



भारतीय दूरसंचार विनियामक प्राधिकरण

Telecom Regulatory Authority of India

Consultation Paper

on

‘Regulation on

**Rating Framework for Digital Connectivity in Buildings or
Areas’**

New Delhi

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Stakeholders are requested to submit their comments, preferably in electronic form on TRAI website in the specified template with copy to adv-qos1@traigov.in by 10th November 2023 and counter comments by 24th November 2023.

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CHAPTER-1: INTRODUCTION

1.1 Background

1.1.1 The preamble of the TRAI Act 1997 states:

“An Act to provide for the establishment of the Telecom Regulatory Authority of India and the Telecom Disputes Settlement and Appellate Tribunal to regulate the telecommunication services, adjudicate disputes, dispose of appeals and to protect the interests of service providers and consumers of the telecom sector, to promote and ensure orderly growth of the telecom sector and for matters connected therewith or incidental thereto.”

Telecom dispute related matters are handled by Telecom Disputes Settlement and Appellate Tribunal.

1.1.2 Also, Sub-clause (v) of Clause (b) of Sub-section (1) of Section 11 of the TRAI Act 1997, entrusts TRAI the responsibility to ensure quality of service to protect the interests of consumers of telecommunication services. The same Sub-clause also mandates TRAI to lay-down standards for quality of services. Further, Clause (d) of Sub-section (1) of Section 11 mandates TRAI to *“perform such other functions including such administrative and financial functions as may be entrusted to it by the Central Government or as may be necessary to carry out the provisions of this Act”*.

1.1.3 The quality of telecommunication services inside the buildings is an integral part of protection of consumer interest. TRAI has already taken various initiatives including the Recommendation dated 20th February 2023 on “Rating of Buildings or Areas for Digital Connectivity”.

1.1.4 Aforesaid recommendations also provide for introduction of Rating of Buildings framework to ensure good digital connectivity experience to consumers through a collaborative and self-sustainable approach.

- 1.1.5 Digital connectivity has become an integral part of personal, professional, and social life. The exponential growth in digitalization of services and manufacturing sectors has revolutionised the world impacting everything, from economy, innovation, science, and education, to health, sustainability, governance, and lifestyle.
- 1.1.6 The demand for digital connectivity has increased many folds in the recent years. The crucial role of digital connectivity was acknowledged during COVID-19 pandemic, witnessing a surge in the demand across all segments of users, irrespective of their locations. The dependency on digital connectivity for performing various day to day tasks has increased significantly after the pandemic and it has become a new normal of life. This new normal is going to continue and grow further considering the advantages and economies it offers to all of us. India is leading the world in the volume of data consumption at affordable price. Good digital connectivity has become an essential requirement for everyone nowadays.
- 1.1.7 The proportion of data consumed inside buildings and outside is shifting significantly towards consumption of data inside the buildings. Accordingly, we need to have a robust and good quality telecom network coverage/ connectivity in indoor areas. With Work from Home (WFH) or Work from Anywhere (WFA) at any time becoming the new norm, the need for ubiquitous and good quality of digital connectivity inside buildings has gained considerable momentum in recent time.
- 1.1.8 In India, there are 847.31 million wireless internet subscribers (as of March 2023) against 33.94 million internet subscribers having wired connectivity in their homes or offices. Thus at present, majority of the population is dependent on wireless networks to access internet.

Despite significant roll-out of the 4G (LTE) network and recent expansion of 5G network, availability of more spectrum bands, the coverage and quality of digital connectivity inside buildings remains a major issue which requires a completely new regulatory approach.

1.1.9 To provide legal and regulatory trigger for addressing the issue of accessibility and quality of digital connectivity inside buildings, the Authority has submitted recommendations to the Government on “Rating of Buildings or Areas for Digital Connectivity” on 20th February 2023. The recommendations are aimed to create an ecosystem for co-creations of Digital Connectivity Infrastructure (DCI) as a part of any development activity, be it a Building or an Area. To provide a legal backing for co-creation of DCI in Buildings or Areas, herein after called as Buildings, TRAI has recommended a draft chapter for ‘Model Building Bye Laws’ titled “Digital Connectivity Infrastructure in the Buildings” covering requirement of DCI for new and existing buildings. To enable legal enforcement, the requirement for DCI has also been recommended to be included in the National Building Code of India (NBC) in these recommendations.

1.2 Overview

1.2.1 While TRAI has provided recommendations to the Government for legal and regulatory frameworks defining new entities, listing out processes and creating a marketplace, it may not be adequate to meet the desired objective of consumer satisfaction on true digital connectivity experience unless envisaged framework is implemented. To reach a level of delightful experience, TRAI has also recommended a mechanism to be introduced that would nudge the Property Managers to come forward and implement solutions to provide seamless digital connectivity in Buildings. Accordingly, the recommendations also proposed the concept of ‘Rating of Buildings’ from the perspective of digital connectivity. This rating would create

a competitive environment among Property Managers to provide the best quality of digital connectivity in their Buildings. This is likely to happen as positive externalities of rating may impact the commercial decision of buyers and prospective tenants.

1.2.2 **Para 3.2.5(m) of Chapter-3 on ‘Rating Framework for Digital Connectivity’** of the aforesaid TRAI recommendations dated 20th February 2023 states : -

‘In the light of above facts, TRAI will come up with appropriate regulatory framework for Rating of Buildings, which will also include the issue of Rating certification. Hence, there is no need to create a separate authority for this purpose.’

1.2.3 Accordingly, this Consultation Paper deliberates further on the framework for rating of buildings for digital connectivity and associated regulations.

1.3 Scope of Consultation

The scope of this Consultation Paper is to deliberate on regulation for implementation of rating framework for buildings or areas for digital connectivity to improve QoS inside buildings for seamless consumer experience.

1.4 Structure of the document

The Consultation Paper is divided in six chapters. Chapter-1 provides introduction and context for the consultation paper. Chapter-2 covers the need of rating framework for Buildings for digital connectivity to improve QoS inside buildings. Chapter-3 provides an overview of few relevant global and local rating frameworks in different domains. Chapter-4 covers details of proposed rating framework for digital connectivity in Buildings while Chapter-5 of the consultation paper provides a draft of proposed Regulation for implementation of Rating Framework for Digital Connectivity. Chapter-6

of CP summarises issues for consultations. The summary of global trends may be referred in Annexure-I and the Recommendations of the Authority on “Rating of Buildings or Areas for Digital Connectivity” dated 20th February 2023 are provided in Annexure-II of the CP.

CHAPTER-2: NEED FOR RATING FRAMEWORK OF BUILDINGS OR AREAS FOR DIGITAL CONNECTIVITY

2.1 Improving quality of connectivity would always be in the business interest of any Telecom Service Providers (TSPs) as it leads to higher usage of the network and opportunity to earn more revenue. Market forces are expected to play an important role in continually improving the quality without any specific external intervention. There is also a possibility that certain segments of the end users, seeking good quality of connectivity, may be willing to pay to invest in improving the quality by facilitating the creation of DCI inside their buildings similar to water and electricity utility services.

2.2 Good digital connectivity which meets the expectations of end users is not a one-time exercise. It requires regular expansion and upgradation of already laid out infrastructure to cater to increasing demand and adopt evolving telecom technologies. Exponential rise in demand for digital services requires frequent augmentation of network capacity. The issues related to creation of DCI, though handled, and resolved during laying of the infrastructure for the first time, will keep on reappearing every time expansion or upgradation of related activity is taken up. Such issues are to be dealt during entire lifecycle of a building, as every issue cannot be fully envisaged in the initial phase of creation of digital connectivity.

2.3 Evolution of network technologies and advancements in digital tools may offer new opportunities to players participating in creation of DCI. In case of in-building solutions, typical functions such as network designing, network implementation, network evaluation, etc. may be done by different entities in a loosely coupled but cohesive manner. Features and capabilities of 5G and Open Radio Access Networks (O-RAN) may help in this regard which may also help to redefine the role of players. Regulatory framework would need to identify new entities like Digital Connectivity Infrastructure

Providers (DCIP) and facilitate them to play an active role in a collaborative and non-discriminatory manner.

2.4 Therefore, there is a need to develop an ecosystem where new entities, tools and marketplaces can be brought at one platform which may help in speeding up roll-out of digital connectivity infrastructure and carrying out capacity augmentation, as and when needed. There is also a need to identify and remove obstacles to facilitate smooth functioning of the market for benefit of all the stakeholders including consumers.

2.5 TRAI has conducted several studies to understand what holds back improvement in the quality inside buildings. One of the important findings is that the interests of different stakeholders are not aligned. Based on these studies, a white paper on “*Measurement of Wireless Data Speeds*” and a report on “*Mobile Network QoS: Delhi Airport and Dhaula Kuan*” was published in February 2018 and March 2019, respectively.

2.6 Further, TRAI published a Monograph on “*Quest for a Good Quality Network inside Multi-Storey Residential Apartments: Reimagining ways to improve quality*” on 22nd September 2020. The outcome of these studies made it necessary to find a way forward to solve the emerging issues related to inadequate coverage and quality of experience in Buildings.

2.7 DCI inside a building includes infrastructure required to setup digital connectivity in such buildings and associated areas for extending wireless and wireline access to the users requiring digital connectivity.

