



Telecom Regulatory Authority of India



**Consultation Paper on
In-Building Access by Telecom Service Providers**

New Delhi, 6th June 2016

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Written Comments on the Consultation Paper are invited from the stakeholders by 7th July 2016 and counter-comments by 14th July 2016. Comments and counter-comments will be posted on TRAI's website www.trai.gov.in. The comments and counter-comments may be sent, preferably in electronic form, to Shri Sanjeev Banzal, Advisor (Networks, Spectrum and Licensing), TRAI on the email ID advmn@traigov.in.

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Chapter I: Introduction

1. Telecommunications has been recognized the world-over as an important tool for socio-economic development for a nation. It is one of the prime support services needed for rapid growth and modernization of various sectors of the economy. Apart from the direct contribution that the development of such infrastructure may have on an aggregate output, investments in these technologies are expected to have pervasive effects throughout the economy. Telecommunication services are used not only for personal interactions but also in businesses and several public services like, emergency services, hospitals, electricity distribution etc. Thus, it would not be incorrect to call telecommunications services as one of basic need of the day.
2. Modern lifestyle afforded by technological developments is enhancing demand for telecom services (both wireless and wireline). With increasing urbanization i.e. rural population moving to urban areas for economic opportunities, there is a huge pressure on the urban areas for infrastructure development. The Telecom Service Providers¹ (TSPs) keep expanding their existing networks and create new networks to meet the ever increasing demand. A robust telecom infrastructure is indispensable for providing reliable services to the consumers.
3. People spend a large part of their time inside buildings. It is critical to have quality telecom services inside a building, be it residential multi-story building, commercial complex, hotel or Airport. It is implicit that TSPs would require an access inside the building to install the telecom infrastructure or lay their cables. While many infrastructure related issues have been dealt with by the Authority in the past, there are issues related to In-building access that are still faced by the TSPs and therefore, remain to be addressed.

¹ Access service providers/Internet service providers have been referred to as TSPs in this document.

4. In-building² deployment is currently achieved through commercial agreements between the incumbent mobile operators and the building owner/building developer/Resident Welfare Associations (RWA). As such, the speed of deployment is often hindered by building owners/building developers delaying the negotiations or requesting exorbitant rents. There is a requirement to evolve a framework applicable to in-building facilities to enable the telecom operators to obtain efficient access on reasonable terms and conditions. Failure to share infrastructure would unreasonably restrict competition.
5. The right type and amount of telecom infrastructure is necessary for providing a variety and quality of telecommunication services required and expected by the customers. Besides timely availability of telecom services, one of the most important factors is that the choice of TSP should remain with the consumer. However, due to restricted access to the premises, the resident of the building cannot avail the telecom services of the TSP of his own choice; his choice is limited to the TSP(s) who could get the access to the building after entering into a commercial settlement with the builder.
6. In the Consultation Paper, issues related to In-building Telecom infrastructure have been discussed in Chapter-II.

² In this paper, wherever word 'building' has been used, it denotes to a multi-tenant high riser/residential complex / a commercial complex,/hotel or Airport etc.

Chapter II: Analysis of the issues in access inside the buildings

1. In-building Telecom infrastructure could be of wired or wireless type. For wired connectivity, the customer is required to be connected through cables such as Copper Cables, Coaxial Cables, and Optical Fiber Cable. Though wireless connectivity does not always require any in-building telecom infrastructure, but in case the signal strengths inside the building are not adequate, installation of in-building equipment to increase the signal strengths inside the building becomes a necessity. Given the rapid evolution of technologies, the exponential growth in data and broadband traffic and the increasing demand for e-services. Businesses, large organizations, big buildings & complexes, malls etc. require continuous high speed data connection in order to function effectively in today's fast paced environment. Therefore, in-building solutions (IBS) / Micro BTS / HetNet will be critical to provide high speed data. Also, for creation of wi-fi hotspot, the TSPs would have to place their equipments inside the building. Providing redundant connection from alternate service provider so as to have uninterrupted connection is also a need of the hour.
2. In view of the above developments, it is important to have access inside the building/premises/mall/ commercial complex to install the telecom nodes and/or associated cables. Without having access to building, in-building telecom infrastructure cannot be installed. It has come to the notice of the Authority that in many area there are problems in getting the access to buildings.
3. Generally, an infrastructure group/builder enter into exclusive agreement with one of the TSPs for providing telecom services to the consumers living or doing business from a particular location/building/society/commercial complex etc. However, in such cases, only that TSP is allowed to lay the telecom infrastructure in the

