.

2.3.10 Based on these considerations it may also be seen whether there is any need to mandate wholesale mobile access or regulate any other aspect of MNO-MVNO relationship when concerns about market failure and competition are not borne out. It may be argued that the existing regulatory instruments of the Authority would be adequate to bring about

an orderly relationship and growth of MVNO in the market. Setting the rules for MVNO would lead to regulating wholesale and retail market.

2.3.11 Wholesale network access and origination service provided by MNOs to MVNOs appear to fall within the purview of “access and call origination on public mobile telephone network for Significant Market Power (SMP) assessment”. Thus in determining the regulatory framework for MVNOs it is required to assess the level of competition in that particular market and determine when any particular MNO or group of operators possess SMP.

2.3.12 Next, the overriding concern of policymakers in many jurisdictions that leads them to contemplate requiring MNOs to provide mandatory wholesale access to MVNOs is almost invariably one about the power of the vertically integrated firm to exercise a price squeeze. Thus, if the wholesale service sold by that integrated firm is an essential facility, and retail competitors remain economically and technologically dependent on that integrated firm for that service, regulators must take the danger of price squeeze seriously. But, in such an environment, voluntary MNO-MVNO relationship simply cannot emerge. Accordingly, the empirical fact that such relationships are now widespread (including the linkup of certain MVNOs with multiple MNOs) reassures us that the conditions under which MNOs provide wholesale services to MVNOs are far from those that raise the spectre of price squeeze.

2.3.13 Whether barriers to entry which a new entrant faces warrant regulatory intervention depends on whether the network of MNO is considered to be a showable address. Market evidence in various countries indicates that mobile service markets are sufficiently competitive – facilities are not monopoly controlled and can be economically and technically duplicated.

2.3.14 As discussed, different regulatory models exist internationally for MVNO. In one model the MNO is required to share some percentage of its spectrum with MVNO. In some cases the sharing is mandated only for 3G services. In another model, the opening of their network by MNO is on voluntary basis and it is not mandated. There are cases where the MNO find it difficult to fill its network with their own subscribers and hence are eager to cooperate with MVNO. Details of the international scenario are available in Chapter 4.

Issue 3: To what extent should the MVNO be permitted to set up their own infrastructure?

Issue 4 (i): What Regulatory Model should be followed for MVNO in the Indian context?

(ii): What kind of obligations may be imposed on MNOs so that Mobile Virtual Network Operations are implemented effectively in India benefiting the customers?

Please elaborate the comments with appropriate reasoning.

Chapter 3

Regulatory and Licensing Issues

3.1 Issue of License

3.1.1 As per the Section 4 of the Indian Telegraph Act, any entity providing a telecom service would require a license/ authorization from the Government for the same. As MVNOs would be providing telecom service to the customers under its own brand which would be different from that of MNO, a license would need to be issued to the MVNO under section 4 of the Indian Telegraph act.

3.1.2 MVNO is basically reseller/subset of MNO. The range of MVNOs is really wide, the simplest being an enhanced franchisee of MNO to the full MVNO which is equivalent to the MNO itself with the only exception that the spectrum is not allotted to the MVNO. Therefore, the regulatory and licensing issues for MVNOs need to be discussed in view of the existing licensing provisions for MNOs.

3.2 Eligibility Conditions

3.2.1 While prescribing the eligibility conditions for offering a telecom service, the factors considered are prior experience of the company in offering telecom service, the net worth and paid up capital of the company. These conditions are to ensure that the licensee company is able to roll out the network quickly and meet the roll out obligations. Also the company has to have the financial strength to set up the network and run it. State of the market conditions i.e. whether the market is opened up for the first time or already there are number of players in the market and the size of the

market, are important while prescribing the eligibility conditions. Similarly the number of licenses that would be granted is relevant.

3.2.2 Till the opening up of the sector in 1991, Department of Telecom (and MTNL since 1986) was the only telecom service provider in the country and no private company in India had the experience of telecom service provision. When the access services (basic and cellular) services were opened up in 1991, prior telecom experience was prescribed as eligibility requirement. In Cellular, two licenses each in the four metro cities of Delhi, Bombay, Calcutta and Chennai were given. This was followed in 1994 by two cellular licenses in the other service areas of the country. The experience criteria in the bid document read as follows:

“a) The bidder must have a subscriber base of not less than 100,000 (one lakh) lines of cellular mobile telephone operations as on 1/1/1995 and

b) The bidder must have minimum 3 years experience of operating a cellular telephones network as on 1/1/1995.

For the purpose of eligibility with regard to experience, the experience of the promoter company which has an equity participation of 10% or more and which is a network operator of a cellular mobile network will also be added to the experience of the bidder company.”

The third cellular license was issued to MTNL/BSNL. Subsequently when the fourth cellular licenses were issued in 2001, the requirement of telecom experience was diluted and the bid document read as follows:

“The constituent(s) having at least 30% of total equity in the applicant company must have an experience of telecom sector and proofs thereof shall be attached with the bid.”

In the year 2003 when the access services sector was opened for free competition (Unified Access Services License) the telecom experience was not prescribed as eligibility criteria for getting the license.

- 3.2.3 In the case of MVNOs the international scenario shows that while some MVNOs are from the telecom industry there are many who have no prior connection with the telecom industry. The Company may use its strong brand name in another area such as sports, entertainment etc to address niche markets. Also the company with large retail networks may leverage it for extending telecom services.
- 3.2.4 In the case of UAS licenses there is requirement of minimum net worth and paid up equity capital for each service area. The requirements service area wise is given in **Annexure II**. These requirements were finalized taking into account the business potential of the service area i.e. the amount of investment that would be required to be made to set up the telecom network in the service area and meet the roll out obligations. The gist of eligibility conditions for UAS license is given in **Annexure V**.
- 3.2.5 The MVNOs may not be offering service in entire service area of the MNO. For promoting the MVNOs an enabling regime should be there. The entry barrier should not be such that the genuine MNVOs are not able to make it. At the same time there should be some provision so as to encourage only serious players.
- 3.2.6 In some countries where MNO is not mandated to share their network, the MVNO, besides meeting the eligibility conditions has also to conclude a commercial agreement with MNO before they can apply for a license. This is to ensure that MVNO is able to commence operations once license is issued.

Issue 5: What should be the eligibility criteria for MVNO?

Issue 6: Do you suggest different eligibility criteria for different MVNO models and regulatory frameworks? If Yes, Please suggest with justification thereof.

3.3 Scope of Service of MVNO

3.3.1 The Scope of service of MNO is given in **Annexure V**.

3.3.2 Generally MVNOs buy network capacity from a MNO to be able to provide a full portfolio of mobile services for their own subscribers. The arrangement involves selling of airtime to MVNOs by MNOs. Many business models have evolved, from simple resellers and niche providers to advanced value added MVNOs.

3.3.3 Based on the possible business strategies the MVNOs could be categorized into following groups:¹⁰

- low price
- narrow focus
- service differentiation
- international clustering

3.3.4 In case the MVNO business strategy is based on *offering services with low price*, the main competitive advantage must be the ability to keep costs low. All the operations of the company must be aligned to meet this target. The service portfolio is narrow including only the basic services for the selected, rather large customer groups. A low organizational structure, a large customer potential, and a short reaction time to changes in the market are benefits for the MVNOs following the 'price leader' strategy.

However, in order to survive with this strategy choice, a large customer base is required because of the small profit margins. Also the amount of resources for new service development is minimal and tradeoffs are needed to be able to provide the most cost-effective services. Service platforms and roaming contracts are usually not handled by the price leader itself but by the MNO. One major challenge for a low price MVNO is the cost level of its MNO contract.

3.3.5 MVNOs that select to *focus on one customer segment* typically cannot achieve business volumes big enough to justify investments on own service platforms. Tailored marketing and customer care for the chosen segment allows setting the expected ARPU high. Strategic alignment between the partnering MNO and MVNO is typically good since a large MNO cannot easily focus on small niche segments. This MVNO strategy is suggested by many.

3.3.6 An MVNO can also choose to *offer differentiated, value added services* for demanding customers. Here the service mix should be rather large to attract (especially business) customers. One possibility is to offer bundled services based on the company's earlier core competence (e.g. fixed and mobile subscriptions, office solutions). These 'service leaders' might also have multiple target segments that use the same services with different, customized content. While competing with differentiated services, an MVNO has the potential to gain a rather high ARPU. Also the ability to develop new services independently (or in cooperation with partners) for the dynamic needs of the customers is an advantage. A major problem with this strategy has been the absence of profitable business models: users are not willing enough to pay extra for the value-added services (only some service concepts, like voice mail and ring tones, have been successful).

- 3.3.7 Global and regional MNOs can select to enter a new country as an MVNO instead of investing in or acquiring a local MNO. This *international clustering* approach enables a fast initial service roll-out if the foreign MNO can use their existing service machinery located outside of the target market, as well as their existing service portfolios. As a drawback the foreign MNO entering as an MVNO has to start from a zero market share.
- 3.3.8 From the above discussions it emerges that the scope of service of MVNO and MNO have certain commonality, if not the same. The difference is mainly in the different business strategies that the MVNOs use for offering the same service and in some cases with some value added features.

