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20 July 2016

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Telecom Regulatory Authority of India

Mahanagar Doorsanchar Bhawan

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New Delhi 110002

Subject: Consultation Paper on In-Building Access by Telecom Service Providers

Dear Sir,

This is with reference to the above referred TRAI consultation paper No.10/2016 dated 6th June 2016 and press release no. 61/2016. In this regard, please find enclosed herewith our response to the consultation paper as an Annexure to this letter.

We hope that the TRAI will find our response useful and consider our inputs while finalising the recommendations on this subject.

Thanking you,

Yours sincerely,

For **Telenor (India) Communications Pvt. Limited**

A handwritten signature in black ink, appearing to read "P. Sharma", written over a horizontal line.

(Pankaj Sharma)

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Telenor (India) Response to TRAI Consultation Paper on In-building access by Telecom Service Providers (No 10/2016 dated 6 June 2016)

Preamble

Telenor (India) welcomes the consultation on this pertinent issue related to in-building access and network coverage enabling telecom service providers (TSPs) to reach the consumer premises ensuring seamless communication experience and consistent quality of service. TRAI has rightly noted in the paper that there is a requirement to evolve a framework applicable to access in-building facilities for TSPs on reasonable terms and conditions while serving the end consumers. Moreover, this will facilitate availability of options for consumers, to choose the telecommunication services from the TSP of their choice at their premises and ensure level playing field among all TSPs.

Mobile networks are the lifeline for communications

In India, mobile services are the prime choice of the consumer to access telecommunication and broadband services. The current tele-density¹ of 81.35% for wireless services in compared to only 1.97% for wireline services at pan India level indicates the popularity and availability of mobile services spread across the country. This also implies that mobile networks continue to be the major source for last mile connectivity for broadband services.

As the consumer demands for data grows manifold, TSPs undertake modernization and densification of their networks. The coverage from macro network is augmented by deploying Micro, Pico, Femto cells and dedicated in-building solutions to provide better indoor coverage. Offloading to Wi-Fi is another option to increase the last mile capacity. Deployment of these newer technologies requires deployment of network equipment inside public places ensuring seamless communication experience.

Open access and reasonable cost – broad principles in resolving in-building access issues

The issues related to in-building access raised in the consultation paper can be segregated in two aspects . (1) access to the building² and (2) cost of availing the common telecom infrastructure³ available in the building.

The building owner / Infrastructure provider should be mandated to provide **open access to the building to all TSPs in a non-discriminatory manner.**

¹ TRAI telecom subscription data as on April 30, 2016 available at www.trai.gov.in

² The word building denotes all public places including high rise residential/ commercial complex, Hotel, Airports, shopping malls etc. where general public visits without any restricted access and Government buildings.

³ Common telecom infrastructure includes at least in-building cabling / provision of duct/ optical fibre, pole, mast and access point(s)

The **cost of availing the services should be nominal** and not for revenue generation as has been rightly noted by the Authority. Such nominal costs should be in-line with the charges payable by other utility services like PNG / LNG gas pipes, electricity cables, water pipes etc.

The commercials / rental for accessing infrastructure for installation of in-building solutions between building owner / IP service provider/ first TSP who has deployed the infrastructure and TSPs who would like to access the infrastructure should be mutually decided within the rental ceiling framework . to be recommended by TRAI. We believe that such framework will curb unwanted and arbitrary rental demands of the building owner by ensuring availability of rent which can always be lower than the prevailing market rent enabling TSPs to deploy in-building solutions at reasonable cost. For this purpose, we suggest few charging components which are significant in determining the charging framework. These components include monthly rental, charges towards usage of passive infrastructure and electricity. The detailed explanation is given as annexure to our response for the reference.

We believe that these suggested principles will not only reduce infrastructure and transaction cost for TSPs but will also enhance connectivity and improve network coverage while avoiding undue pressure to ramp-up network infrastructure and compliance to QoS norms. As highlighted by TRAI, such arrangements will also facilitate reduction of the cost for end consumers supporting quick proliferation of the high speed data services.