premises and other TSPs are denied access, thus creating an artificial barrier. Such practices not only limit competition, it also leaves no choice to consumers but to take services from the contracted TSP. Further, the residents/consumers will have to remain contented with the quality of service and price being fixed by that TSP. If the TSP with whom the builder has entered into exclusive contract happens to be an Internet Service Provider (ISP), the residents of that building/premises are not in a position to subscribe to landline connections with other TSP providing landline connection. Similarly, the building owner may allow one or selected TSPs to install the 'In-building solutions' (IBS) system in its building/premises. This TSP(s) either may not allow others to share its/their IBS or will demand prohibitively high prices for sharing its/their IBS.

4. In some cases, building owner allows access to the TSPs at exorbitant rates. For instance, an Airport Operator or a mall owner may charge high recurring price from the TSPs. As TSPs cannot leave such places uncovered from their mobile network and would be forced to enter into agreement at the terms set by the other party.
5. Such restrictive practices take away the choice and flexibility from consumers which otherwise they have in terms of quality of service (QoS), tariff, redundancy etc. Positive effects of competition are well-known; it not only helps in controlling prices but also forces the service providers to offer/maintain good QoS. Any situation which may take away such benefits of competition is certainly a cause of regulatory concern.

What can be done?

Sharing of Telecom Infrastructure inside a building

6. The property owner either gets themselves registered as IP-I or gets into agreement with one of the service providers. For instance, Delhi Metro Rail Corporation has registered itself as Infrastructure Provider

(IP) and created infrastructure in underground tunnels. TSPs share this infrastructure to provide services to commuters. With the huge requirement of infrastructure creation, there is an active involvement of Infrastructure Providers (IP-I) in meeting the infrastructure requirement of the service providers. However, it is expected that IP-I and TSPs should share their infrastructure with other TSPs to reduce infrastructure and transaction costs and help in quicker roll-out of their services.

7. The primary objective of National Telecom Policy (NTP-2012) is maximizing public good by making available affordable, reliable and secure telecommunication and broadband services across the entire country. NTP-2012 targets at providing affordable and reliable broadband-on-demand by the year 2015 and to achieve 175 million broadband connections by the year 2017 and 600 million by the year 2020 at minimum 2 Mbps download speed and making available higher speeds of at least 100 Mbps on demand. **(Emphasis supplied)**. The objective of high speed broadband at affordable rates would require all measures to prevent avoidable cost in the network roll-outs. Building telecom infrastructure such as cables, fibres, IBS / Micro BTS / HetNet etc inside the building and sharing it with other service providers at reasonable terms and conditions will not only help in provisioning of telecom services including high speed broadband but also facilitate in reduction of the cost of these services.
8. The issue of encouraging use of In-building solution (IBS) for better in-building coverage, better QoS and reduction in level of radiated power from Macro cell sites and sharing of IBS amongst service providers was examined by the Authority earlier also. In its recommendations on “Telecommunications Infrastructure Policy” dated April 12, 2011, the Authority recommended the following:

“1.94 The Authority recommends that IP-I and telecom service providers should be mandated to share IBS/DAS system deployed in the buildings, complexes or streets.

1.95 DoT should advise all ministries to provide, within next one year IBS/DAS solutions in all Central Government buildings including central PSU buildings, Airports and buildings falling under their jurisdiction & control.

1.96 All State Governments should be similarly advised to provide/mandate, within next one year, IBS/DAS solutions in all buildings including hospitals having more than 100 beds and shopping malls of more than 25000 square feet super built area.”

9. The Authority is not aware about the steps taken by DoT on these recommendations. However, the issue is vital for the proliferation of telecom network and for the provision of improved quality of services particularly indoor. The issue is not limited to sharing of IBS/ Distributed Antenna System (DAS) systems only, but TSP should get access to all telecom infrastructures including Optical Fibre Cable (OFC) and copper cable for provision of broadband and other telecom services. It is important to ensure that all TSPs are able to provide mobile and landline services to all the subscribers without any artificial restrictions or hindrance. The choice of TSPs for sharing its services should be made by the subscriber; not by the building owner. The subscriber is entitled to the quality telecom services at the best available prices. In view of the foregoing, the Authority decided to revisit the issue under section 11(1)(a) of TRAI Act 1997.