3.4 Number of MVNOs

- 3.4.1 Since introduction of Unified Access license in 2003, there is no limit on the number of licenses. The licensees can offer both wire line (fixed) and wireless services. In short there is free competition in the Access services and there is no cap on the number of licensees.
- 3.4.2 MVNOs, as we have discussed, may focus only on a particular segment of subscribers or particular area. The number of MVNOs attached to a MNO would get limited by the spectrum available with the MNO. The issue for consideration is whether any limit should be placed on the number of MVNOs in a service area.

Issue 7: Should there be any restriction on the number of MVNOs attached to an MNO? Please elaborate the comments with appropriate reasoning.

3.5 Spectrum Sharing

3.5.1 MVNOs do not have any separate assignment of spectrum by the licensor. MVNOs share the spectrum of the parent MNO. So introduction of MVNO envisages spectrum sharing. In India, unlike in many other countries, the spectrum has not been auctioned so far. The access service licensees (UAS/CMTS) are eligible for start up spectrum for 2G services as part of their license. The start up (initial) spectrum is allotted to the licensees depending upon availability. Further allotment of spectrum (2G) is based on the number of subscribers (subscriber linked criteria) and availability of spectrum. For usage of spectrum the access service providers pay an annual spectrum charge which is a percentage of Adjusted Gross Revenue (AGR). The details of the spectrum allotted to mobile service providers are at **Annexure IV**. The annual spectrum usage charge is available in **Annexure III**. In the European countries and USA where MVNO has been permitted, the access providers have got the spectrum through auction. The Government of India has decided to auction the spectrum for 3G and Broadband Wireless Access (BWA). This will result in a situation where some of the MNOs would have spectrum only in 2G band whereas others would have part of their spectrum allotted to them as part of the license in 2G band and remaining acquired through the process of auction (3G and BWA). The MVNO could be sharing the spectrum in 2G, 3G and BWA bands.

Issue 8: What should be the commercial model/framework for spectrum sharing by MVNO; w.r.t. (i) Department of Telecom and (ii) MNO?

3.6 Service Obligations of MVNO

3.6.1 MVNO being a reseller of MNO, some of the service obligations of MNO's may get passed on to the MVNO. The service obligations will be different

depending upon the nature of infrastructure set up by MVNO. The service obligations of MNO are billing, customer care, national security requirements, quality of service, access to emergency services, subscriber verification, directory services, number portability, controlling of unsolicited commercial communications and tariff.

3.6.2 Irrespective of the type of MVNO, three basic activities that are generally taken up by the MVNOs are:

- Customer acquisition (subscriber verification)
- Customer management (Customer care, billing, tariff, controlling unsolicited communications) and
- Service provisioning

3.6.3 Once the customer belongs to MVNO, it is for consideration whether all service obligations related to customer acquisition and management becomes the responsibility of the MVNO. As we progress from thin MVNO to full MVNO, the service obligations would also increase.

Issue 9: What should be the service obligations of MVNO? Please list them with justification thereof.

3.7 Licensed Service Area

3.7.1 MVNO may be a simple reseller of the MNO in a particular service area. An MVNO may like to offer service in multiple service areas of MNO. It is also possible that a particular MVNO may tie up with different MNO in different service area. Spectrum is allotted to the MNO for usage within its service area. Considering all the technical and regulatory aspects the service area of MVNO should be same as that of parent MNO, requiring separate licenses for different service areas.

3.8 Entry fees

3.8.1 Two types of payments are associated with acquiring a telecom license – entry fee and annual license fee. The MNOs are required to pay an entry fee. This varies with the service area. The fourth cellular license was auctioned in all the service areas in 2001. The entry fee for each service area is equivalent to the entry fee paid during the fourth cellular license auction. The entry fee for the different service areas is given in the **Annexure II**. The MNO is issued UAS license after payment of the entry fees. UAS licensees are eligible for allotment of initial spectrum in 2G, depending upon availability and subsequent 2G spectrum based on subscriber linked criteria and availability of spectrum.

3.8.2 MVNO does not have any spectrum assigned to it. In the present scheme of things MNOs can appoint franchisees. Even the simplest MVNOs are more than franchisee as they sell the service in their brand name and also they can do service differentiation. The mobile market in India is highly competitive. The quantum of entry fee should be such so as to discourage non serious players.

Issue 10. What should be the method and consideration for determining the entry fee for MVNO?

3.9 Annual License Fees

3.9.1 The services offered by MNO and MVNO are similar in nature, if not the same. It is important that the revenues accruing to the Government should not get reduced due to accounting juggleries and cross-booking of revenues between MVNOs and MNOs. Therefore, it is logical that the

annual license fees for MVNO should be the same as for categories of A, B & C Circles with a minimum prescribed license fee.

- 3.9.2 The MNO pay an annual license fee 6% or 8% or 10% of the Adjusted Gross Revenue (AGR) depending upon the service area (refer **Annexure II**). Out of this 5% is towards the Universal Access levy. Broadly the license conditions provide for arriving at the AGR after deducting from the gross revenue, PSTN related call charges paid to other access service providers/ roaming charges and service tax/ sales tax paid to the Government (if the gross revenue includes that component).

Issue 11. What should be the definition of AGR for MVNOs?

3.10 Allocation of Numbers and Number Portability.

- 3.10.1 After spectrum, number is a finite resource used by Access Service providers. In some countries the service providers are charged for the number blocks allotted to them. In India the numbers are allotted as per the National Numbering Plan to the Access Service providers according to their subscriber base. There are no separate charges for the same.
- 3.10.2 The MVNO may have to give separate numbers to its subscribers. The issue is whether the number blocks should be directly allotted to the MVNO or the MVNO should get the same from MNO.
- 3.10.3 The MVNO operate under certain commercial agreement with MNO, which also include clauses for exit from such agreements. Therefore, the number allocation issue is very important. The introduction of number portability would also have an impact on the policy for number allocation to MVNO. The allottee of the numbers i.e, MNO have the responsibility of number portability also. There are on an average 10 to 12 service

providers licensed in every service area. Under the present National Numbering Plan difficulties are being experienced to manage the large number of service providers in the 23 service areas and TEC is working on a new numbering plan. Further if MVNOs become separate entities for number allocation, the number of entities interacting with the centralized data base for number portability will increase. This would increase the complexity of the number portability system. In view of the factors discussed above, the MVNOs should necessarily use the numbers allocated to the MNO.

3.11 Failure of Agreement between MVNO and MNO

3.11.1 Every MVNO will have to have an agreement with a parent MNO for its operations. In countries where the MNO is mandated to share some of its spectrum with the MVNO and if MVNO and MNO are not successful in coming to an agreement either party can request for regulatory intervention. Where it is not mandated that MNO should share the spectrum with the MVNO, the finalization of the agreement is left to mutual negotiations. The agreement needs approval of the regulator in some countries.

3.11.2 It is possible that a dispute can arise between the MNO and MVNO at a later date. In such a case there is a need to protect the subscribers who are being served by the MVNO. Introduction of suitable clause in the agreement between MNO and MVNO may have to be mandated for safeguarding the subscribers in the event of failure of the agreement.

Issue 12: What is the best way to protect the subscribers both in terms of continuity of service and applicability of tariff plan:

i) in case of a dispute between MVNO and MNO?

ii) in case MVNO wants to exit the business.

3.12 Roll out Obligations

3.12.1 In the license issued to MNO certain roll out obligations are specified. The roll out obligations are in the nature of coverage of the service area. Any delay in fulfilling the obligations attract liquidated damages. A gist of the roll out obligations and liquidated damages is given in **Annexure V**.

3.12.2 There are some Access Service providers who have already fulfilled their roll out obligations while some others have been issued licenses or allotted spectrum recently and are in the process of rolling out their networks.

3.12.3 The issue under discussion here is whether there should be any roll out obligation specified for the MVNO. There could be MVNOs that would like to cater to niche areas. One of the objectives in having MVNOs is to extend service to niche areas where MNO is not interested in providing service. Prescribing roll out obligations may discourage prospective MVNOs.

Issue 13: Should there be any roll out obligations specified for MVNO? If yes, what should be the penal provisions for failure/ delay in fulfilling the obligations.

3.13 Mergers and Acquisitions:

3.13.1 The mergers and acquisitions of MNOs are subject to certain conditions outlined in the guidelines of DoT. Salient points of the guidelines are given in **Annexure V**. The basic objective of these guidelines is to ensure that the competition in the market is not compromised due to the merger and prevent trading of licenses. The mobile market in India is highly competitive with about 10 to 12 MNOs in each service area. The

presence of MVNOs is likely to enhance the competition. The various issues/aspects on mergers and acquisitions were examined in detail in the Consultation Paper of the Authority on “Review of Terms and Conditions and Capping of number of access providers” dated 12th June 2007. The response of the stakeholders and their analysis are available in the Recommendations of the Authority on the same subject dated 28th August 2007.