New Buildings and larger renovation projects should mandatorily be common telecom infrastructure ready

The upcoming high rise residential / commercial complexes and new smart cities, integrated townships, airports, hospitals, hotels should be mandated to be common infrastructure ready at the time of completion of the construction to cater telecommunication needs of the consumers. Additionally, larger infrastructure and residential projects which are due for renovation / under renovation should also mandatorily be common telecom infrastructure ready. It will enable in-building access to the premises which were earlier not accessible/ not having essential telecom infrastructure depriving larger number of consumers to get good quality of service. It is recommended that the in-building access solutions for telecom installation should be included in the building by-laws to ensure good coverage and capacity inside a building for telecom services on the lines of current rules mandated for fire safety, rain harvesting, electricity, water including disposal or treatment of waste water, sewage and drainage system assuring of in-building access to all TSPs as recommended by TRAI in its recommendations on *Delivering Broadband Quickly: What do we need to do?* dated April 17, 2015. TRAI in their recommendation has emphasized need to change building by-laws for mandatory inclusion of ducts/ optical fibre with well defined access mechanisms in all upcoming office complexes, commercial spaces and residential complexes for quick and positive impact on broadband penetration.

Further sharing of in-building solutions among all available TSPs should be encouraged without any artificial hindrance. We recommend that TRAI should reiterate its earlier recommendations on in-building solutions / distributed antenna systems to Government in para 1.94 to 1.96 vide its recommendations on *Telecommunications Infrastructure Policy* dated April 12, 2011. The TRAI recommendations should also state that building owner / Infrastructure provider / TSPs should meet all reasonable requests for access under fair and non-discriminatory terms and conditions, including applicable charges. This should be codified and made part of the National Building Code of India being developed by Bureau of Indian Standards.

By carrying out necessary amendments in the building by-laws will ensure availability of at least in-building cabling / provision of duct/ optical fibre and access point(s) under common telecom infrastructure ensuring flexibility to offer a viable multi technology multi operator service.

Smart Cities should mandatorily be Common Telecom Infrastructure (CTH) ready

The success of programs such as Digital India and Smart Cities relies heavily on the underlying telecommunication infrastructure for providing reliable and fast connectivity to devices and users. The upcoming smart cities should be mandated to be common telecom infrastructure ready at the time of completion of the construction to cater telecommunication needs of the consumers at affordable price. It is recommended that in-building access solutions for telecom installation should be included in the selection guidelines as one of the criteria for selection of the smart city by the Government for financial assistance. This will act as a model for other municipalities, towns, cities, states to improvise and adopt.

Need for specifying the standards to install common telecom infrastructure

Presently, there are no specific standards / guidelines building owners to follow while making provisions for common telecom infrastructure to install in-building access solutions. There are no unique ways for implementing an in-building solution, however mechanism should be in place that would enable adherence to the need and that conforms to the technical and quality requirement. The solution should be technology agnostics, permitting multiple players to be hosted on the same platform. This becomes more critical in view of technology advances and increasing high speed data requirements.

We request TRAI to recommend to the Government to form an expert group under TEC to design standards / guidelines to design, install, commission and maintain in-building solutions by building owner / infrastructure provider (IP)/ telecom service provider (TSP). The infrastructure providers / vendors should be empanelled and authorized to carry out

this work conforming to the standards, especially for new buildings⁴.

Key Submissions

- Ensure availability of common telecom infrastructure at all public locations for all the TSPs interested in entering into the building without any discrimination at mutually agreed prices between building owner/ IP and TSP.
- Immediate enforcement of uniform code of practice for creation of common telecom infrastructure in buildings / public spaces and strict adherence by building owners / state governments. These suggested guidelines should be included in the National Building Code of India+under finalization by BIS.
- By accepting the code of practice, building owner / RWAs or IP / TSP who has entered into an agreement should be mandated to allow in-building solution access to all interested TSPs / ISPs on a non discriminatory basis.
- For providing common telecom infrastructure, IP-1 license procurement should be mandated for private building owners as well as central / state government PSU buildings, Airports and buildings falling under their control and jurisdiction
- DoT should take up with Central Government (Ministry of Urban Development) to do necessary changes in existing building by-laws to include common telecom infrastructure for telecom services as a necessary requirement for issuance of NOC in addition to fire safety, waste management, rain water harvesting, gas etc.
- TRAI should reiterate its earlier recommendations given to the Government for enabling sharing of in-building access solutions.

Question wise comments

Question 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?

Response:

Yes, we fully agree with TRAI. In-building solutions compliment the outdoor coverage and are important for end consumer to access the network seamlessly within the buildings. Therefore, there is a need for regulatory intervention for ensuring availability of common telecom infrastructure at all public places/ buildings and to facilitate unrestricted

⁴ It is suggested to frame criteria (like *high rise, number of people likely to be available in the building at any given point of time, location, nature of use* etc.) and new buildings falling under the criteria should require to adhere the guidelines for installation of common telecom infrastructure.

and open access to TSPs for installation of Indoor telecom infrastructure at mutually decided commercially terms within the proposed charging framework. This will also bring various options for the end consumers to avail telecom services from the TSP of their choice.