2.8 Unlike setting up the telecom infrastructure for street level wireless coverage, for creating DCI in Buildings, a service provider requires access, space, and electrical power inside the buildings, for which they are dependent upon local administration or Property Managers for permissions. Hence Telecom Service Provider’s alone cannot deliver desired quality of services without collaborations and cooperation among all other stakeholders. Apart from permissions, the Property Managers and TSPs

need to collaborate right from the design stage to co-design and co-create DCI in new buildings or buildings under renovations.

2.9 At present, wireless coverage has become the main access technology for digital connectivity in India, which accounts for almost 98.5% of the broadband connections. However, widespread proliferation of wireline connectivity is also essential for further enhancing Quality of Service (QoS) and Quality of Experience (QoE) inside buildings. Countries like South Korea, Japan, USA, Europe have made significant strides in extending fibre connectivity to homes to the tune of more than 90% households.

2.10 To provide regulatory push for collaboration amongst stakeholders, the Authority has already given the recommendations to the Government on “Rating of Buildings or Areas for Digital Connectivity” on 20th February 2023. The recommendations lay emphasis on the creation of an ecosystem for making Digital Connectivity Infrastructure (DCI) an intrinsic part of building development plan. It shall facilitate collaboration among various stakeholders including Property Managers (owner or developer or builder etc.), service providers, infrastructure providers, DCI Professionals and Authorities at various urban/local bodies.

2.11 In the recommendation, Authority has also emphasized that DCI should be made an essential component of the building development plans similar to other utilities like water supply, electrical services, etc. The ‘*digital lighting*’ inside the buildings is equally important as visual lighting in digitally connected societies. Since creation of DCI inside the building requires close collaboration among architects and telecom professionals, the recommendations also stress upon the need to devise a institutional mechanism for capacity building of the professionals involved in the ecosystem.

2.12 To provide legal enablement, TRAI has also recommended a draft chapter for ‘Model Building Bye Laws’ titled “Digital Connectivity Infrastructure in the Buildings” covering requirement of DCI for new and existing buildings. To implement the legal provisions, the requirement for

DCI is to be included in the Model Building Bye Laws (MBBL) and National Building Code of India (NBC), the model documents of Ministry of Housing and Urban Affairs (MoHUA) for setting building construction frameworks in the country. These Bye laws and Codes are further adopted by the State/Union Territory Governments in their respective jurisdictions.

2.13 To achieve seamless digital connectivity, it is imperative to have a comprehensive legal and regulatory framework for the development of DCI in all types of buildings for accessing digital services. The Property Manager should provide access of DCI to service providers without any charge. To nudge Property Manager to have best quality of digital connectivity in Buildings, the recommendations also include development of framework to rate the buildings for digital connectivity.

2.14 **Rating of Buildings:** TRAI in its recommendations has also suggested a framework for rating of buildings to nudge the property managers. The rating of buildings for digital connectivity will also add the values to their properties to attract more buyers or investors. Similar rating frameworks like the one launched by 'WiredScore' is already gaining significant traction across the countries like USA, UK, Australia, Singapore, and Middle East.

2.15 **Expected Benefits of Rating of Buildings for Digital Connectivity:** The rating framework is expected to bring benefits to various stakeholders. Few key benefits are described below.

- a) **Benefits to end users:** Introduction of rating systems for digital connectivity would result in the principal-agent system to work in the interest of end users. Real estate buyers and tenants looking for high quality digital infrastructure would be able to make informed choices and thereby put pressure on builders and property managers to build and maintain good quality digital infrastructure. Rating known to the public and especially to current or prospective users, buyers or tenants would empower them to demand a good quality network and make an informed decision. Areas such as the

subways and tunnels, railway tracks, and highways often suffer from lack of coverage and poor-quality digital connectivity. These areas are more likely to receive attention of the community and concerned authorities once the rating of digital connectivity is published.

- b) **Benefits to Service Providers:** Flexible business models are likely to improve business case for the service providers as the rating of buildings will improve user experience. Collaborative models and approach of co-design, co-create, and co-build would help TSPs to get good quality digital infrastructure built inside buildings. In order to improve the rating of their properties, the property managers would offer support to TSPs to put infrastructure or get it deployed to ensure good quality digital connectivity and make the property attractive.
- c) **Benefits to the ecosystem:** An ecosystem of building ratings for digital connectivity may create an environment where multiple skilled agencies will get new opportunities offering services like designing and implementation of inbuilding solutions. New entities may emerge that can play an important role in survey, assessment, and evaluation of areas for award of ratings. This will also create opportunities for many startups, and small & medium entrepreneurs to create necessary infrastructure and support systems providing good quality of services through outsourced models.

2.16 As stated above, Rating of Buildings for Digital Connectivity in general will nudge Property Managers to get their Buildings assessed for the quality of digital connectivity available in their Building. However, adoption of Rating without any prescribed framework may bring various issues as mentioned below:

- a) Different entities involved in Rating might adopt different mechanisms and procedures according to their own standards and

business interests. This would create non-uniformity in the assessment of digital connectivity by different agencies for the same Building, e.g., measurement of data speeds through various applications developed by different agencies.

- b) There are different types of Buildings having varying requirements of digital connectivity based on need and profile of end users. Assessment of quality of digital connectivity and award of ratings thereof without a proper framework in place, would not reflect true Rating meeting the users' expectations.
- c) Further, a rating framework is necessary for its acceptance by all stakeholders including developers and end users. Such framework would promote development of DCI on a larger scale and would also facilitate improving ranking of areas such as cities, towns, villages, and States from the perspective of digital readiness. It is well accepted that cities, towns, villages, and States having good digital connectivity will lead to better prospects of standards of living and attraction of investors to come forward and invest in various fields.

2.17 At a global level, WiredScore certification is a relevant example. It is an independent digital connectivity benchmark which provides landlords/managers with insights to enhance their Building's digital infrastructure. The rating agency is operating in multiple countries and regions including USA, Canada, Australia, Europe and Middle East. It provides certification in Home, Office and mixed-use neighbourhoods which are further sub-divided in already developed and under-developed categories.

2.18 The Authority has given following key recommendation for introduction of Rating of Buildings framework in its Recommendation dated 20th February 2023 on "Rating of Buildings or Areas for Digital Connectivity".

“31. The Authority recommends that appropriate provisions for Rating of Buildings for Digital Connectivity should be included in the MBBL, on the lines of the provisions made in the MBBL for rating of green buildings.

32. The Authority recommends that to start with, the Rating of Buildings for digital connectivity should be made mandatory for all existing as well as new Buildings of public importance within two years of issue of the regulatory framework by TRAI or two years from obtaining occupancy certificate, whichever is later. The Authority further recommends that Rating of the following Buildings of public importance should be made mandatory:

- a) ***Airports,***
- b) ***Ports,***
- c) ***Railway/ metro stations,***
- d) ***Bus stations,***
- e) ***Buildings of Central/ State/ UT Governments/ Local authorities/ Government agencies/ PSUs,***
- f) ***Government residential colonies,***
- g) ***Industrial estates including industrial parks, SEZs, multi-modal logistic parks,***
- h) ***Large commercial office complexes,***
- i) ***Large commercial shopping complexes,***
- j) ***All institutes of higher education including research institutes,***
- k) ***All multi-speciality hospitals, and***
- l) ***Any other Buildings as Government may decide.***

33. The Authority also recommends that, the Rating of Buildings for digital connectivity should be made mandatory for all new Buildings, excluding the class of Buildings as may be decided by MoHUA in consultation with the States/ UTs and other stakeholders.

34. The Authority recommends that the Property Manager should get Buildings rated for digital connectivity within two years of obtaining the occupancy certificate once TRAI has issued the regulatory framework.

35. The Authority also recommends that for Buildings other than those mandated, the Property Manager may get their Buildings rated for digital connectivity on voluntary basis.”

2.19 Further to create a regulatory framework, the observations and analysis in para 3.3.5(e) of the Chapter-3 of the aforesaid recommendations of TRAI states -

“Para 3.3.5(e) : Various suggestions and useful inputs have been studied by TRAI. As has been mentioned earlier in para 3.2.5(m), TRAI will come up with appropriate regulatory framework for Rating of Buildings, which will also include the issue of Rating certification and at the time of framing the regulations on the subject, TRAI shall consider the following aspects:

- i. Empanelment/ accreditation of various Rating Agencies, considering the large volume of Buildings and different classes of Buildings to be rated.**
- ii. Roles and responsibilities of empanelled/accredited Rating Agencies.**
- iii. Creation of a digital platform/portal to enable Property Managers to get their Buildings rated.**
- iv. Formulation of terms and conditions including validity period for using Rating certificate.**
- v. Mechanisms for monitoring of the progress of Rating of Buildings.**
- vi. Awareness campaigns in collaboration with relevant stakeholders for popularising the Rating of Buildings.**

vii. Settlement of disputes, appeals and representations against Rating.

viii. Any other relevant aspects relating to Rating of Buildings.”