- 3.13.2 The possible situations are merger of two MVNOs within the same service area and merger of MVNO and MNO within the same service area. One possible argument could be that since MVNOs do not have any assignment of spectrum, the mergers of MVNOs may not have any adverse effect in the competition.

Issue 14: What shall be the specific guidelines on the Mergers and Acquisitions of MVNO? Please elaborate the comments with appropriate reasoning.

3.14 Substantial Equity

- 3.14.1 The MNOs cannot hold more than 10% equity in any other MNO in the same service area. The relevant clause in the license agreement is given in **Annexure V**. This is to ensure that one MNO does not directly or indirectly control other MNOs in the same service area. This will adversely affect the competition.
- 3.14.2 It is possible that the MNO in a service area has substantial equity participation in an MVNO in its own service area which is parented to another MNO. Here one could argue that the MNO is indirectly providing services of another MNO in the same service area and resulting in a

similar situation of having control of two MNOs. In such a situation the restriction on substantial equity may be relevant.

- 3.14.3 The promoters of one MVNO may have equity participation in other MVNOs in the same service area. Since the MVNOs do not have any assignment of spectrum such cross holdings between MVNOs is less likely to have any major impact on the competition.

Issue 15: Should there be any restriction on cross holdings between two MVNOs and between MVNO and an MNO in a service area? Please comment on the nature and scale of restructuring.

3.15 Foreign Direct Investment (FDI)

- 3.15.1 The level of FDI permitted in MVNO varies with the Regulatory Regime in different countries. In India 74% FDI is permitted for the MNO. The details are available at **Annexure V**.
- 3.15.2 Telecom infrastructure is a vital national infrastructure of any country. When the telecom sector was liberalized, the maximum permitted FDI was limited to 49% due to security concerns. In 2005 the FDI limit was enhanced to 74% to bring in more foreign investment. The security concerns were addressed through various conditions in the license agreement regarding appointment of foreign directors in the board, restrictions on remote control of the network etc. Today up to 49% FDI is through automatic route and beyond 49% up to 74% requires prior FIPB approval.
- 3.15.3 The options of FDI limit in MVNOs are to permit FDI up to 49% or 74% or 100%. Permitting different levels of FDI for facility based MVNO and non facility based MVNO is another option. It is worthwhile to mention here

that initially when Internet services were opened up in 1998, 100% FDI was permitted. Later to harmonize the FDI limit for various services in telecom sector in view of convergence of different services, this was revised to 74%.

Issue 16: What should be the FDI limit for MVNO?

3.16 Bank Guarantees

3.16.1 The MNOs have to submit both financial and performance bank guarantees. The amount varies depending upon the service area. The details are given in the **Annexure V**.

3.16.2 The financial bank guarantee acts as a financial back up for any default in the payment of the license fees. The license fees are to be paid quarterly by the MNOs and the amount of financial bank guarantee is kept equivalent to license fee of two quarters. Similarly the performance bank guarantee is to ensure that the company does not default any license condition including the roll out obligations. This acts as a financial disincentive for non performance. It is also to be mentioned that providing bank guarantees add to the cost of operation of the company. More of it would act as a disincentive for new MVNOs. There is a need to strike a right balance.

Issue 17: What should be the quantum of FBG and PBG for MVNO?

3.17 Quality of Service

3.17.1 The Authority has issued comprehensive regulations on the Quality of Service. Generally the MVNOs are responsible for customer acquisition, billing and customer care. The services are offered by MVNO through an

agreement with a parent MNO. However, as far as the subscribers are concerned MVNO is the service provider who is offering the service under its own brand and thus, becomes accountable for ensuring the Quality of Service to its subscribers. It is very important to ensure that Quality of Service to customer is not compromised. In order to achieve this the MVNO may have certain service level agreements (SLA) with the parent MNO. The ultimate responsibility of the Quality of Service to its subscribers will have to remain with the MVNO.

3.18 Branding

3.18.1 The key strength of many MVNOs is its brand name. Companies who have no prior connection with the telecom industry, for example an airline or popular beverage or entertainment company etc., may leverage its popularity and brand appeal with certain segments of population to co-brand telecom services. As such there is no restriction on MNOs on usage of brand names. MVNOs also sell SIM under their brand name.

3.19 Duration and conditions governing termination/suspension/revocation of license.

3.19.1 The relationship between MNO and MVNO is like that of a principal and its agent in the limited sense of tenure of license. So the license of an MVNO will have to be co-terminus with the license of its parent MNO. In such a case the terms of license of MVNO may get limited to the validity of the license of the parent MNO. Similarly, if due to some reason the license of parent MNO is terminated the MVNO license cannot exist.

3.20 Interconnection and Roaming

3.20.1 MVNO would have an agreement with the MNO for carriage of all the calls which are originated by its subscribers and for terminating the calls to its subscribers. It is better for MVNOs to operate using the interconnection and roaming arrangements of its parent MNO.

3.21 Tariff

3.21.1 The low or diverse tariff packages are the key factors for the success of MVNO in most of the countries. In other words tariff is a key item that MVNO concentrate to build their business case. The parent MNO who sells bulk minutes of usage to the MVNO has nothing to do with the retail tariff offered by MVNO to its subscribers. MVNO being directly responsible for the tariff related matters, MVNOs should independently comply with the applicable tariff related requirements.

3.22 Customer Acquisition and Care

3.22.1 Customer acquisition, customer management and service provisioning are the three activities which will be undertaken generally by all MVNOs. The MVNOs would be acquiring the customers/subscribers directly and billing them. So for all practical purposes they become the subscribers of MVNO. This being the case, the MVNO should comply with the requirements of customer acquisition including subscriber verification. They may have to establish their own customer care centers to cater for its own subscriber complaints and related issues.

3.23 Technical Conditions

3.23.1 Telecommunications is basically a networked service where the equipment used by different service providers have to inter-work in a seamless manner. This is possible only if the equipment used by the different service providers conform to certain prescribed technical standards. In India these technical standards are prescribed by Telecom Engineering Center (TEC). The facility based MVNOs who set up their own infrastructure have to ensure that the equipment that they use complies with the prescribed standards.

3.24 National Security

3.24.1 The MVNO should comply with all the requirement of National Security. This could vary depending upon the infrastructure set up by the MVNO. It could be specified by DoT in consultation with National Security Agencies.

Issue 18: Any other relevant issue you would like to suggest/comment upon.

Chapter 4

International Experience

1. Hong Kong

1.1 There are about 7 MVNOs operating in Hong Kong. The first MVNO was launched in the year 2001. Hong Kong is the highest MVNO penetrated Asian market with 7,20,000 customers, nearly 7.5% market penetration. In Hong Kong, the regulator requires 3G networks to reserve 30% of their capacity for MVNO use¹².

1.2 The Mobile Virtual Network Operator (MVNO) Services are operating under public telecommunications services licensed under the Public Non-Exclusive Telecommunications Service (PNETS) license¹³, the list of all the services include:-

- ❖ International Value-Added Network Services (IVANS) or Internet Access Services
- ❖ External Telecommunications Services (ETS)
- ❖ Mobile Virtual Network Operator (MVNO) Services
- ❖ Radio distribution systems for cellular services operated within premises of the landowners or operators

1.3 The applicant for a PNETS licence should be a company registered under the Companies Ordinance in Hong Kong, but there is no foreign ownership restriction on the licensee. If the applicant is a company incorporated in Overseas, the Telecommunications Authority (TA) may consider its application provided that it has registered under the Companies Ordinance as an overseas company. Generally, there is no restriction on the number of

¹² http://www.netlab.hut.fi/tutkimus/l9ead/leaddocs/KiiskiHammainen_MVNO.pdf

¹³ Guidelines for application of PNETS licenses, Hong Kong

licences granted for the PNETS licence and the TA is prepared to consider new applications at any time.

1.4 The licensee shall comply with any code of practice concerning technical configuration and operation of the service that may be issued by the TA from time to time.

1.5 MVNO Rights with respect to numbering arrangements:-

- ❖ It will be allocated its own number set under the telecommunications numbering plan; and
- ❖ it may be allocated a Mobile Network Code.

1.6 Obligations with respect to numbering requirements:-

- ❖ the MVNO shall conform to the TA's telecommunications numbering plan;
- ❖ the MVNO shall facilitate mobile number portability; and
- ❖ the MVNO shall provide emergency services to its customers.

1.7 Under the PNETS licence, the MVNO shall fulfil the following general obligations:-

- ❖ the MVNO shall provide customer statistics to the TA;
- ❖ the MVNO shall be subject to payment of licence fees; and
- ❖ the MVNO will be required to pay the same interconnection charges as a mobile network operator (MNO) for interconnection with fixed networks.