Should sharing of cables/IBS within the premises may be made mandatory?

10. As discussed above, access restrictions are caused when RWA/ builder of a residential/commercial complex, Airport etc get into exclusive contracts with one of the TSP, leaving no choice with the consumers to avail services from other TSPs. Such situations leading to artificial monopoly need to be addressed.

11. It is important for all the service providers provide mobile coverage/ network presence inside big residential/commercial complexes to improve QoS of their networks. However, it is not practical to install individual in-building infrastructure by all TSPs as this will result in not only multiplication of network but will also entail huge avoidable cost. It will be beneficial if one/a few service provider(s) or infrastructure provider(s) puts in place the required telecom infrastructure inside the buildings and others share this infrastructure. Further, it may not be feasible/advisable to lay down cables again and again on the same land/building by different TSPs. Such situation also causes inconvenience to the residents e.g. installation of IBS in Airports/Multistoried buildings by multi-operator may not be feasible, particularly after the completion of the building construction.
12. As an option, TSPs/IP-I may be disallowed to enter into contracts or arrangements which put a condition or results into exclusivity. Encouraging sharing or even mandating sharing could be a possible solution. It may be considered that the IP-I or TSP who has established cable network or in-building solution for mobile coverage inside the building should not deny sharing of infrastructure with other TSPs. It would share its telecom infrastructure inside building mandatorily with the other willing TSPs at reasonable and non-discriminatory charges.

Mandatory provisions for new buildings

13. Robust telecom infrastructure being the bedrock for reliable telecom services should be developed in a planned manner so as to cater to the existing and future demand in an efficient manner. One possible option could be that the local administration make it mandatory to have adequate provision for ducts/optical fibre and IBS while approving/clearing the construction of new facilities, such as multiplexes, malls, hotels. The provisions should be such that it

should facilitate access to all the TSPs to provide telecom services to the residents/tenants of the society/building. The Authority, in its recommendations on “Delivering Broadband Quickly: What do we need to do?” dated April 17, 2015, examined the issue of ensuring access mechanism for the telecom services in the residential/commercial complexes and stated that:

“There is a need to change building by-laws which currently deem only electricity, water and fire safety as necessary infrastructure for the issue of a completion certificate. Including mandatory inclusion of either ducts/optical fibre with well defined access mechanisms in all upcoming office complexes, commercial spaces and residential complexes would have a significant and measurable net positive impact on BB penetration.”

14. It is understood that Bureau of Indian Standards (BIS) is in the process of framing ‘National Building Code of India’ under which some provision of Common Telecom Infrastructure (CTI) housed inside the buildings for convenient provision of telecom services are being envisaged. It is essential that suitable enabling provisions may be kept in the National Building Code such as:
15. Creation of one time infrastructure i.e. telecom ducts to reach the buildings, which could be used by any TSP for putting cables. The TSPs should have unhindered access. These facilities should not be seen as revenue source; but as a essential infrastructure. Therefore, no charges should levied by the building owner.
16. Mandating creation of common telecommunication infrastructure (CTI) i.e. the facility that is housed inside the buildings and enables effective and quality access to telecommunication services. The new buildings or buildings undergoing major rehabilitation should include CTI.
17. The agencies approving the building plans are local/state bodies and do not come under the jurisdiction of DoT. However, DoT can take up the issue with the Ministry of Urban Development. It could be

examined if the Real Estate Regulatory Agency (RERA) could be useful for this purpose.

International Practices

Singapore

18. In Singapore, the Code of Practice for Infocomm Facilities in buildings (COPIF) which is issued by IDA, the regulator in Singapore, and revised from time to time provides for mandatory provisions for information facilities inside the building. Since its inception on 1st April 2000, the COPIF has been reviewed and revised when appropriate, to ensure its continued relevance in light of the evolving requirements for info-communication facilities. The purpose of the COPIF is to ensure that developers and/or owners of buildings and developments provide adequate space and facilities for the deployment and operation of installation and plant; these are equipment used for providing info-communication services to the buildings.
19. The COPIF lays down the detailed specifications of the space and facilities which developers or owners of buildings are to provide under this Code in order to enhance the range and/or quality of information services that may be provided to their buildings by telecommunication system licensees. The COPIF also specifies the duties to be observed by developers, building/development owners and telecommunication licensees in relation to the provision, maintenance and utilisation of the relevant space and facilities provided, as directed under COPIF. It is used by Facility Based Operators (FBOs) providing services to the tenants. Developers or owners are required to submit their building plans for IDA's approval prior to the construction of building. The following provisions of COPIF seems relevant for the issues under discussion:

“The developer or owner shall engage wiring contractors, who are licensed by IDA, to install telecommunication cables in its development. The developer or owner may also enter into a

commercial arrangement with any licensee to install its telecommunication cables in its development.

However, in multi-tenanted buildings, tenants or lessees have the choice of getting any telecommunication licensee to provide any telecommunication services. A tenant or lessee may lease the telecommunication cables provided by the developer or owner based on commercial arrangements, or they may use the cables provided by a telecommunication licensee. The developer or owner shall allow any telecommunication licensee to install telecommunication cables within the building to serve any tenant or lessee, should the latter require the use of such cables.” (Para 2.10 of the COPIF Guidelines, 2013³)

Europe

20. In the 2014 Broadband Cost Reduction Directive⁴, the European Commission set out specific infrastructure requirements aimed at increasing broadband speeds⁵ and provision across the European Union. In addition to a number of measures to reduce cost of providing broadband, the Directive requires that new buildings and major renovations must include a minimum standard of in-building physical infrastructure (Article 8) and providers of high-speed networks must have certain rights to access this infrastructure (Article 9). Most of these measures require dispute resolution functions and appeal to a court (Article 10). Article 8 and Article 9 are reproduced below:

“Article 8

In-building physical infrastructure

1. Member States shall ensure that all newly constructed buildings at the end-user's location, including elements thereof under joint ownership, for which applications for building permits have been submitted after 31 December 2016, are equipped with a high-speed-ready in-building physical infrastructure, up to the network termination points. The same obligation applies in the event of major renovation works for which applications for building permits have been submitted after 31 December 2016.

³[https://www.ida.gov.sg/~media/Files/PCDG/Licensees/Interconnect%20Access/URA/COPIF/COPIF%20Guidelines%20\(2013\).pdf](https://www.ida.gov.sg/~media/Files/PCDG/Licensees/Interconnect%20Access/URA/COPIF/COPIF%20Guidelines%20(2013).pdf)

⁴DIRECTIVE 2014/61/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15th May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks.

⁵ The Commission defines a ‘high-speed’ network as being capable of delivering access speeds of at least 30 Mbps.

2. Member States shall ensure that all newly constructed multi-dwelling buildings, for which applications for building permits have been submitted after 31 December 2016, are equipped with an access point. The same obligation applies in the event of major renovation works concerning multi-dwelling buildings for which applications for building permits have been submitted after 31 December 2016.

3. Buildings equipped in accordance with this Article shall be eligible to receive the voluntary 'broadband-ready' label in Member States that have chosen to introduce such a label.

4. Member States may provide for exemptions from the obligations provided for in paragraph 1 and 2 for categories of buildings, in particular single dwellings, or major renovation works in cases in which the fulfilment of those obligations is disproportionate, such as in terms of costs for individual or joint owners or in terms of type of building, such as specific categories of monuments, historic buildings, holiday homes, military buildings or other buildings used for national security purposes. Such exemptions shall be duly reasoned. The interested parties shall be given the opportunity to comment on the draft exemptions within a reasonable period. Any such exemption shall be notified to the Commission”.

Article 9

Access to in-building physical infrastructure

1. Member States shall ensure that, subject to the first subparagraph of paragraph 3, every public communications network provider has the right to roll out its network at its own costs, up to the access point.

2. Member States shall ensure that, subject to the first subparagraph of paragraph 3, every public communications network provider has the right to access any existing in-building physical infrastructure with a view to deploying a high-speed electronic communications network if duplication is technically impossible or economically inefficient.

3. Member States shall ensure that any holder of a right to use the access point and the in-building physical infrastructure meets all reasonable requests for access from public communications network providers under fair and non-discriminatory terms and conditions, including price, where appropriate.