2.20 **Further, the para 3.5.5(e)** in the Chapter 3 of Recommendations dated 20th February 2023 states that- **‘TRAI will finalise such KPIs considering inputs received here in, through a separate consultation process, while framing the regulations. TRAI will formulate an appropriate Rating framework for digital connectivity with timelines, if any, for States, cities, towns, and villages.’**

2.21 This consultation paper is in furtherance to the aforesaid recommendations of the Authority and proposes a framework for rating of buildings or areas for digital connectivity.

CHAPTER-3: GLOBAL AND LOCAL RATING FRAMEWORKS

3.1 Introduction

Rating buildings for digital connectivity is a complex task. Rating involves assessment of DCI, resilience, quality of experience, etc. which can be done using objective methods and subjective methods. Objective methods may involve measurement of parameters related to Key Performance Indicators (KPIs). These KPIs may be for network performances and service performances. Subjective methods may involve surveying about the quality perceived by end users. For a good assessment, outcome of both types of methods, objective as well as subjective methods, would be required to be combined.

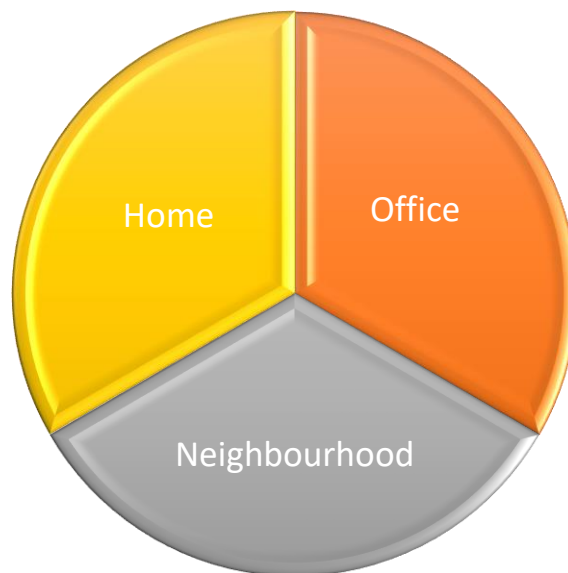
In such complex scenarios, advanced technologies may help in predicting and rating the perceived quality of experience in the building. While predicting the quality of digital connectivity, these advance technologies would account for the geographies, clutter of the region, building map, construction material used, height of the surrounding buildings, vegetation etc., which may not be possible to be considered through manual evaluation. These will also help in standardizing rating process and mechanism, removing human errors from the equation while evaluating the building for connectivity and quality of experience.

Further, to conduct Rating in an efficient and transparent manner use of advanced digital tools such as AI/ML, CAD, BIM, Digital twin etc. and platforms may also be of relevance. Considering the volume of work and multi-agency coordination, a collaborative platform like rating portals will play an important role.

3.2 Global scenario for Rating Frameworks: To provide assurance to the owners and tenants, there are different initiatives for rating of buildings globally. Few relevant rating frameworks are discussed in this section to understand global trends and best practices.

(i) **WiredScore Certification**¹: WiredScore certification program was created in 2013 with the goal to provide standardized process for measuring and certifying the level of connectivity of buildings and homes. WiredScore certification acts as an independent digital connectivity benchmark for rating of Building’s digital infrastructure. Subsequently, WiredScore (the organization) came up with the rating system called ‘SmartScore’ to measure the quality of smart buildings. WiredScore Certification focuses on digital connectivity, physical elements of the building, and the building infrastructure. It enables building owners and managers to understand, improve, benchmark, and promote their building’s digital infrastructure. WiredScore Certification rates following type of buildings which may be under development or existing.

Figure 1: Categorisation of Buildings in WiredScore Certification



¹<https://wiredscore.com/certify-a-building/wiredscore/>

The buildings are rated based on the following five criteria under WiredScore Certification:

- a) **Resilience:** This parameter evaluates how robust and secure digital infrastructure is provided in the building. Is there a backup fiber entry point, and protection against damage or flood? In summary, it measures assurance level of availability of Broadband services.
- b) **Future Readiness:** This parameter evaluates whether digital infrastructure have the flexibility and capacity to adapt to new technology. For example, if the present digital infrastructure supports 4G technology, whether it will be possible to roll-out 5G or 6G mobile technologies as and when required.
- c) **Mobile Connectivity:** In this criterion, building is evaluated to examine whether mobile coverage stretches into every corner of the property including the basement and car parking areas? Is the building 5G ready, and if not, what plans are in place to make it 5G ready?
- d) **Choice of Providers:** Here, the buildings are evaluated for availability of multiple high-speed fiber providers and wireless service providers to choose from. More choice means more competitive pricing which gives tenants a potential backup, if service by any service provider goes down.
- e) **User Experience:** This criterion evaluates whether a building offers people seamless digital connectivity of desired quality as subscribed, which may include mobile, Wi-Fi and fixed mode of connectivity. The consideration for this parameter may include how strong is the Wi-Fi in common areas and whether video played keep streaming as consumer ride the elevator to say 38th floor.

On the other hand, SmartScore Certification focusses on cutting edge technology in real estate, primarily for delivering exceptional

experiences and outstanding outcomes to all the smart building users. Thus, WiredScore certification rates a building's infrastructure and connectedness while SmartScore is meant to reflect the overall state of the technology within the structure inclusive of the user experience.

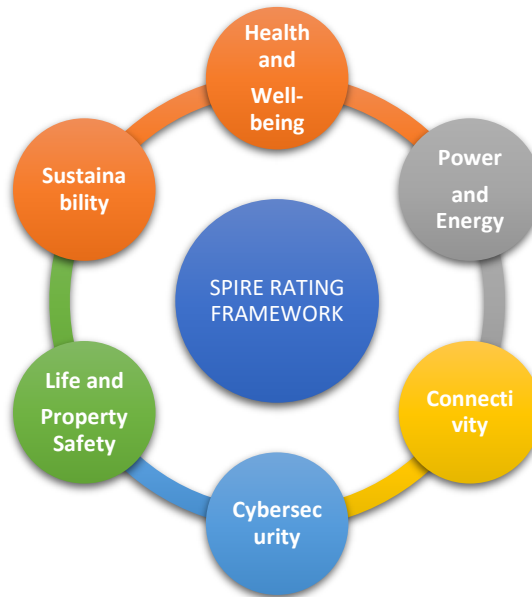
(ii) **SPIRE program by UL and TIA for assessing smart buildings:**

Underwriters Laboratory (UL) and the Telecommunications Industry Association (TIA) have announced that they would provide a joint program for assessing smart buildings. The SPIRE Smart Building Program will offer both self-certification programs as well as Verified Assessment Ratings completed jointly by UL and TIA. The SPIRE Self-Assessment online tool can evaluate building intelligence and performance based on an expertly curated, objective, and holistic framework across these six criteria.

The SPIRE Verified Assessment and Rating offers a complete smart building evaluation with the opportunity to earn a Smart Building Verified Mark and a plaque to proudly display the Verified Mark. They also have a plan to offer benchmarking that draws upon anonymized building performance data.

The SPIRE rating framework measures the effectiveness and security of smart buildings based on six primary criteria as shown in following figure.

Figure 2: Primary Criteria for SPIRE rating framework



- (iii) **Europe’s Smart Readiness Indicator (SRI)**: SRI allows for rating the smart readiness of Buildings, i.e., the capability of Buildings to adapt their operation to the needs of the occupant, also optimising energy efficiency and overall performance, and to adapt their operation in reaction to signals from the grid (energy flexibility). The SRI is being officially tested in 6 EU countries²: Austria, Croatia, Czech Republic, Denmark, Finland, and France. SRI is voluntary in nature currently. This rating framework is mainly focussed on energy efficiency in the smart buildings. As per the SRI framework, the ‘smartness’ of a building refers to its ability to sense, interpret, communicate, and actively respond in an efficient manner to changing conditions in relation to;
- (i) the operation of technical building systems,
 - (ii) the external environment (including energy grids), and
 - (iii) demands from building occupants.

The SRI rates the smart readiness of buildings (or building units) in their capability to perform three key functionalities:

² [SRI test phases \(europa.eu\)](https://europa.eu)

- a) optimise energy efficiency and overall, in-use performance.
- b) adapt their operation to the needs of the occupant.
- c) adapt to signals from the grid (for example energy flexibility).

3.3 Relevant Rating Frameworks in India: While conceptualising a framework for Rating of Buildings or Areas for digital connectivity, it will be relevant to examine some of the important rating frameworks already working in the country. Following three rating frameworks will enable understanding of rating ecosystem in Indian context.

3.3.1 Green Rating for Integrated Habitat Assessment (GRIHA) is a national rating system for green buildings in India. It was jointly developed by The Energy and Resources Institute (TERI), Centre for Research on Sustainable Building Science (CRSBS) and endorsed by the Ministry of New and Renewable Energy (MNRE).

3.3.1.1 GRIHA is designed to evaluate the environmental performance of all habitable spaces, for their energy and water consumption along with resource utilization and waste management over their entire life cycle.

3.3.1.2 **Objective:** To reduce resource consumption, reduce greenhouse gas emissions and enhance use of renewable and recycled resources by the building sector.