1.8 MVNO for Third-Generation (3G) Services:

1.8.1 The MNO is obliged to open 30% of its network capacity to MVNOs who are not affiliated to any MNOs. In order for an MVNO to be qualified for the TA's regulatory support on its access to the MNO's network, the

MVNO is required to meet the following minimum requirements on network operation and infrastructure:-

- ❖ provide its own mobile switching and gateway infrastructure for circuit and/or
- ❖ packet switched traffic;
- ❖ enter into its own interconnection and roaming agreements;
- ❖ provide its own business support systems, such as billing and customer care;
- ❖ maintain its own Home Location Register of customers (or equivalent functionality);
- ❖ satisfy requirements for call control as required by the TA and normally associated with a telecommunications operator; and
- ❖ issue its own SIM cards.

The TA will have regard to certain criteria when determining whether or not it will offer regulatory support to an MVNO. The criteria for, and the terms of, the TA's intervention are set out in the guidelines.

1.9 In the event that a non-affiliated MVNO and a MNO cannot agree with each other on the terms of interconnection, either of them may call upon the TA to intervene in the dispute and to determine the terms of interconnection. If an MVNO makes a request for a determination, the TA is unlikely to intervene if:-

- ❖ the MVNO is affiliated to the MNO or to any other MNO;
- ❖ the MVNO already has access to the network capacity of any other MNO's network (as defined in the mobile carrier licence) equivalent to 30% or more of the network capacity of the network to which the MVNO is seeking access. If the TA receives a request for access to a network from an MVNO that already has access to another network, the TA will take into account the extent to which the MVNO already benefits from the open network access framework

and such other factors as he may consider relevant such as the market position of the MVNO;

- ❖ the MVNO does not satisfy the minimum infrastructure requirements or
- ❖ the relevant MNO has reached its 30% open network access requirement.

2. JAPAN

- 2.1 In Japan, the first MVNO started its operations in Oct. 2001
- 2.2 Japan Communication Inc (the first MVNO in Japan) gained a profit in fiscal year 2002 for the first time since its establishment, gave the positive prospect among potential MVNOs.
- 2.3 One of the network, Personal Handy-phone System (PHS) network is utilized by the MVNOs in Japan.
- 2.4 For encouraging MVNO business, Japanese government had set up the guidelines for MVNO in June 2002.
- 2.5 MVNOs have made the internet connection seamless by combining wireless LAN network with PHS network. Such service was launched in the market by several MVNOs in year 2003. This type of service is the main stream of MVNO business.

3. Netherlands

- 3.1 The Mobile Virtual Network market in the Netherlands is among the most active in the world. New entrants have attracted many customers by offering significantly lower international calling rates.
- 3.2 The MVNO market in the Netherlands currently counts around 39 Virtual Operators. The majority of the new entrants are focussing on the low-cost segment.
- 3.3 The players in the Dutch MVNO market can be segmented into different categories. Retail chains, charity organisations, fixed-line telecom operators and calling card companies have entered the market to broaden their service portfolio, offer attractive international calling rates or increase the customer loyalty. These new entrants have changed the telecom landscape by pushing the operators to the role of network providers. MVNOs have appeal because they target a specific market segment with needs which they know best to answer.
- 3.4 Operators that are currently cooperating with MVNOs are those who struggled to fill its network with their own subscribers. They are eager to cooperate since they only have to lease network capacity and can profit from the success of the new entrant without costly investments.

4. Finland

- 4.1 In Finland, most of the MVNOs have adopted the strategy of competing with price rather than services.
- 4.2 In addition, also the competition has long roots in the Finnish telecommunications market because of the numerous local telephone

operators and the competition between public and private telephone operator families. The Finnish MVNO market is interesting due to the presence of a large number of diverse MVNOs.

- 4.3 Changes in regulation have made the market easily accessible for MVNOs. The most effective trigger for MVNOs to start their operations, however, was the requirement to enable mobile number portability (MNP) between mobile network operators in July 2003.
- 4.4 One of the MVNO has combined three strategies of the model: it offers the low price services directly to its customers, provide differentiation with content services, and resell their network capacity to focused brand operators.
- 4.5 After the entrance of MVNOs, all the three incumbent MNOs have had to lower their prices and subsidize their subscriptions with free air time and goods.

5. United Kingdom

- 5.1 The UK operators opened their networks to MVNOs entirely voluntarily, with no regulatory intervention sought or required. The first operator which started its operation in UK in 1999, is one of the successful global MVNO. It gained 8% plus market share (>4 million) customers in five years. Around 25 MVNOs are functional in UK.
- 5.2 The process for establishing an MVNO depends on what services the MNO is supplying to the MVNO and is a commercial matter between those two parties. There are no specific MVNO-related Ofcom specific telecom regulatory requirements beyond those in the published General Conditions of Entitlement on their website.

- 5.3 Ofcom does not require notification before electronic communications networks and services can be operated in the UK.
- 5.4 MVNOs, which offer retail mobile services by leasing network capacity from operators, now account for over 5.5 million subscriptions in the UK.
- 5.5 Most MVNOs' financial strategies have largely been dictated by cost structure. The two significant advantages for MVNOs are:
- significantly lower levels of capital expenditure; and
 - much shorter time taken to reach positive cash flow than a network operator.
- 5.6 MVNOs pay out a large proportion of their revenues in fixed agreement wholesale fees to network operators, their operating margins are far lower than those of MNOs. This results in a significant financial risk to the MVNO business model.

6. USA

- 6.1 As wireless services expand their stronghold in the United States, service providers are diversifying into wireless data and other differentiator services. Besides offering attractive value-added multimedia services and content, MVNOs also deliver solutions to expand the existing customer reach of MNOs.
- 6.2 US markets has about 60 MVNOs operating since 2002. These MVNOs created unique new services & packages and targeted unserved market niches. Rather than dividing the existing market into smaller segments at lower price points, they grew the market, increased content, and arguably raised price points by delivering services that customers wanted to buy – or buy more of.

6.3 MVNOs are also required to register with the FCC and the Universal Service Administrative Company (USAC) by filing a signed copy of certain pages of FCC Form 499-A with USAC¹⁴

6.4 In USA, the FCC has for several years required that networks deal on a non-discriminatory basis with re-sellers, including, by the FCC definition, MVNOs. Although this position opens the market to MVNOs, it does mean that they will be dealt with in the same way as resellers. The fact that they will be unable to reach wholesale pricing arrangements that discriminate them from resellers will make it more difficult for them to differentiate themselves from the competition.

7. Pakistan

7.1 Pakistan Telecom Authority (PTA) defines MVNO¹⁵ as an operator that does not own spectrum but has commercial arrangements with conventional MNOs to buy minutes of use (MoU) for sale to its own customers. Pakistan has started issuing MVNO Licenses from May 2007.

7.2 A few points from the framework:

- ❖ PTA will oversee and approve the MVNO agreements and breakups.
- ❖ PTA shall allocate separate number blocks to MNOs for use by its MVNO partner.
- ❖ MVNOs cannot sign separate roaming agreements with operators other than the parent network operator.
- ❖ MVNOs will contribute to universal service fund and research & development fund, among other fees.

¹⁴ MVNO licensing and regulation - Entering the Regulated Market of Wireless Resale (http://www.tkcrowe.com/mvno_licensing.html)

¹⁵ Consultation paper on MVNO framework by PTA

- 7.3 PTA has kept the barrier to entry (fees, conditions etc) for MVNOs fairly low. Mobile operators are also permitted to support MVNO services. Only a company registered with Securities and Exchange Commission of Pakistan (SECP) is allowed to provide MVNO service. The MNO that make commercial agreement for MVNO operation in Pakistan have to submit the same to the Authority for approval prior to giving effect to this agreement. In addition to the commercial agreement, MVNO also submit application to the Authority for the award of MVNO Class License.
- 7.4 The MVNO Class License is issued for a period of agreement between MNO and MVNO or a valid term of his parent MNO or which ever is smaller. If the Authority for any valid reason terminates the license of Parent MNO, then the concerned MVNO class license shall automatically stand terminated.
- 7.5 This Framework may be reviewed by the Authority, form time deems it fit or circumstances so require.

8. Singapore

- 8.1 The first Asian MVNO was launched in Singapore in 2001.
- 8.2 In Singapore, the MVNO must use part of the networks of the MNOs licensed by Infocomm Development Authority (IDA) under the Facilities-Based Operations Licence to originate and deliver its customers' calls. The MVNO must pay the licensed MNO for the use of network and or the essential radio segment of the networks¹⁶.