The plurality of consumer choice should no longer be constrained by the owner of public space viz. the builder, RWA, market association, Airport, shopping mall owner etc.

The absence of a credible in-building solution irrespective for wire line access or a mobile broadband access will impact the quality of service in that particular building / customer premises. Although TSPs do undertake sincere efforts by doing temporary solutions to address consumer concerns but generally such arrangements are unreliable and ad-hoc solutions. Sometime this may result in disruption of telecom services which leads to consumer dissatisfaction / churn. Such situations are not in the control of the TSPs and compel them to fully rely either on building owner or TSP/ IPs having access to the in-building communication infrastructure for that building/ premises.

The consultation paper has highlighted how these issues have been brought under the regulatory framework in some of the international examples like Singapore, Hong Kong, Europe, etc. by adopting uniform code of practice for creation of common telecom infrastructure in buildings / public spaces and strict adherence by building owners / state governments. These examples clearly indicate the need for similar Code of Practice for creation of common telecom infrastructure in India, which should be uniformly applicable to all the public places/ buildings covering all states. It is suggested that **Expert committee / focus group should be formed under TEC to lay down the standards/ guidelines for installation of common telecom infrastructure** considering technology advances and increasing data uptake . to be followed by building owners.

Further, In India, building by-laws must contain a mandatory requirement to establish in-building cabling / provision of duct/ optical fibre, and access point(s) ensuring flexibility to offer a viable multi technology multi operator service. Once process framework and standardization is in place, existing as well as new planned infrastructure should be notified to upgrade their facility to include in-building telecom infrastructure within a stipulated period and seek completion certificate. If such an infrastructure is not built / provisioned or a certification to this effect is not obtained from the local authority then such building shall be liable to pay an additional amount as a part of their annual commercial tax/ property tax.

[Question 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?](#)

Response:

The access inside the building for sharing of common telecom infrastructure should not be denied by building owner / IP / TSP at any given point of time basis artificial barrier(s). The sharing should be made mandatory and should meet all reasonable requests for access under fair and non-discriminatory terms and conditions, including applicable charges. This will ensure level playing field among TSPs enabling open access as well as customer will have best possible telecom services from his choice of TSP at optimum price.

The entry barrier of exorbitant onetime cost and annual recurring charges should be reduced and it should be in line with the rentals and displacement costs charged from other utility services. As suggested in the preamble, TRAI should address this concern by recommending rental ceiling which can be referred as a benchmark for determination of realistic price/ rental to be paid by the TSP to avail common telecom infrastructure.

These rental ceilings /charges can be published and benchmarked at the National level, it can be further categorized for Metro, A, B, C category cities. This will surely build peer pressure and will pull the prices down.

Government owned premises viz. Railways can set a benchmark for others to follow.

[Question 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?](#)

Response:

We suggest following provisions for creation of common telecom infrastructure which should be included in the National Building Code of India to facilitate unhindered in-building access for all interested TSPs in a non-discriminatory manner.

- Obtaining IP-1 license from DoT should be made as an essential requirement for building owners similar to obtaining other mandatory approvals/ certifications for the new buildings prior to making it operational. Alternatively procedural changes sought which would entail building owners automatic permission for establishing in-building solutions, but certifications included part of final approval.
- Guidelines shall provide for uniform set of rules / standards to be followed in the provisioning of in-building solutions. These shall include - number of ducts / cable tray (in accordance with the size of the building). Design should not be an impediment in hosting as many service providers as desired by the building occupants. An Expert Group under TEC to be formed who could design the standards and the same to be included in building by-laws.

The suggested standards shall be subject to changes say every two years so that the latest developments / technology advancements are considered and the best gets implemented in the field.

There shall be punitive action in case instructions/ guidelines are not followed.