3.3.1.3 **Features:** A building is assessed based on its predicted performance over its entire life cycle – inception through operation. The stages of the lifecycle that have been identified for evaluation are:

(i) **Pre-construction stage:** intra- and inter-site issues like proximity to public transport, type of soil, kind of land, where the property is located, the flora and fauna on the land before construction activity starts, the natural landscape and land features.

(ii) **Building planning and construction stages:** issues of resource conservation and reduction in resource demand, resource

utilization efficiency, resource recovery and reuse, and provisions for occupant health and well-being. The prime resources that are considered in this section are land, water, energy, air, and green cover.

(iii) ***Building operation and maintenance stage:*** issues of operation and maintenance of building systems and processes, monitoring and recording of energy consumption, and occupant health and well-being, and issues that affect the global and local environment.

3.3.1.4 **Benefits:** Some of the benefits of a green design to a building owner, user, and the society are as follows:

- Reduced energy consumption without sacrificing the comfort levels.
- Reduced destruction of natural areas, habitats, and biodiversity, and reduced soil loss from erosion etc.
- Reduced air and water pollution (with direct health benefits).
- Reduced water consumption.
- Limited waste generation due to recycling and reuse.
- Reduced pollution loads.
- Increased user productivity.
- Enhanced image and marketability.

3.3.1.5 **Eligibility:** The rating applies to new and existing buildings. All new construction projects with built-up area (excluding parking, basement area, and typical buildings) of more than 2,500 square meters and all operational buildings having a built-up area greater than 50 sq. m. are eligible for certification. The typology of buildings includes offices, retail spaces, institutional buildings, hotels, hospital buildings, healthcare facilities, residences, and multi-family high-rise buildings.

3.3.1.6 **Rating Criteria:** GRIHA assesses a building on 30 (29+1 Innovation) criteria divided into 11 sections. Different sections have been assigned different weightages. Each criterion consists of intent that would help in achieving the larger goal of sustainability and reducing Green House Gas (GHG) emissions, appraisals specifying guidelines that will help the project proponent create a sustainable built environment and achieve GRIHA rating by demonstrating compliance with them. The appraisals are classified into three categories mandatory, optional, and non-applicable. Details of appraisals include the details of concepts, calculations and strategies required to understand and to comply with the appraisals. GRIHA has a 100-point percentile-based rating system.

3.3.1.7 **GRIHA council** is an independent society for the interaction on scientific and administrative issues related to sustainable habitats. The council works towards streamlining the rating process to facilitate the adoption of activities.

3.3.1.8 **Renewal of Ratings:** There are two ways in which the rating can be renewed, so that the project continues to get the benefits of the perks of being called a rated building. This can be done either by submitting an audit data report (over a span of three consecutive years) comprising energy, water, and waste (report to be prepared by BEE-certified energy auditor), or by enrolling the project for GRIHA EB rating to maintain its certification for the next cycle of five years.

3.3.1.9 **Audit Provisions:** Project team is required to submit an audit report showing performance of the project with respect to energy, water, waste management etc. The data is required to be collected for one year after achieving 70% occupancy. Energy audit is done by BEE (Bureau of Energy Efficiency) certified auditors. Rating renewal is done after validity of five years period of rating.

3.3.2 Star Rating Framework for Hotels

3.3.2.1 The Ministry of Tourism has a voluntary scheme for approval of Hotel Projects with the aim to provide contemporary standards of facilities and services. Under this scheme, the Ministry of Tourism classifies hotels under the star rating system to conform to the expected standards for different classes of tourists. The hotels are given a rating, from One Star to Three Star, Four and Five Star with or without alcohol, Five Star Deluxe, Heritage (Basic), Heritage (Classic), Heritage (Grand), Legacy Vintage (Basic), Legacy Vintage (Classic), Legacy Vintage (Grand) and Apartment Hotels, Home stays, Guest house, etc.

3.3.2.2 Hotels under implementation are classified under the defined categories once they become operational, subject to the hotel applying for such classification and being found fit for classification. For the hotel classifications, Ministry of Tourism has formed Hotel & Restaurant Approval & Classification Committee (HRACC). The committee is of two levels, one that assesses one-to-three-stars hotels and another that assess four-to-five-stars hotels.

3.3.2.3 The committee is made up of eight members from various sub-sectors in the hospitality industry including one nominee each from the department of tourism in the central government, the state tourism department, tour operators, travel agents, a hotel management institute, a nominee from the hotel industry who is considered a specialist in the hospitality industry and one member from the Federation of Hotel & Restaurant Associations of India (FHRAI).

3.3.2.4 Hotels are assessed based on 17 broad parameters, which have a further 108 sub-parameters. Parameters are mainly related to food services, entertainment, view, room variations such as size and

additional amenities, spas and fitness facilities, safety, hygiene, ease of access and location.

3.3.2.5 Stages of Classification

3.3.2.5.1 Classification exercise is a two-stage procedure. At stage I, the presence of facilities and services are evaluated against the checklist of facilities and services required to be available. At stage II, the quality of facilities and services are evaluated by the HRACC inspection committee as per the prescribed parameters. Any deficiencies or rectifications pointed out by the HRACC are required to be complied within the stipulated time.

3.3.2.5.2 Guidelines have been issued for timelines to be adhered to by the HRACC for clearance of application of classification of hotels, including timelines for inspection of hotels, submission of inspection report etc.

3.3.2.5.3 The procedures for approval require recommendations of the inspection Committee to be submitted along with all necessary licenses, No Objection Certificates (NOCs), permissions etc. for the approval of the Chairperson (HRACC) or Joint Secretary (Tourism) or Addl. Director General (Tourism) as the case may be.

3.3.2.6 Process of Classification/ Reclassification of Hotels

3.3.2.6.1 The classification for newly operational hotels is required to be sought within three months of commencing of the operations and it should have been approved by Ministry of Tourism at project stage. Operating hotels may opt for classification at any stage. However, hotels seeking re-classification should apply for the same and complete the process at least six months prior to the expiry of the current period of classification. If a hotel fails to apply for re-

classification and complete its documentation free of all deficiencies a clear six months prior to the expiry of the classification period, the application is treated as a fresh case of classification.

3.3.2.6.2 Once a hotel applies for classification or re-classification, it is required to be always ready for inspection by the inspection committee of the HRACC. No request for deferment of inspection is entertained.

3.3.2.7 **Validity of rating:** Classification remains valid for a period of five years from the date of approval by HRACC, or in the case of re-classification, from the date of expiry of the last classification.

3.3.2.8 **Appellate Authority:** In case of any dissatisfaction with the decision of the HRACC, there is a provision of Appellate Authority, and the hotel may appeal to Secretary (Tourism), Government of India for review and reconsideration within 30 days of receiving the communication regarding classification or re-classification.

3.3.3 Framework for rating of securities by Securities and Exchange Board of India (SEBI):

3.3.3.1 Credit rating refers to the opinion of a recognised entity on the creditworthiness of an issuer or instrument. It is an informed opinion on the relative degree of risk with timely payment of interest. SEBI has the right to regulate and the right to authorize these agencies under *SECURITIES AND EXCHANGE BOARD OF INDIA (CREDIT RATING AGENCIES) REGULATIONS*³, 1999 issued under the SEBI Act 1992. SEBI registers credit rating agencies, who meet the eligibility criteria, as per the provisions of the regulations. These agencies, registered with SEBI under the regulations, are authorised

³ <https://www.sebi.gov.in/legal/regulations/jan-2023/securities-and-exchange-board-of-india-credit-rating-agencies-regulations-1999-last-amended-on-january-17-2023-68140.html>

to grant ratings to the issuers whose securities are proposed to be rated by the credit agencies. For the regulations, the 'securities' inter-alia includes-

- (i) shares, scrips, stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in or of any incorporated company (or a pooled investment vehicle or other body corporate) or derivative or units or any other instrument issued by any collective investment scheme to the investors in such schemes.
- (ii) Government securities
- (iii) rights or interest in securities

3.3.3.2 Presently, seven⁴ credit rating agencies (CRAs) are registered with SEBI which include CRISIL Ltd., ICRA Ltd., CARE, India Ratings and Research Pvt. Ltd. etc.

3.3.3.3 Some of the important provisions of the regulations includes-

- (i) **Process and criteria for registration of CRAs.:** The key eligibility criteria under the regulations are summarised below.
 - a. the applicant is set up and registered as a company under the Companies Act, 2013;
 - b. the applicant has, in its Memorandum of Association, specified rating activity as one of its main objects;
 - c. the applicant has a minimum net worth of rupees 25 crore;
 - d. the applicant has, in its employment, persons having adequate professional and other relevant experience to the satisfaction of the Board;
 - e. grant of certificate to the applicant is in the interest of investors and the securities market;
 - f. the promoter of the credit rating agency has a minimum shareholding of 26% in the credit rating agency.

⁴ <https://www.sebi.gov.in/commondata/recognised/Registered-Credit-Rating-Agencies.pdf>

(ii) **General obligations of CRAs includes-**

- a. Monitoring of Ratings: Every credit rating agency shall, during the lifetime of securities rated by it continuously monitor the rating of such securities, unless the rating is withdrawn, subject to the provisions of regulation 16(3).
- b. Every credit rating agency shall disseminate information regarding newly assigned ratings, and changes in earlier rating promptly through press releases and websites, and, in the case of securities issued by listed companies, such information shall also be provided simultaneously to the concerned regional stock exchange and to all the stock exchanges where the said securities are listed.
- c. Disclosure of Rating Definitions and Rationale: As per the provisions, every credit rating agency (a) shall make public the definitions of the concerned rating, along with the symbol and, (b) shall also state that the ratings do not constitute recommendations to buy, hold or sell any securities.