¹⁶ Proposed regulatory approach for 3G MVNOs
(http://www.ida.gov.sg/doc/Policies%20and%20Regulation/Policies_and_Regulation_Level2/MVNOs/MVNO_Consultation_Paper.pdf)

- 8.3 MVNOs must commercially negotiate for access to 3G networks. IDA will, however, intervene in cases of unduly restrictive or anti-competitive practices in accordance with the relevant provisions of the Telecom Competition Code.
- 8.4 The regulatory approach for 2G and 3G MVNO follows the following consistent regulatory principles:
- ❖ Primarily reliance on market forces in competitive markets to promote and deliver consumer welfare.
 - ❖ Regulatory intervention only where there is market failure and to the extent necessary to remedy that market failure.
- 8.5 All Facilities Based Operators (FBO) and Service Based Operators (SBO) MVNO licensees are required to implement and support number portability.
- 8.6 One of the UK's mobile providers attempted to enter the market as an MVNO in 2001. However, due to a low take-up of its services, it ended its venture within a year.

9. France

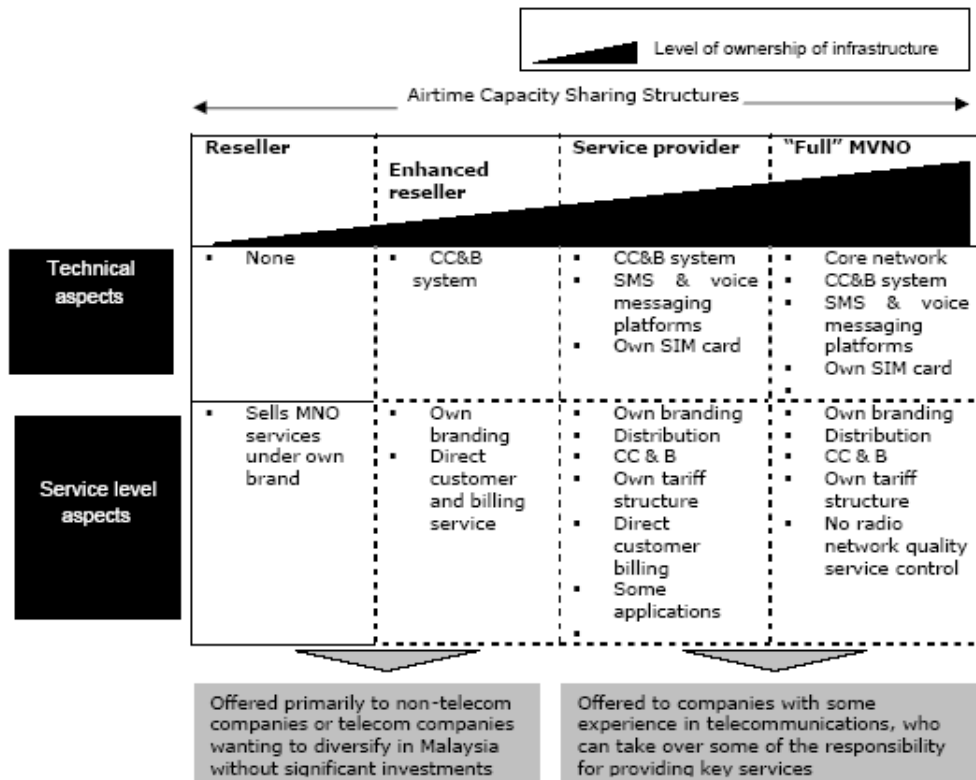
- 9.1 In France around 10 MVNOs are operating. The French operators have succeeded in preserving their dominance by signing up MVNOs on their own terms. The MVNOs have captured nearly 2.8 percent of the total French mobile market by 31st Dec 2006. The MVNOs' poor market share since launch has in part been driven by factors such as complex number portability arrangements, and lengthy subscriber contracts which discourage churn. There are also substantial differences in wholesale pricing by the operators – particularly when compared to the UK where rates are reportedly much lower. MVNOs face a difficult challenge in adding subscribers. The incumbents rely heavily on 24 month lock-in contracts, decreasing the incentive for subscribers to switch operator midway. Coupled

with the difficulty in porting numbers, it could be construed as a strategic deterrent for MVNOs in the market. Most MVNOs offer prepaid services, promoting prepaid as a complement rather than a substitute to post-paid services.

10. Malaysia

10.1 In Malaysia, 4 MVNOs are providing their services.

10.2 Malaysian Regulator, Malaysian Communications & Multimedia Commission (MCMC), in its guidelines¹⁷ has identified four prevalent business models and the characteristics of each of these business models and the corresponding licensing requirements are as detailed below:



Source Telekom Malaysia Berhad's detailed business plan

¹⁷ Guidelines on regulatory framework for 3G MVNO – 16th Feb'05 by MCMC

- 10.3 The actual licensing requirement of MVNOs are ascertained by the MCMC upon assessment of the applications vis-à-vis the CMA and the relevant subsidiary legislations on a case to case basis.
- 10.4 As the MVNOs are largely dependent on MNOs to enter the market and compete effectively, the key factor that ensures sustainability of MVNOs is the terms and conditions of access to the radio network as well as other incidental facilities and services required to provide services to end users. The MCMC intervenes if it is satisfied that such intervention is necessary to ensure long term benefits to end users and growth in the industry.
- 10.5 The MCMC allocates a specific block of numbers for mobile virtual network operators who wish to establish their own brand names. These numbers will be assigned for use with network services and application services provided by Network Service Providers and / or Application Service Providers who operate their own home location registers and billing systems.

11. Germany

- 11.1 There are four network operators in the German mobile market. Germany has one of Europe's most advanced and leading MVNO markets. Germany has around 29 MVNOs operational. The emergence of MVNOs has boosted competition in the German mobile market, bringing down the cost of mobile calls and increasing the level of fixed-to-mobile substitution. The country's mobile operators tapped into the value-added mobile data services' revenue streams, and lined up portfolios of data-centric multimedia services, including mobile music downloads, gaming and TV streaming.
- 11.2 The proliferation of MVNOs following the introduction of mobile number portability on 1 November 2002 has boosted competition on the fast-paced

German mobile market¹⁸. The mobile operators and service providers have been lining up an array of attractive offerings to win customers.

12. Australia

12.1 In Australia, there are a relatively large number of MVNOs, around 22 in number, operating since 2000, yet it is far from having fully capitalized on the MVNO Market opportunities. These opportunities are present now due to the reduction in entry barriers, the segmentation of the market, fixed-to-mobile substitution and commoditization of voice and text services through 'capped' tariff plans.

13. Ireland

13.1 Ireland has offered incentives to encourage bidders for 3G licenses to voluntarily commit to providing access to MVNOs.

14. Italy

14.1 Italy stands out in Europe as a significant country where the regulator has determined that network operators do not have to open their networks to MVNOs on request. The Italian regulator Agcom has decreed that the network operators should be afforded a level of protection to develop their 3G businesses, in a decision that was upheld by the EU in December 2005.

¹⁸ <http://www.globalinsight.com/SDA/SDADetail7263.htm>

15. Latin America

15.1 In Latin America¹⁹ MVNOs are finding it tough to set up and get established. Here, the average mobile penetration is approx. 60% and 80% of subscribers are prepaid. Yet, the number of MVNO subscribers in relation to total mobile telephony subscribers is minimal in Latin America, than it is in other parts of the world. Latin Americans are low spenders on mobile service with ARPU of approx. US \$15/month.

15.2 Latin America is far behind the Europe and US in implementation of number portability regulations, which is essential to create a competitive environment in which an MVNO can work. At present, Panama and Puerto Rico are the only countries in Latin America and the Caribbean to have number portability in place.

15.3 Regulators here, are generally in favor of MVNOs because of their positive effects on competition, but they tend not to get involved in MVNO-MNO negotiations for the sale of minutes, as they see it as a purely commercial affair.

15.4 The trend towards convergence and quadruple services is expected to be the main motivation for setting up an MVNO in Latin America.

15.5 Specific examples of some countries in this region are as follows:

- **Chile**

In Chile, the telecom regulator awarded 10 MVNO licenses last year, many have encountered difficulties in negotiations with network operators (MNOs) and to date no MVNO has yet started.

¹⁹ MVNO growth in Latin America – Business News Americas

- **Mexico**

Mexico's telecom regulator, Cofetel introduced a regulation in 2005, allowing the entrance of national and long distance prepaid minute resellers. The regulator also approves requests for reselling telecoms services of all types. Here resellers are offering new services and targeting niches the MNOs are overlooking. MVNO licenses are expected to be granted in the first half of 2008.

- **Uruguay**

Uruguayan MVNO startup company specializes in pre-paid recharging and m-commerce technology. It has gained distribution and prepaid billing assistance through association with parent company.

List of MNO / MVNO in different countries

Sl.No.	Country	Number of MNO	Number of MVNO
1	Australia	4	22
2	Denmark	4	16
3	Finland	4	9
4	France	4	10
5	Germany	4	29
6	Hong Kong	5	7
7	Ireland	3	7
8	Italy	4	3
9	Malaysia	1	4
10	Netherlands	7	39
11	Pakistan	7	5
12	Philippines	8	1
13	Portugal	4	5
14	Russian Federation	3	2
15	Singapore	3	1
16	Switzerland	6	5
17	United Kingdom	5	25
18	United States	13	60
19	Norway	2	16

Chapter 5

Issues for Consultation

Issue 1. Do you agree with the definition of MVNO given in section 2.1.6? If not please suggest alternate definition with justification.