- In-building solutions adopted shall be standard picked from a variety of defined architecture including type approved interface devices and other related material
- Building completion certificate should include validation of in-building wiring and certification of creation of common telecom infrastructure by local development authority / municipality similar to the rules mandated for fire safety, rain harvesting, electricity, waste management.
- The common telecom infrastructure shall not be exclusive right of any individual service provider (be it IP or a TSP) and shall be open to sharing by all operating TSPs on mutually decided technical and commercial arrangements. The in-building access to all interested TSPs should be ensured by building owners on a nondiscriminatory basis.
- The customer shall have the choice to select any service provider of his choice available in the premises.
- Charges/ rental for sharing in-building infrastructure installations should be mutually decided by building owner / Infrastructure service provider and TSPs interested in entering into the premises basis the rental ceiling framework.
- Provision should be made in the national building code that the buildings equipped with common telecom infrastructure in accordance with the code, should be given the status of Telecom Access ready+ building and such buildings should be eligible for 1-2% discount / rebate in their local municipal taxes for first two / three years.
- The common infrastructure required such as in-building cabling / provision of ducts for laying fibre should be pre-installed with well defined access point(s) and common space for installation of telecom equipment etc. should be clearly defined and identifiable so that the buildings are Telecom Access ready. This would speed up the pace of deployment of in-building access solutions and bring down the cost considerably.
- In-building architecture shall have provision of at least one spare duct / optical fibre being made available so that the same could become available in case a need arises for multiple services. Additionally antennas used in the case of in-building radio services shall be of multiport type as well as devices used shall be

- type approved having multiport facility.
- Fibre /Copper Cable resource already laid underground by public and private agency shall be encouraged for sharing by all TSPs so as to optimize its use.
 - Building Owner / IP / TSP to ensure that no disturbance or inconvenience is caused to people in places such as hotels, hospitals or residences etc. during the installation or maintenance of the equipment.
 - The Building Owner to extend the TSPs facility to the point or points where the user interface is required and its cabling reticulation equipment to be accommodated in an easily accessible location.
 - For existing buildings wherever necessary, phase out aerial and over head cable and replace them with FTTH solutions up to last point followed by the in-building solution making future ready for content delivery of all kinds of voice, video and data services.
 - Telecom services shall terminate at a designated & defined location %telecom room+ within building from the distribution point and ensure the building is completely covered ensuring quality signal/coverage and catering to multi vendor, multi technology, and customer chosen options.
 - TSPs to install their infrastructure to their chosen/ agreed demarcation point. Further, the TSPs demarcation equipment and transition equipment to be accommodated between their network point of presence and the point of demarcation.
 - Plan approval shall include a section on Telecom wiring and Completion certificate should take note of conformance to the telecom services needs in-line with the proposed standards to be designed by expert group.
 - Telecom wiring should not be clubbed with water and power distribution and the cabling shall also not be through the same duct. Exclusive route path should be charted for the same. This aspect has to be kept in mind in the plan approval.
 - Building aesthetics should be kept in mind so that ducts / cabling align with the design and adequate number access points are provided that would meet customer requirements.

Question 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.

Response:

The consultation paper has highlighted issues and has illustrated the approach taken by some of the leading countries to ensure availability of in-building access. The methodology adopted appears to be somewhat similar in the cited examples and a similar kind of framework is suggested for India as well.

Enforcement Cell of DoT should be entrusted with the implementation and adaptation of the framework. Residential or commercial complex / airport / hotels / multiplexes etc. shall be encouraged or incentive extended by way of reduction in the rental on service or concessional service for adaptation of in-building solutions.

Mandating the creation of Common Telecom Infrastructure in Smart Cities and making it a part of its Detailed Project Report (DPR). This would act a model for other cities, towns, urban planners to adopt.

Annexure . **Framework for determination of Ceiling for charging Rental**

S.No	Item	How this is to be charged	Remarks
1	Rental	Contractual rent amount equally divided amongst tenants	<p>Following criteria should be observed while determining rental ceiling -</p> <ol style="list-style-type: none"> 1. Type of the building (residential / commercial like office complex/ public place like airport, Hotel, shopping mall) 2. Location of the building 3. Prevailing circle rates fixed by the Government <p>Key points:</p> <ul style="list-style-type: none"> • Rental should not be increased just because a new TSP is being entering into the building. • Percentage of annual increase should be minimal - not more than 5-10 % of the rent. • At the time of entering into the contract, a clause for mandatory open access for all TSPs in to the building should be specified. • The Government buildings should facilitate in-building solutions by charging minimum rent only to recover administrative expenses
2	Passive Infrastructure Usage Charge	On per Sq.ft basis	<p>This item will have two components .</p> <ul style="list-style-type: none"> • Charges towards recovering of initial capex invested by building owner / IP service provider over a fixed period along with reasonable mark up fee. Period of 10 years may be taken as fixed period for calculating the same. • Maintenance fee as a percentage of capex shall be included to cover O&M cost.
3	Electricity Charges	To be charged basis actual usage	<ul style="list-style-type: none"> • Charges should taken basis the actual usage reflected in the electricity meter at per unit basis.