(iii) Restrictions on ratings of securities by promoters or by certain other persons.

(iv) Procedure for inspection and investigation of CRAs by SEBI

(v) Procedure for action in case of default on compliance of regulations by CRAs.

(vi) Code of conduct for CRAs.

3.3.3.4 The regulations mandates issuer pay model for rating of securities i.e., the fees charged by the CRAs is paid by the entity who seeks ratings for their securities.

3.3.3.5 SEBI has issued the guidelines for standardisation of rating scales used by CRAs vide circular dated 31st October 2022. Before

the issue of this circular, CRAs were allowed to use their own rating scales.

3.3.4 Need to make enabling provisions in law to introduce a system of rating for Digital Connectivity: It would be pertinent to note that rating in general would nudge property managers to get their buildings evaluated for Digital Connectivity and DCI availability in the buildings. However, rating may not be made mandatory for all type of buildings. The market forces may push property managers to act in the direction of improving quality of digital connectivity inside the buildings and add values to their properties, to make same as business case. It is expected that once a successful model emerges, various stakeholders would start adopting it.

However, in some buildings, it may be required to make it mandatory, especially where end-users don't have any ownership rights. In such cases, many users of the buildings might be prospective owners or tenants or daily visitors as working employees/citizens availing facilities created inside the building. Examples of such buildings can be airports, ports, railway stations, public transport stations, bus stands, major rail routes and highways, large shopping complexes, industrial estates, major market areas, office or workplaces, government buildings, government residential colonies and any other building of public importance. In such cases it may be required to make rating mandatory. Rating may also be made mandatory for densely populated or high-rise residential buildings.

In case of important buildings where rating is made mandatory, designating a nodal official may help other stakeholders involved development as well as for assessment of DCI. Such an official may play a significant role in reaching out to the concerned stakeholders, coordinating activities, and getting digital connectivity rated.

Accordingly, in Recommendation dated 20th February 2023 on "Rating of Buildings or Areas for Digital Connectivity", TRAI has proposed

amendments in the Model Building Bye Laws (MBBL), 2016 and National Building Code (NBC) in Chapter-4.

3.3.5 Role of Regulator:

The initiatives for building ratings have been introduced mainly in developed countries and are mostly led by industry. With the introduction of new technologies in India, especially in wireless communication networks like 4G and 5G, there has been exponential growth in the telecom sector. The wireless networks are serving more than 1160 million customers at present. The in-building usage of mobile network is increasing day-by-day due to insignificant penetration of wireline broadband connectivity. It is therefore essential to create a well-defined system to ensure availability of reliable and robust digital connectivity in buildings as well as in transport corridors like railway network and national or state highways. As such, any delay in establishment of a regulatory framework duly supported by all stakeholders may be detrimental to digital inclusion as well as QoS.

Further, even if such an ecosystem of rating is introduced, it will require adoption at an accelerated rate, for extending the benefits of such ecosystem to the stakeholders. Also, the same ecosystem may be utilised to rate townships, cities, districts and states for the readiness of Digital Connectivity Infrastructure and broadband service qualities in future. As such, the Regulator has to play an important role to streamline various processes and framework. It is well acknowledged that private players and industry must play a very important role in the creation of an ecosystem and run it. However, establishment of an institutional mechanism backed by regulations may help in smooth implementation and adoption by all stakeholders to protect the interests of the end-users.

3.3.6 Approach for Rating of Buildings for Digital Connectivity:

- a) As large number of buildings may be required to be rated including voluntary rating requests, the volume of work may be huge and will

require considerable amount of time and resources. In addition, these buildings would be spread across the country. It may not be possible to carry out this work unless an elaborate as well as enabling ecosystem is created which allows, promotes, and encourages participation of private sector and active role of state governments and local bodies.

- b) Identification of rating agencies who can carry out such work through an institutional mechanism that assigns role and responsibilities of such agencies is crucial. These agencies may be hired by the Property Managers for evaluation to be done by using objective and subjective methods. These agencies will also be required to follow well-defined guidelines so that their evaluation remain reliable and trustworthy.
- c) Rating agencies, as per their own choices, may operate in a particular region and may also develop expertise in particular type of buildings. There may be a need to maintain a database of such rating agencies on the rating platform. Such readily available pool of information will help property managers in selecting and hiring of an appropriate Rating Agency for rating their buildings.

3.3.7 Need for integrated Rating Platform

- a) It may be appropriate to develop an integrated IT platform for implementation of Building Rating framework for digital connectivity at pan-India level. All the ecosystem stakeholders including rating agencies, Property Managers, Appellate Authority, Telecom Service Providers, Local Bodies, State Govts., Licensor and Regulator may collaborate through this platform. The platform will also enable access to public to access the information regarding the rating status of buildings of their interest.
- b) Advantage of having such a platform is that it allows uniform practices across the country for the rating, record keeping and rating lifecycle management, capacity building, collaboration, information

dissemination and brings transparency in rating process. Based on learning and feedback of stakeholders, the rating framework may be improved to take care of futuristic requirements.

- c) The ownership of such platform may be with the regulator and or any agency authorized for the purpose, or it may also be run by private entity with detailed terms and conditions defined by an appropriate regulation in this regard.

3.3.8 Implementation Approach: The Rating of Building framework for digital connectivity is being introduced for the first time in India, therefore, rating ecosystem development will mature over a period. For smooth transition to rating framework, the requirement for rating of buildings will need phased implementation while keeping Property Manager's and the consumer's interest in mind.

CHAPTER-4: OVERVIEW OF RATING FRAMEWORK FOR DIGITAL CONNECTIVITY

4.1 Rating of Buildings for digital connectivity involves assessment of DCI and other relevant factors like resilience of DCI, power backup, wired and wireless connectivity, future upgradability, user experience etc. Therefore, assessment of digital connectivity in building or areas involves use of objective methods and subjective methods. Objective methods may involve availability of DCI to deliver desired level of performance of digital connectivity and other services operating using such infrastructure. Objective assessment may use key performance indicators (KPIs). These KPIs may be for digital connectivity infrastructure availability, network performances and service performances. Subjective methods may involve surveying about the quality of different services perceived by end users including overall user experience. The holistic assessment of digital connectivity may include both types of methods, objective as well as subjective methods with suitable weightage.

4.2 The objective of Rating of Buildings for digital connectivity is to bring improvement in quality of service and quality of experience on continual basis. However, different buildings will have varied requirement based on varied categories of end users residing, operating, or visiting these Buildings. For example, public places like airport, railway station and bus station will have dynamic number of users at different times, seasons and may require digital connectivity for short period. Thus, DCI in such places should be agile enough to cater dynamic number of users to ensure that QoS is not affected during traffic peaks. On the other hand, business and residential complexes will have predictable number of users but paying capacity and type of digital connectivity requirements may vary. For example, the residential consumers may not opt for similar payout for good digital connectivity as compared to consumers in commercial establishments. Similarly, different Government offices will also have different requirements depending upon whether they have public interfaces or not.

4.3 Classification of Buildings or Areas for Assessment of Digital

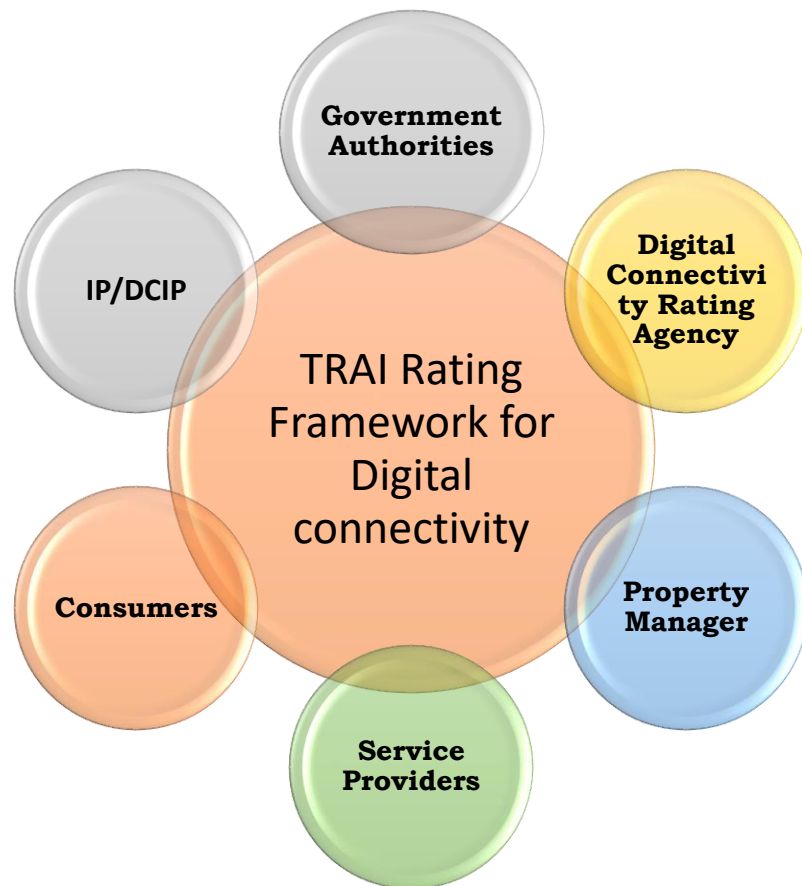
Connectivity: Digital connectivity and infrastructure requirements will vary based on the user density usage pattern, reliability requirement, etc. Therefore, rating methodology and criteria will depend upon the types of building and the occupants or users in such buildings. To have objective assessment of DCI and digital connectivity requirement and parameters for rating of buildings, the Buildings may be broadly classified in following broad categories for the purpose of DCI assessment.