Issue 2: Do you think there is a need to introduce MVNO in the Indian Telecom Market. If yes, is it the right time to introduce MVNO as a distinct service provider with its own licensing and regulatory framework? Please elaborate the comments with appropriate reasoning.

Issue 3: To what extent should the MVNO be permitted to set up their own infrastructure?

Issue 4 (i): What Regulatory Model should be followed for MVNO in the Indian context?

(ii): What kind of obligations may be imposed on MNOs so that Mobile Virtual Network Operations are implemented effectively in India benefiting the customers?

Please elaborate the comments with appropriate reasoning.

Issue 5: What should be the eligibility criteria for MVNO?

Issue 6: Do you suggest different eligibility criteria for different MVNO models and regulatory frameworks? If Yes, Please suggest with justification thereof.

Issue 7: Should there be any restriction on the number of MVNOs attached to an MNO? Please elaborate the comments with appropriate reasoning.

Issue 8: What should be the commercial model/framework for spectrum sharing by MVNO; w.r.t. (i) Department of Telecom and (ii) MNO?

Issue 9: What should be the service obligations of MVNO? Please list them with justification thereof.

Issue 10. What should be the method and consideration for determining the entry fee for MVNO?

Issue 11. What should be the definition of AGR for MVNOs?

Issue 12: What is the best way to protect the subscribers both in terms of continuity of service and applicability of tariff plan:

- i) in case of a dispute between MVNO and MNO?**
- ii) in case MVNO wants to exit the business.**

Issue 13: Should there be any roll out obligations specified for MVNO? If yes, what should be the penal provisions for failure/ delay in fulfilling the obligations.

Issue 14: What shall be the specific guidelines on the Mergers and Acquisitions of MVNO? Please elaborate the comments with appropriate reasoning.

Issue 15: Should there be any restriction on cross holdings between two MVNOs and between MVNO and an MNO in a service area? Please comment on the nature and scale of restructuring.

Issue 16: What should be the FDI limit for MVNO?

Issue 17: What should be the quantum of FBG and PBG for MVNO?

Issue 18: Any other relevant issue you would like to suggest /comment upon.

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Annexure I

Government of India
Ministry of Communications and Information Technology
Department of Telecommunications
(Access Services Policy Cell)
Sanchar Bhawan, 20, Ashoka Road, New Delhi- 110001

No. 800-50/2008-ASP. II/1

Dated 20th March 2008

✓ To

Secretary
Telecom Regulatory Authority of India
Maharaja Dorsanchar Sadan,
Jawahar Lal Nehru Marg, Old Minto Road, New Delhi.

Subject:- Seeking recommendations of TRAI regarding Mobile Virtual Network Operator (MVNO).

Sir,

Recommendations of TRAI is hereby sought under Section 11 (1) (a) (i) & (ii) of the Telecom Regulatory Authority of India Act, 1997 on need and timing for introduction of Mobile Virtual Network Operators as well as terms and conditions of the License to be granted to such operators.

2. TRAI is requested to kindly forward its recommendations within a period of sixty days from the date of issue of this letter in accordance with second proviso of section 11 (1) of the TRAI Act

A. K. Srivastava
20/3/2008
(A. K. Srivastava)
ODG (AS-1)
Tel: 23716874

Annexure II**Entry Fee, Annual License Fee, Networth and Paid up equity capital Requirements for UAS License.**

Sl.	Service Area	Category	Entry fee (Rs. In Crores)	Annual License Fee (% of Adjusted Gross Revenue)	Networth (Rs. In Crores)	Paid up equity capital of Applicant Company (Rs. In Crores)
1	West Bengal	B	1.0000	8	50	5
2	Andhra Pradesh	A	103.0100	10	100	10
3	Assam	C	5.0000	6	30	3
4	Bihar	C	10.0000	6	30	3
5	Gujarat	A	109.0100	10	100	10
6	Haryana	B	21.4600	8	50	5
7	Himachal Pradesh	C	1.1000	6	30	3
8	Jammu & Kashmir	C	2.0000	6	30	3
9	Karnataka	A	206.8300	10	100	10
10	Kerala	B	40.5400	8	50	5
11	Madhya Pradesh	B	17.4501	8	50	5
12	Maharashtra	A	189.0000	10	100	10
13	North East	C	2.0000	6	30	3
14	Orissa	C	5.0000	6	30	3
15	Punjab	B	151.7500	8	50	5
16	Rajasthan	B	32.2500	8	50	5
17	Tamilnadu	A	233.0000	10	100	10
18	Uttar Pradesh (West)	B	30.5500	8	50	5
19	Uttar Pradesh (East)	B	45.2500	8	50	5
20	Delhi	A	170.7000	10	100	10
21	Kolkata	A	78.0100	10	100	10
22	Mumbai	A	203.6600	10	100	10

Annexure III**Annual Spectrum usage charges for Mobile Service Providers**

Spectrum	Charges linked to revenue of operators
Upto 2x4.4 MHz	2%
Upto 2x6.2 MHz/2x5 MHz (CDMA)	3%
Upto 2x8 MHz	4%
Upto 2x10 MHz	4%
Upto 2x12.5 MHz	5%
Upto 2x15 MHz	6%

Annexure IV**Spectrum allocation to Mobile service providers**

Sl.	Name of service provider	Service area	Type of service	Spectrum allotted (in MHz)
1	Bharti	Delhi	GSM	10.00
2	Vodafone	Delhi	GSM	10.00
3	MTNL	Delhi	GSM	8.00
4	Idea Cellular	Delhi	GSM	8.00
5	Aircel Ltd.	Delhi	GSM	4.40
6	Reliance	Delhi	GSM	4.40
7	MTNL	Delhi	CDMA	3.75
8	Reliance Infocomm	Delhi	CDMA	5.00
9	Tata Teleservices	Delhi	CDMA	5.00
10	BPL	Mumbai	GSM	10.00
11	Vodafone	Mumbai	GSM	10.00
12	MTNL	Mumbai	GSM	8.00
13	Bharti	Mumbai	GSM	9.20
14	Aircel Ltd.	Mumbai	GSM	4.40
15	Idea Cellular Ltd.	Mumbai	GSM	4.40
16	Reliance	Mumbai	GSM	4.40
17	MTNL	Mumbai	CDMA	5.00
18	Reliance Infocomm	Mumbai	CDMA	5.00
19	Tata Teleservices	Mumbai	CDMA	5.00
20	Aircel Cellular Ltd.	Chennai	GSM	8.60
21	Bharti	Chennai	GSM	8.60
22	BSNL	Chennai	GSM	8.00
23	Vodafone	Chennai	GSM	8.00
24	TTSL	Chennai	GSM	4.40
25	BSNL	Chennai	CDMA	2.50
26	Reliance Infocomm	Chennai	CDMA	5.00
27	Tata Teleservices	Chennai	CDMA	3.75
28	Bharti	Kolkata	GSM	8.00
29	Vodafone	Kolkata	GSM	9.80
30	BSNL	Kolkata	GSM	6.20
31	Reliable Internet	Kolkata	GSM	6.20
32	Dishnet Wireless Ltd	Kolkata	GSM	4.40
33	BSNL	Kolkata	CDMA	2.50
34	Reliance Infocomm	Kolkata	CDMA	5.00
35	Tata Teleservices	Kolkata	CDMA	3.75
36	Vodafone	Maharashtra	GSM	6.20
37	Idea Cellular Ltd.	Maharashtra	GSM	9.80
38	BSNL	Maharashtra	GSM	8.00
39	Bharti	Maharashtra	GSM	6.20
40	Aircel Ltd.	Maharashtra	GSM	4.40
41	Reliance	Maharashtra	GSM	4.40
42	BSNL	Maharashtra	CDMA	2.50