Where agreement on access referred to in paragraph 1 or 2 is not achieved within two months from the date of receipt of the formal request for access, Member States shall ensure that each party has the right to refer the issue to the competent national dispute settlement body in order to assess compliance with the requirements provided for in those paragraphs. The national dispute settlement body shall, taking full account of the principle of proportionality, issue a binding decision to resolve the dispute within the shortest possible time frame and in any case within two months, except in exceptional circumstances, without prejudice to the possibility of any party to refer the case to a court.

4. Member States may grant exemptions from paragraphs 1 to 3 for buildings where access to an existing network that terminates at the end-user's location and that is suitable for the provision of high-speed electronic communications services is ensured on objective, transparent, proportionate and non-discriminatory terms and conditions.

5. *In the absence of available high-speed-ready in-building infrastructure, Member States shall ensure that every public communications network provider has the right to terminate its network at the premises of the subscriber, subject to the agreement of the subscriber, provided that it minimises the impact on the private property of third parties.*

6. *This Article shall be without prejudice to the right to property of the owner of the access point or the in-building physical infrastructure in cases where the holder of a right to use that infrastructure or access point is not the owner thereof, and to the right to property of other third parties, such as landowners and building owners.*

Member States may lay down rules on adequate financial compensation of persons suffering damage as a result of the exercise of the rights provided for in this Article.”

Hongkong

21. The Communication Authority (CA) of Hong Kong has granted authorization to the local wireline fixed telecommunications network services (FTNS) licensees, local wireless FTNS licensees, Fixed Carrier licensees and Unified Carrier licensees (collectively called the “Network Operators”) under section 14 of the Telecommunications Ordinance (Cap 106) to enable these licensees to have legal rights to install and provide in-building telecommunications systems (IBTS), which include telecommunications equipment, cables and relevant facilities in, over or upon any common parts of a building for the conveyance of telecommunications and broadcasting services to the occupiers of the building. The common parts include Equipment Room, telecommunications closets, rooftops, risers, ducts, conduits, etc.
22. In April 2012, CA issued “Code of Practice (COP) for the provision of access facilities in Buildings for the supply of Telecommunication and Broadcasting services”⁶ in consultation with the network operators and building industry. It encourages building design and construction professionals to design new buildings with adequate building access facilities so that the Network Operators can install their networks and provide services in the most efficient manner without causing undue inconvenience to both the developer and the occupants of the

⁶ Source- <http://www.coms-auth.hk/filemanager/statement/en/upload/104/cop201201e.pdf>

building. This COP lists the normal requirements of the facilities in a building which are to be provided by the developer to facilitate the provision of telecommunications and broadcasting services to the occupants. Developers are strongly advised to follow this COP when they design and construct new buildings. For existing buildings, the developers and/or building management are also strongly encouraged to follow the principles of this COP as far as practicable when new or additional cabling facilities are to be constructed. COP covers Office and Commercial Buildings; Residential Buildings; Hotels; Dwelling Houses; Industrial Buildings (e.g. warehouses, factories, manufacturing buildings); and Campus-Type Buildings (e.g. hospitals, universities).

23. In 2013, CA issued 'Code of Practice for the Installation and Maintenance of In-Building Telecommunications Systems and In-building Access by Telecommunications Network Operators. This Code of Practice states the requirements and practice that the Network Operators should comply with and adopt for the access to buildings and the installation works as well as the maintenance of IBTS. The document states that if a network operator is a sole block-wiring provider of a new building then it should use its reasonable endeavor to provide sufficient capacities of the IBTS. The provided capacities should meet the requirements of other Network Operators who intend to provide telecommunications services at the same building in the first 12 months from the issue of the Occupation Permit.

Issues for Consultation

1. Do you agree that there is a need to address the issues discussed in this consultation paper or the market is capable of taking care of these issues without having any policy intervention/guidelines in this regard?
2. How can sharing of telecom infrastructure inside a residential or commercial complex/airport/hotels/multiplexes etc among service providers be encouraged? Should the sharing of such telecom infrastructure be made mandatory?
3. In view of the international practices given in para 18-23 of Chapter-II of the Consultation Paper, what provisions should be included in the National Building Code of India to facilitate unhindered access for all the TSPs?
4. Any other option, which in your view, could resolve the issues discussed in this consultation paper?

Please explain and justify your opinion on all the above questions.