S. No.	Category of Building	Example
1.	Residential	Apartments, gated colony, etc.
2.	Public Areas	Airport, Bus Station, Railway Station, Hospitals, Educational Institutions, etc.
3.	Govt. Buildings	All buildings of Central Govt., State Govt., PSUs, Local Bodies, etc.
4.	Commercial Establishment	Commercial office complex, shopping malls, industrial estates, SEZs, multi-modal logistic park, etc.
5.	Transport corridors	Expressways, Highways, Railways routes, etc.

4.4 Key Stakeholders in Digital Connectivity Rating Framework:

Before further deliberating upon the rating methodology, it is important to identify the key stakeholders in the rating ecosystem and their broad roles and responsibilities. The Figure-4 depicts key stakeholders whose roles are provided in following sections.

Figure-3: Stakeholders in rating ecosystem



4.4.1 Government Authorities

The proliferation of in-building digital connectivity has become a key component of Government policies. The National Digital Communications Policy, 2018⁵ envisages *making requirement for telecom installations and the associated cabling and in-building solutions mandatory in all commercial, residential and office spaces by amending National Building Code of India (NBC), through Bureau of Indian Standards (BIS).*

4.4.1.1 The Government has also taken several steps for promoting sharing of in-building telecom infrastructure, in line with TRAI recommendations. Some of the steps taken by the Government are given below:

⁵[National Digital Communications Policy 2018](#)

- a) In October 2019, the Digital Communications Commission (DCC) approved in-building access and sharing of telecom infrastructure among TSPs, thereby allowing them to share infrastructure and, in the process, curbing TSPs' monopoly to install infrastructure through exclusive contracts with the owners/builders.
- b) In November 2019, the Department of Telecommunications (DoT) issued an advisory to encourage all TSPs to share their in-building infrastructure with other TSPs such as IBS, optical fibre, other cables, ducts, etc. in all the existing Government/public buildings/ places like airports, railway stations, bus terminals, metro stations/lines and hospitals.
- c) In November 2016, DoT issued the Indian Telegraph Right of Way Rules to regulate matters related to underground and overground telecommunication infrastructure. These rules have been amended further in 2017, 2021 and 2022.

4.4.1.2 Bureau of Indian Standards (BIS) has framed National Building Code of India. Volume 2, Part 8, Section 6 titled '*Information and Communication Enabled Installations*' has provisions related to Common Telecom Infrastructure (CTI), referred to as Digital Connectivity Infrastructure (DCI) in this CP, inside the buildings for provisions of telecom services. These standards are reviewed from time to time to update the same by incorporating new standards and planning/installations guidelines required for implementation of state-of-the-art DCI. These standards work as reference for the deployment of DCI in the Buildings.

4.4.1.3 Though, the Government has already taken many steps as mentioned above and is also considering TRAI recommendations on easing out processes for smooth development of DCI in the Buildings specially for 5G and beyond technologies, the effective collaboration

amongst the Government stakeholders including Central, State and Local bodies is essential to achieve seamless digital connectivity with desired QoE inside the Buildings. To further streamline the efforts towards achieving seamless digital connectivity inside buildings, the Authority has recommended amendments in MBBL, 2016 paving way for the in-building solutions and in National Building Code vide its recommendation dated 20th February 2023. The recommendation also provides for appropriate provisions for Rating of Buildings for Digital Connectivity to be included in MBBL on the lines of the provisions made in the MBBL for rating of green buildings including other key recommendations **(summary of recommendations is at Annexure-II).**

4.4.2 TRAI as a Regulator

4.4.2.1 Sub-clause (v) of Clause (b) of Sub-section (1) of Section 11 of the TRAI Act 1997, entrusts TRAI the responsibility to ensure quality of service to protect the interests of consumers of telecommunication services. The same Sub-clause also mandates TRAI to lay-down standards for quality of services. Further, Clause (d) of Sub-section (1) of Section 11 mandates TRAI to *“perform such other functions including such administrative and financial functions as may be entrusted to it by the Central Government or as may be necessary to carry out the provisions of this Act”*.

4.4.2.2 Accordingly, TRAI has issued various regulations regarding quality of service and regularly carries out field measurement on quality of service. TRAI has also carried out studies on quality of service in buildings, airports, metro rail systems, railway routes, highways and national highways and areas of cities. Through all these studies and surveys, it is observed that non-availability of right DCI inside Buildings severely affects the overall quality of service offered to consumers.

4.4.2.3 In view of the above, TRAI will implement an IT platform-based rating framework and provide policy and compliance roadmap through suitable check and balance like third party audit.

4.4.2.4 TRAI may constitute an Advisory Committee consisting of relevant stakeholders including representative from academia, Ministry of Housing and Urban Affairs (MoHUA), DoT, CoDCI, BIS, TSPs/ISPs, Multi-System-Operators(MSOs),CREDAI, etc. to advise on the matters related to proliferation, popularisation and adoption of rating framework as may be referred by TRAI from time to time.

4.4.2.5 Considering that digital connectivity infrastructure needs to be upgraded and expanded in accordance with technological innovations, the prescribed rating methodology and manuals will be modified from time to time in consultation with the Advisory Committee.

4.4.3 Digital Connectivity Rating Agency (DCRA)

4.4.3.1 Evaluation of digital connectivity for Buildings is an interdisciplinary subject and requires experts from digital wireless and wireline domains including Research organisations and Service Providers and as well as Architects who design buildings. There is also an interplay between typical use case considered for a building and the requirements for deploying DCI. This interplay may be related to the resilience and robustness of supporting civil and electrical infrastructure requirements for a DCI.

4.4.3.2 Many aspects related to evaluation of digital connectivity might require specialised knowledge in the domain of telecom, wireline and wireless, which current architects might not be equipped with. Experts evaluating digital connectivity may require academic qualifications in the telecom domain and they may also be required to have skills to design specialised in-building solutions for digital connectivity. It is imperative that such agencies possessing requisite

skill set and professionals, shall register themselves at the digital platform which may be utilised by other entities for establishing connections/ communication

4.4.3.3 The list of registered DCRA with TRAI shall be available on the rating platform for selection by the Property Managers at the time for submission of applications.

4.4.3.4 DCRA may evolve an objective criterion for the professional charges to be paid by the Property Managers to get their Buildings or Areas rated. The details of such charges shall be shared with the Property Managers in advance and finalised before taking up of the rating activities under the rating framework.

4.4.3.5 The Property Managers will be able to provide feedback regarding the professional performance of DCRA through the rating platform. TRAI may periodically review the performance of DCRA through periodic audits including their quality of assessment, feedback from property owners or managers, etc.

4.4.3.6 DCRA may be liable for all legal and contractual obligations regarding rating of buildings and award for certification under the rating framework. The DCRA may use IT platform for award of ratings to the Property Managers and keep the status of each rating updated on the platform as per the guidelines issued from time to time by TRAI.

4.4.4 Property Manager

4.4.4.1 The term “Property Manager” refer to the property owner or person who is responsible to oversee and manage the operation and maintenance affairs of a particular property, building, premises or an area and he/she has the authority on behalf of the owner of the property to carry out the functions requisite for upkeep or upgradation of the systems deployed inside the building or property or an area. The term “Property Manager”

would also include and refer to any of the following entities depending upon the context:

- (i) A person, who is heading Resident Welfare Association (RWA) in the case of residential societies.
- (ii) A person who is heading the maintenance agency that has entered into an agreement with the property owner or with the RWA to carry out operation and maintenance of the facilities.
- (iii) A person, who is heading the concerned unit of an organization that has entered into concession agreements for use and operation of land or commercial premises such as in case of Airport terminals.
- (iv) A person, who is a venue manager i.e., person-in-charge of a venue or an event and his main duty is to oversee activities and use of the facilities like Sport Stadiums, Cinema Halls, Theatres, Conferences, Hotels.
- (v) A person who has been designated by the Government for operating and maintaining facilities for a particular government building or premises, area, or residential colony such as in case of Cantonment Area, Government Office Buildings, Government Residential Colonies etc.
- (vi) A person, who is a builder or a developer of a real estate project and is responsible to plan, design and build facilities like Multi-storey residential buildings, Commercial buildings, or complexes.
- (vii) A person, who is designated by the Government to build or develop a real estate project for its own purposes and is responsible to plan, design and build facilities as in cases of buildings constructed by CPWD, Indian Railways, Housing Boards.
- (viii) Any other person or entity as notified by the Government.