43	Reliance Infocomm	Maharashtra	CDMA	5.00
44	Tata Teleservices	Maharashtra	CDMA	5.00
45	Vodafone	Gujarat	GSM	9.80
46	Idea Cellular Ltd.	Gujarat	GSM	6.20
47	BSNL	Gujarat	GSM	7.40
48	Bharti	Gujarat	GSM	6.20
49	Aircel Ltd.	Gujarat	GSM	4.40
50	Reliance	Gujarat	GSM	4.40
51	BSNL	Gujarat	CDMA	2.50
52	Reliance Infocomm	Gujarat	CDMA	3.75
53	Tata Teleservices	Gujarat	CDMA	3.75
54	Idea Cellular Ltd.	Andhra Pradesh	GSM	8.00
55	Bharti	Andhra Pradesh	GSM	7.80
56	BSNL	Andhra Pradesh	GSM	8.00
57	Vodafone	Andhra Pradesh	GSM	6.20
58	Aircel Ltd.	Andhra Pradesh	GSM	4.40
59	Reliance	Andhra Pradesh	GSM	4.40
60	BSNL	Andhra Pradesh	CDMA	2.50
61	Reliance Infocomm	Andhra Pradesh	CDMA	5.00
62	Tata Teleservices	Andhra Pradesh	CDMA	5.00
63	Shyam Telelink	Andhra Pradesh	CDMA	2.50
64	Bharti	Karnataka	GSM	9.80
65	Spice	Karnataka	GSM	6.20
66	BSNL	Karnataka	GSM	8.00
67	Vodafone	Karnataka	GSM	8.00
68	Aircel Ltd.	Karnataka	GSM	4.40
69	Reliance	Karnataka	GSM	4.40
70	BSNL	Karnataka	CDMA	2.50
71	Reliance Infocomm	Karnataka	CDMA	5.00
72	Tata Teleservices	Karnataka	CDMA	3.75
73	Vodafone	Tamil Nadu	GSM	6.20
74	Aircel Ltd.	Tamil Nadu	GSM	9.80
75	BSNL	Tamil Nadu	GSM	8.00
76	Bharti	Tamil Nadu	GSM	8.20
77	Reliance	Tamil Nadu	GSM	4.40
78	Idea	Tamil Nadu	GSM	4.40
79	Swan	Tamil Nadu	GSM	4.40
80	Loop	Tamil Nadu	GSM	4.40
81	Datacom	Tamil Nadu	GSM	4.40
82	Unitech	Tamil Nadu	GSM	4.40
83	TTSL (Dual)	Tamil Nadu	GSM	4.40
84	BSNL	Tamil Nadu	CDMA	2.50
85	Reliance Infocomm	Tamil Nadu	CDMA	5.00
86	Tata Teleservices	Tamil Nadu	CDMA	2.50
87	Shyam Telelink	Tamil Nadu (incl. Chennai)	CDMA	2.50
88	Idea Communications Ltd.	Kerala	GSM	8.00
89	Vodafone	Kerala	GSM	6.20
90	BSNL	Kerala	GSM	8.00

91	Bharti	Kerala	GSM	6.20
92	Dishnet Wireless Ltd.	Kerala	GSM	4.40
93	Reliance	Kerala	GSM	4.40
94	BSNL	Kerala	CDMA	3.75
95	Reliance Infocomm	Kerala	CDMA	5.00
96	Tata Teleservices	Kerala	CDMA	3.75
97	Spice	Punjab	GSM	7.80
98	Bharti	Punjab	GSM	7.80
99	BSNL	Punjab	GSM	6.20
100	Vodafone	Punjab	GSM	6.20
101	Dishnet Wireless Ltd	Punjab	GSM	4.40
102	Reliance	Punjab	GSM	4.40
103	Aircel	Punjab	GSM	4.40
104	BSNL	Punjab	CDMA	2.50
105	Reliance Infocomm	Punjab	CDMA	3.75
106	HFCL Infocomm	Punjab	CDMA	2.50
107	Tata Teleservices	Punjab	CDMA	3.75
108	Idea Communications Ltd.	Haryana	GSM	6.20
109	Vodafone	Haryana	GSM	6.20
110	BSNL	Haryana	GSM	6.20
111	Bharti	Haryana	GSM	6.20
112	Dishnet Wireless Ltd	Haryana	GSM	4.40
113	Reliance	Haryana	GSM	4.40
114	BSNL	Haryana	CDMA	2.50
115	Reliance Infocomm	Haryana	CDMA	3.75
116	Tata Teleservices	Haryana	CDMA	3.75
117	Shyam Telelink	Haryana	CDMA	2.50
118	Idea Communications Ltd.	UP-W	GSM	8.00
119	Bharti	UP-W	GSM	6.20
120	BSNL	UP-W	GSM	8.00
121	Vodafone	UP-W	GSM	6.20
122	Dishnet Wireless Ltd	UP-W	GSM	4.40
123	Reliance	UP-W	GSM	4.40
124	Aircel	UP-W	GSM	4.40
125	BSNL	UP-W	CDMA	2.50
126	Reliance Infocomm	UP-W	CDMA	5.00
127	Tata Teleservices	UP-W	CDMA	3.75
128	Shyam Telelink	UP-W	CDMA	2.50
129	Vodafone	UP-E	GSM	8.00
130	BSNL	UP-E	GSM	8.00
131	Bharti	UP-E	GSM	6.20
132	Idea Telecommunications Ltd.	UP-E	GSM	6.20
133	Dishnet Wireless Ltd	UP-E	GSM	4.40
134	Reliance	UP-E	GSM	4.40
135	BSNL	UP-E	CDMA	2.50
136	Reliance Infocomm	UP-E	CDMA	5.00
137	Tata Teleservices	UP-E	CDMA	3.75
138	Shyam Telelink	UP-E	CDMA	2.50
139	Vodafone	Rajasthan	GSM	6.20

140	Hexacom (Bharti)	Rajasthan	GSM	6.20
141	BSNL	Rajasthan	GSM	8.00
142	Idea Telecommunications Ltd.	Rajasthan	GSM	6.20
143	Aircel Ltd.	Rajasthan	GSM	4.40
144	Reliance	Rajasthan	GSM	4.40
145	BSNL	Rajasthan	CDMA	2.50
146	Reliance Infocomm	Rajasthan	CDMA	3.75
147	Shyam Telelink	Rajasthan	CDMA	5.00
148	Tata Teleservices	Rajasthan	CDMA	3.75
149	Idea	Madhya Pradesh	GSM	8.00
150	Reliance	Madhya Pradesh	GSM	6.20
151	BSNL	Madhya Pradesh	GSM	6.20
152	Bharti	Madhya Pradesh	GSM	6.20
153	Dishnet Wireless Ltd	Madhya Pradesh	GSM	4.40
154	Vodafone	Madhya Pradesh	GSM	4.40
155	BSNL	Madhya Pradesh	CDMA	2.50
156	Reliance Infocomm	Madhya Pradesh	CDMA	5.00
157	Tata Teleservices	Madhya Pradesh	CDMA	2.50
158	Shyam Telelink	Madhya Pradesh	CDMA	2.50
159	Reliance	WB & AN	GSM	6.20
160	BSNL	WB & AN	GSM	6.20
161	Bharti	WB & AN	GSM	6.20
162	Vodafone	WB & AN	GSM	6.20
163	Dishnet Wireless Ltd	WB & AN	GSM	4.40
164	BSNL	WB & AN	CDMA	2.50
165	Reliance Infocomm	WB & AN	CDMA	3.75
166	Tata Teleservices	WB & AN	CDMA	2.50
167	Shyam Telelink	WB & AN	CDMA	2.50
168	Bharti	Himachal Pradesh	GSM	6.20
169	Reliance	Himachal Pradesh	GSM	6.20
170	BSNL	Himachal Pradesh	GSM	6.20
171	Idea Telecommunications Ltd.	Himachal Pradesh	GSM	4.40
172	Dishnet Wireless Ltd	Himachal Pradesh	GSM	4.40
173	Vodafone	Himachal Pradesh	GSM	4.40
174	BSNL	Himachal Pradesh	CDMA	2.50
175	Reliance Infocomm	Himachal Pradesh	CDMA	2.50
176	Tata Teleservices	Himachal Pradesh	CDMA	2.50
177	Shyam Telelink	Himachal Pradesh	CDMA	2.50
178	Reliance	Bihar	GSM	8.00
179	BSNL	Bihar	GSM	8.00
180	Bharti	Bihar	GSM	8.00
181	Dishnet Wireless Ltd	Bihar	GSM	4.40
182	Vodafone	Bihar	GSM	4.40
183	Aditya Birla Telecom Ltd. (Idea)	Bihar	GSM	4.40
184	BSNL	Bihar	CDMA	2.50
185	Reliance Infocomm	Bihar	CDMA	5.00
186	Tata Teleservices	Bihar	CDMA	3.75
187	Shyam Telelink	Bihar	CDMA	2.50
188	Reliance	Orissa	GSM	6.20