4.4.4.2 The eligible Property Manager shall avail the services of empaneled Rating Agencies through online IT platform for rating of their Buildings.

4.4.4.3 The Property Manager shall also be required to comply with the requirements and terms and conditions associated with the award of ratings, as may be specified by TRAI.

4.4.5 Telecom Service Providers (TSP)

4.4.5.1 TSPs are responsible for providing seamless digital connectivity to their consumers with expected level of QoE. Improving quality of connectivity would always be in the business interest of any TSP as it leads to higher usage of the network and opportunity to earn more revenue. Market forces are expected to play a role in continually improving the quality of service without any specific external intervention.

4.4.5.2 While Property Manager are being encouraged and mandated through MBBL and NBC to create DCI in their buildings or areas. The objective of seamless digital connectivity cannot be realised without active participation of TSPs, including required nudge, for effective utilization of DCI created by the Property Managers. Further, non-utilisation of DCI by TSPs may result into sunk investment, user inconvenience which may also result into poor rating of buildings despite creation of DCI.

4.4.5.3 The availability of TSPs on rating platform will enable effective co-ordination with the stakeholders for provision of digital connectivity in the buildings to enhance indoor QoS and QoE.

4.4.5.4 The rating framework will also work as catalyst for

encouraging the Property Managers to apply for rating of their building as TSPs will have readily available database of prospective business opportunities in new buildings or areas.

4.4.6 Infrastructure Provider (IP) and Digital Connectivity Infrastructure Provider (DCIP):

4.4.6.1 Department of Telecommunications (DoT) invited applications for IP-I (Infrastructure Providers Category-I) registrations and IP-II (Infrastructure Providers Category-II) licenses. Prior to that only TSPs were installing tower and other passive infrastructure. Indian companies registered under Companies Act 1956/2013 are eligible to apply for IP-I registration. With introduction of IP-I, independent tower companies evolved and paved the way for sharing of infrastructure. IP-I create towers and passive infrastructure which they connect with TSP's infrastructure.

4.4.6.2 The scope of IP-I was limited to providing passive assets such as Dark Fibre, Right of Way, Duct space, and Tower on lease/ rent out/ sale basis to licensees of telecom services on mutually agreed terms and conditions. IP-II could establish digital network, provide transmission capacity, and could lease/ rent out/sell end to end bandwidth to the other Licensees of Telecom Services. From 13th August 2000 onwards, IP-II licenses were issued by DoT and IP-II were required to pay license fee. But IP-II licenses were discontinued w.e.f. 14th December 2005 and the existing IP-II licensees were asked to migrate to NLD (National Long Distance) license.

4.4.6.3 There is no restriction on foreign equity and number of entrants. There is no entry fee and no bank guarantee. The applicant company is required to pay some processing fee only along with the application. In no case the company shall work

and operate or provide telegraph service including end to end bandwidth as defined in Indian Telegraph Act, 1885 either to any service provider or any other customer.

4.4.6.4 To fulfil the ever-increasing demands of connectivity, TRAI in its "*Recommendations on Enhancement of Scope of Infrastructure Providers Category-I (IP-I) Registration*" dated 13th March 2020⁶ recommended that the scope of IP-I Registration should be expanded. TRAI also recommended that "*The expanded scope of the IP-I registration should include to own, establish, maintain, and work all such infrastructure items, equipment, and systems which are required for establishing Wireline Access Network, Radio Access Network (RAN), and Transmission Links. However, it shall not include core network elements such as Switch, MSC, HLR, IN etc. The scope of the IP-I Registration should include, but not limited to, Right of Way, Duct Space, Optical Fiber, Tower, Feeder cable, Antenna, Base Station, In-Building Solutions (IBS), Distributed Antenna System (DAS), etc. within any part of India*".

4.4.6.5 National Digital Communication Policy (NDCP-2018) provides considerable emphasis on creation of digital communication infrastructure while stating that "*Digital infrastructure and services are increasingly emerging as key enablers and critical determinants of a country's growth and well-being*". Under 'Connect India' mission, NDCCP advocates Creating Robust Digital Communications Infrastructure -To promote Broadband for All as a tool for socio-economic development, while ensuring service quality and environmental sustainability.

4.4.6.6 To further accelerate the collaborative creation of robust digital communication infrastructure, TRAI has sent its

⁶[Recommendations on Enhancement of Scope of Infrastructure Providers Category-I \(IP-I\) Registration](#)

recommendations on 8th August,2023 to DoT titled '*Introduction of Digital Connectivity Infrastructure Provider (DCIP) Authorization under Unified License (UL)*'. These recommendations provide light touch licensing framework for **'Digital Connectivity Infrastructure Providers' also called 'DCIPs'** under UL regime with national level service area authorisation.

4.4.6.7 The recommended scope of the DCIP authorization include to own, establish, maintain, and work all such apparatus, appliance, instrument, equipment, and system which are required for establishing all Wireline Access Network, Radio Access Network (RAN), Wi-Fi systems, and Transmission Links. However, it shall not include spectrum and core network elements such as Switch, MSC, HLR, IN etc. The scope of the DCIP license also includes Right of Way, Duct Space, Dark Fiber, Poles, Tower, Feeder cable, Antenna, Base Station, In-Building Solution (IBS), Distributed Antenna System (DAS), etc. within any part of India. The scope of DCIP authorization does not include provisioning of end-to-end bandwidth using transmission systems to any customer or for its own use. However, DCIP will be allowed to install wired transmission link (but not wireless) to connect to its own BBU (Baseband Unit)/RU (Radio unit)/Antenna.

4.4.6.8 As per the recommendations, the DCIP Licensee are authorised to provide DCI items, equipment, and systems on lease/rent/sale basis to any entity (excluding other DCIPs) having a valid license under section 4 of Telegraph Act 1885, and entities notified by the Government for this purpose.

4.4.6.9 With above licensing framework, IPs and DCIPs can play a vital role in creation of digital connectivity infrastructure in buildings or areas with active collaboration with Property Managers to fulfil the objectives of NDCP-2018. The proposed

platform for implementation of the rating framework may work as a catalyst for identification of business opportunity for IPs, DCIPs as well as TSPs for enhancing the Quality of Service and provide delightful consumer experience.

4.4.7 End Users of Digital Connectivity

The end user is the key stakeholder in overall ecosystem for rating the digital connectivity in buildings or areas. The basic objective of rating of buildings is to improve quality of experience of the end user. Therefore, the feedback on end user experience will play an important role in the rating framework. The quality of user experience can be measured through technical key performance indicators like latency, download experience, signal strength and coverage which constitute an objective assessment of QoE. On the other hand, the subjective assessment of QoE include methods like end user survey or collection of feedback through other digital mediums.

4.5 Eligibility to apply for Rating of Building

The owner or Property Manager of existing or new buildings of built-up area of more than 5000 Sq. Meter or as mandated under any law or on voluntary basis may apply for rating of their buildings under their authorised possession.

4.6 Broad Criteria for Rating of Digital Connectivity

4.6.1 The criteria for rating of digital connectivity and their weightage is a crucial aspect for building a transparent and trustworthy rating framework. Therefore, broad criteria and their indicative weightage are presented in the following table. However, the criteria and their corresponding weightage may vary depending upon the different categories of buildings. For example, there may be more weightage commercial establishments to 'DCI Infrastructure Resilience' in comparison to 'residential' category of buildings which may need more score weightage for say 'Availability of Telecom Service Providers'.

4.6.2 The following table lists some of the criteria (indicative only) for evaluation of digital connectivity and award of ratings. The weightage of these criteria and sub-criteria may vary for different categories of buildings. These criteria may be reviewed by TRAI in consultation the stakeholders from time to time.

Criteria No.	Main Criteria	Weightage	Sub-Criteria Name: sub-weightage
1	Compliance to Model Building Bye Laws (MBBL) for digital connectivity	20	
2	Provision in civil infrastructure, over and above MBBL requirements, for ensuring robust digital connectivity	10	Protection measures for digital communication infrastructures against intrusions, floods and also measures for the safety of the users
3	Provision in power infrastructure, over and above MBBL requirements, for ensuring reliable digital connectivity	10	(i) Alternate power source (ii) UPS power availability (iii) Power backup availability (iv) Power backup (in Hrs.)
4	Digital Connectivity Infrastructure Resilience	10	(i) Alternate entry paths (ii) Non-flooding measures for telecom equipment room (iii) Alternate power path
5	Future Readiness of Digital Connectivity Infrastructure	10	Whether Digital Connectivity Infrastructure can accommodate future wireless and wireline technologies

6	Provision of Wired Connectivity infrastructure	10	(i) Fibre connectivity (ii) Ethernet connectivity
7	Provision of Wireless Connectivity infrastructure	10	(i) Mobile network (ii) Wi-Fi network
8	Availability of Service Providers	10	(i) No. of ISPs having integration with Digital Connectivity Infrastructure (ii) No. of TSPs having integration with digital connectivity infrastructure
9	User Experience	10	(i) Subjective assessment i.e., user feedback (ii) Objective assessment i.e., network coverage, average latency and average data rates for wireline and wireless network

4.7 Template for Award of Rating: Ratings may be awarded in terms of numerical values which may be presented in a standard form of stars as illustrated in following figure.