189	BSNL	Orissa	GSM	6.20
190	Bharti	Orissa	GSM	8.00
191	Dishnet Wireless Ltd	Orissa	GSM	4.40
192	Vodafone	Orissa	GSM	4.40
193	Idea	Orissa	GSM	4.40
194	Datacom	Orissa	GSM	4.40
195	Nahan (Unitech)	Orissa	GSM	4.40
196	S Tel	Orissa	GSM	4.40
197	Loop	Orissa	GSM	4.40
198	TTSL (Dual)	Orissa	GSM	4.40
199	BSNL	Orissa	CDMA	2.50
200	Reliance Infocomm	Orissa	CDMA	3.75
201	Tata Teleservices	Orissa	CDMA	2.50
202	Reliance	Assam	GSM	6.20
203	BSNL	Assam	GSM	6.20
204	Bharti	Assam	GSM	6.20
205	Dishnet Wireless Ltd	Assam	GSM	6.20
206	Vodafone	Assam	GSM	4.40
207	BSNL	Assam	CDMA	2.50
208	Tata Teleservices	Assam	CDMA	2.50
209	Shyam Telelink	Assam	CDMA	2.50
210	Reliance Telecom	Assam	CDMA	2.50
211	Reliance	NE	GSM	6.20
212	Bharti	NE	GSM	4.40
213	BSNL	NE	GSM	6.20
214	Dishnet Wireless Ltd	NE	GSM	4.40
215	Vodafone	NE	GSM	4.40
216	BSNL	NE	CDMA	2.50
217	Tata Teleservices	NE	CDMA	2.50
218	Shyam Telelink	NE	CDMA	2.50
219	Reliance Telecom	NE	CDMA	2.50
220	BSNL	J&K	GSM	8.00
221	Bharti	J&K	GSM	6.20
222	Dishnet Wireless Ltd	J&K	GSM	4.40
223	Vodafone	J&K	GSM	4.40
224	Reliance	J&K	GSM	4.40
225	BSNL	J&K	CDMA	2.50
226	Reliance Infocomm	J&K	CDMA	2.50
227	Tata Teleservices	J&K	CDMA	2.50
228	Shyam Telelink	J&K	CDMA	2.50

Note: Some spectrum has been allotted to BSNL/ MTNL on trial basis

Annexure V**UAS LICENSE CONDITIONS****1. Eligibility**

The eligibility for award of UAS License has been prescribed by the DoT vide its Guidelines dated 14/12/2005. The applicant should be an Indian company, registered under Indian Companies Act, composite foreign holding should not exceed 74%, majority of Directors on Board shall be resident Indian Citizens, share holder agreement shall specifically incorporate the condition that the majority of Directors on Board including the Chairman, Managing Director and the Chief Executive Officer shall be resident Indians, comply with restriction on remote access and traffic monitoring, shall have minimum paid up equity capital and net worth requirement as prescribed.

2. Scope of service

As per UAS License, the scope of the MNO license cover collection, carriage, transmission and delivery of voice and/or non-voice MESSAGES and includes provision of all types of access services. Access service provider can also provide Internet Telephony, Internet Services and Broadband Services including triple play i.e. voice, video & data, Voice Mail, Audiotex services, Video Conferencing, Videotex, E-Mail, Closed User Group (CUG) facilities. If required, access service provider can use the network of NLD/ILD service licensee.

3. Roll out obligations

In metros, 90% of the service area shall be covered within one year and in telecom circles, at least 10% of District Headquarters/towns to be covered in the first year and 50% of District Headquarters/towns to be covered within three years. Coverage would mean that at least 90% of the area bounded by

municipal limits should get the required street as well as in-building coverage. Delay in fulfilling the roll out obligations attract liquidated damages to the tune of Rs.5 lakh per week for the first 13 weeks, Rs. 10 lakh per week for the next 13 weeks and thereafter @ Rs.20 lakhs per week for next 26 weeks subject to a maximum of Rs.7.00 crores.

4. Mergers and Acquisitions

Salient points in the merger and acquisition guidelines of DoT dated 21st April 2008 are:

- Prior approval of the Department of Telecommunications shall be necessary for merger of the licence.
- Merger of licences shall be restricted to the same service area.
- The relevant service market be defined as wire line and wireless services. Wireless service market shall include fixed wireless as well.
- The market share of merged entity in the relevant market shall not be greater than 40% either in terms of subscriber base separately for wireless as well as wireline subscriber base or in terms of Adjusted Gross Revenue.
- No M&A activity shall be allowed if the number of UAS/CMTS access service providers reduces below four in the relevant market consequent upon such an M&A activity under consideration.
- Consequent upon the Merger of licences in a service area, the post merger licensee entity shall be entitled to the total amount of spectrum held by the merging entities, subject to the condition that after merger, licensee shall meet, within a period of 3 months from date of approval of

merger by the Licensor, the prevailing spectrum allocation criterion separately for GSM & CDMA technologies, as in case of any other UAS/CMTS licensee(s).

- On merger, spectrum enhancement charge shall also be charged as applicable in case of any other UAS/CMTS licensee.
- In case consequent to merger of licences in a service area, the licensee becomes a “Significant Market Power” (SMP) post merger, then the extant rules & regulations applicable to SMPs would also apply to the merged entity.
- The annual license fee and the spectrum charge are paid as a certain specified percentage of the AGR of the licensee. On the merger of the two licenses, the AGR of the two entities will also be merged and the license fee will be therefore levied at the specified rate for that service area on the resultant total AGR. Similarly, for the purpose of payment of the spectrum charge, the spectrum held by the two licensees will be added/merged and the annual spectrum charge will be at the prescribed rate applicable on this total spectrum.
- For regulating acquisitions of equity stake of one access services licensee Company/ legal person/promoter company in the enterprise of another access services licensee in the same license area, present guidelines on Substantial Equity of 10% or more shall continue.
- Any permission for merger shall be accorded only after completion of 3 years from the effective date of the licences.

5. Substantial Equity

The restrictions on substantial equity are as follows:

The LICENSEE shall ensure that:

- (i) Any changes in share holding will be subject to all applicable statutory permissions.
- (ii) No single company/ legal person, either directly or through its associates, shall have substantial equity holding in more than one LICENSEE Company in the same service area for the Access Services namely; Basic, Cellular and Unified Access Service. 'Substantial equity' herein will mean 'an equity of 10% or more'. A promoter company/ Legal person cannot have stakes in more than one LICENSEE Company for the same service area.

6. Foreign Direct Investment (FDI)

The total composite foreign holding including but not limited to investments by Foreign Institutional Investors (FIIs), Non-resident Indians (NRIs), Foreign Currency Convertible Bonds (FCCBs), American Depository Receipts (ADRs), Global Depository Receipts (GDRs), convertible preference shares, proportionate foreign investment in Indian promoters/investment companies including their holding companies, etc., shall not exceed 74 per cent. The 74 per cent foreign investment can be made directly or indirectly in the operating company or through a holding company and the remaining 26 per cent will be owned by resident Indian citizens or an Indian Company (i.e. foreign direct investment does not exceed 49 percent and the management is with the Indian owners). It is clarified that proportionate foreign component of such an Indian Company will also be counted towards the ceiling of 74%. However, foreign component in the total holding of Indian public sector banks and Indian public sector financial

institutions will be treated as 'Indian' holding. The licensee will be required to disclose the status of such foreign holding and certify that the foreign investment is within the ceiling of 74% on a half yearly basis.

7. Bank Guarantees

The applicant company shall submit Financial Bank Guarantee (FBG) of amount equal to Rs. 50, 25 and 5 Crores for category 'A' 'B' & 'C' service areas respectively before the date of signing the license agreement in the prescribed Performa given in the License Agreement. Initially, FBG shall be valid for a period of one year and shall be renewed from time to time for such amount as may be directed by the Licensor. The applicant shall also submit Performance Bank Guarantees (PBG) of amount equal to Rs. 20, 10 and 2 Crores for category 'A' 'B' & 'C' service areas respectively in the prescribed Performa given in the License Agreement before signing the license. PBG shall be valid for a period of three year and shall be renewed from time to time. FBG and PBG must be from any Scheduled Bank or Public Financial Institution duly authorized to issue such Bank Guarantee.

The Fees, charges and royalties for the use of spectrum and also for possession of Wireless Telegraphy equipment shall be separately securitized by furnishing FBG of an amount equivalent to the estimated sum payable annually in the Performa annexed, to WPC, valid for a period of one year, renewable from time to time till final clearance of all such dues.

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Glossary

Abbreviations used	Full-form
AGR	Adjusted Gross Revenue
BSO	Basic Service Operator
BWA	Broadband Wireless Access
CMSP	Cellular Mobile Service Providers
CUG	Closed User Group
DoT	Department of Telecommunications
FBG	Financial Bank Guarantee
FCC	Federation Communications Commission, USA
FDI	Foreign Direct Investment
FIPB	Foreign Investment Promotion Board
FMCG	Fast Moving Consumer Goods
HLR	Home Location Register
IDA	Infocomm Development Authority, Singapore
IN	Intelligent Network
IPLC	International Private Leased Circuits
MCMC	Malaysian Communications & Multimedia Commission
MNO	Mobile Network Operator
MSC	Mobile Switching Center
MVNO	Mobile Virtual Network Operator
OFCOM	Office of Communications, United Kingdom
OFTA	Office of the Telecommunications Authority, Hong Kong
PBG	Performance Bank Guarantee
PTA	Pakistan Telecom Authority
RAN	Radio Access Network
SACFA	Standing Advisory Committee for Frequency Allocation
SMP	Significant Market Power
TA	Telecommunications Authority, Hong Kong
TRAI	Telecom Regulatory Authority of India
UASL	Unified Access Service Licence
UCC	Unsolicited Commercial Communications
WPC	Wireless Planning Commission