This certificate may be usable for all legal purposes and may allow rating of digital connectivity to be used for various marketing purposes.

Figure-4: Standard form for award of ratings



Due provisions may be required in various laws, byelaws regulations etc to deal with any misuse of methods of rating. When rating awarded earlier is withdrawn or becomes time barred, suitable provisions may also be required to avoid misuse of expired ratings.

Such certificate may be issued with associated terms and conditions for its use with certain validity period. It may also provide conditions under which it may be required to be renewed or may also describe conditions under which it may be withdrawn. For example, performance quality of same DCI may degrade because of increase in average traffic demand or users expectations may get changed because of availability of new technology networks, spectrum bands. In case, additional capabilities are introduced in DCI and renewal of rating is requested, it needs to be decided to go for only incremental assessment or complete assessment.

There may be requirement of identifying and delegating power to issue certificates to the rating agencies and reviewing the same periodically for continued compliances. The IT platform may be required to maintain a database of such awards which will be accessible to the relevant authorities for verifications and further auditing. The eligible rating agencies empanelled and registered in the IT platform may also be made responsible for issue of rating certificate and its lifecycle management. The Regulator may play a crucial role in ensuring compliance with the rating framework and methodologies through periodic audits of such rating agencies.

WiredScore awards ratings under three categories i.e., Platinum, Gold and Silver. To achieve these ratings, the buildings must achieve a predefined credit level or more during the assessment process. **Platinum rating** mark proves that the building meets exceptional standards for the quality of its wired infrastructure, resilience, and wireless network. **Gold rating** indicates that a building has the connectivity capacity for virtually any tenant and has a proven ability to keep-up with the digital demands of today's tenants. **Silver rating** indicates that the building contains business-critical connectivity features.

4.8 Score Threshold for Award of Ratings

The digital connectivity scores shall be awarded by the rating agency based on the scoring criteria specified by the Regulator. The broad framework for criteria and sub-criteria with score weightage is discussed in previous section. However, sub-criteria and scoring weightage may vary for different category of buildings.

S. No	Score Range	Digital Connectivity Rating
1	25-40	★
2	41-55	★ ★
3	56-70	★ ★ ★
4	71-85	★ ★ ★ ★
5	More than 85	★ ★ ★ ★ ★

4.9 Provision for appeal and review of awarded rating

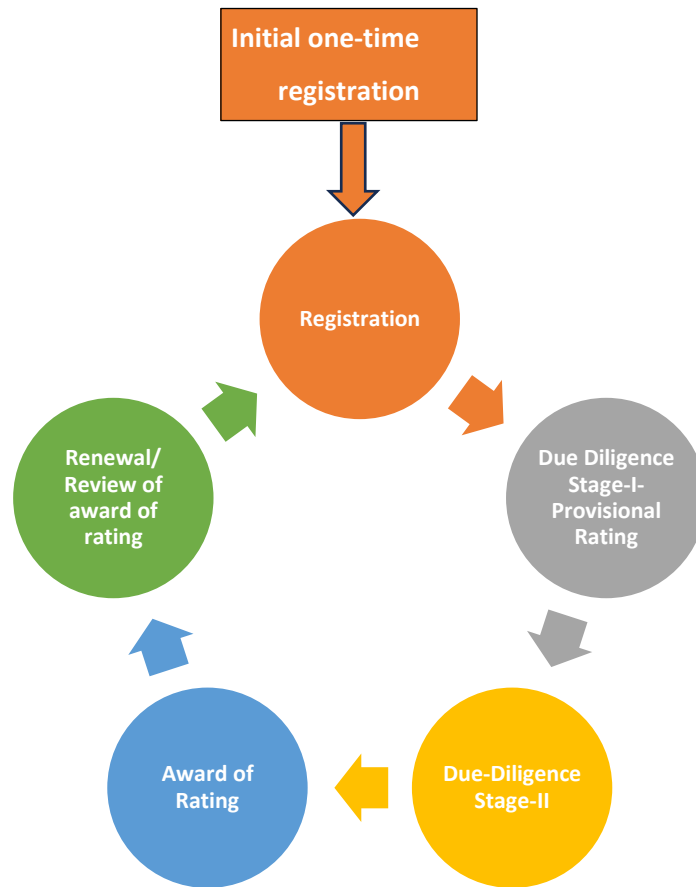
There may be instances of disagreement of the Property Managers with the Rating assigned to their building(s) based on the measurement and the evaluation done. Hence, there is need to have provisions in the new rating framework for revaluation of the rating assigned, where Property Manager can prefer appeal for review and reconsideration, within certain time frame. The appeal so preferred is also required to be disposed off in a timely manner by maintaining fairness and transparency in the system. The rating platform may therefore be enabled for mechanisms to prefer the appeal Managers.

4.10 Overview of process flow for award of ratings:

The framework for award of ratings for DCI is required to be implemented through single on-line portal. The portal is expected to bring all stakeholders on same platform to manage entire rating lifecycle, collaboration amongst stakeholders, training, and knowledge management. A high-level overview of rating process may be as shown in Figure-5 and

various steps involved in this rating process are discussed below.

Figure-5: Overview of Rating Process



4.10.1 Online Registration: The interested Property Managers shall register on the online portal provided by IT platform for implementation of rating framework. One-time non-refundable registration fee of Rs. 5000/-+ Taxes may be payable at the time of registration.

4.10.2 Online tutorial on rating process for self-evaluation: Access of online tutorials, self-learning videos, self-evaluation templates and checklist etc. shall be enabled for the registered Property Managers after payment of registration fee.

4.10.3 Submission of documents: The eligible Property Managers shall submit online application for rating of their buildings(s) or renewal of ratings of existing buildings with prescribed supporting documents. The document checklist will be available at the portal under Frequently

Asked Question (FAQ) section which shall be duly configured in the rating platform. The online system will provide **Unique Request Identification Number (URIN)** for further tracking of status and future references. The Property Manager can choose any of the empanelled DCRA listed in the rating platform.

4.10.4 Due Diligence Stage-I by DCRA: Online application of the Property Manager may be automatically assigned to the DCRA selected during the submission of application for rating. The DCRA shall complete Stage-I of due diligence against the specified rating criteria with the help of details and supporting documents submitted by the Property Manager. The Due-Diligence-I evaluation shall preferably be an offsite activity. However, the co-ordination activities may be decided by DCRA and Property Manager. The DCRA shall complete the Stage-I of due diligence within 14 days of assignment of URIN in the portal subject to the requirement of additional details or documents required for completion of evaluation activity.

4.10.4.1 Preliminary evaluation comments and action points: The DCRA shall submit their comments with action items, if any, to the concerned Property Manager. The actions points shall be classified broadly in three categories i.e.,

- (i) **Mandatory** – These will only include the actions required by Property Manager without which the evaluation cannot proceed to next stage.
- (ii) **Recommended:** These action items will include those points which may affect the rating score and consequently the rating of the building. The Property Manager may choose to ignore these comments and may confirm to proceed for next stage of evaluation.
- (iii) **Optional:** This category of action items will include suggestive actions to be taken by Property Manager which does not affect the score and rating of the building though such actions will further improve quality of consumer experience.

4.10.5 Corrective action by Property Manager

The Property Manager shall be provided one opportunity to take remedial actions, as per comments and action points, to proceed for second stage of evaluation. As soon as Due Diligence-I stage is completed and comments and action points are uploaded on the rating platform by the DCRA, the Property Manager will be able to see and download the comments and action points through the rating platform. The platform may be enabled to send an email or SMS alert in this regard. Based on different category of action points as per outcome of Due Diligence-I stage, following will be possible scenarios and corresponding course of actions.

- (i) **Scenario-1: Mandatory Action Points:** In case any of the action item falls under 'Mandatory' category, the Property Manager cannot proceed for next stage of evaluation without taking corrective action. The Property Manager will take suitable remedial action in the given time and submit the compliance of such action items with supporting documents, as applicable, in the rating platform against the concerned URIN. As soon as, the compliance of all the action points under such category is submitted, the DCRA will be alerted for review of the compliance submitted by the Property Manager.
- (ii) **Scenario-2: Other than Mandatory Action Points:** If there are no action points under 'Mandatory' category or the compliance against all the action points have been submitted against such action points under scenario-1, the Property Manager will have the option to either wait and complete the 'Recommended' action points or apply for next stage of evaluation. However, the action points under 'Recommended' category may affect the rating score and consequently the Ratings of the Building.

In case all the 'Mandatory' action points are complied, the Property Manager can apply for second stage of evaluation i.e., **Due-Diligence Stage-II**. The remedial actions and submission of request for second stage of evaluation should be completed by the Property Manager within 90 days after completion of Stage-1 of due diligence.

4.10.6 Submission of request for Due-Diligence-II evaluation by Property Manager

The purpose of Due Diligence-I stage is to bring transparency in the rating process and provide opportunity to the Property Manager to take corrective action before final evaluation of digital connectivity is undertaken by the DCRA. As soon as the remedial action is taken on all 'Mandatory' action points and verified by the DCRA, the Property Manager can request for initiation for Due Diligence-II stage of rating process.

4.10.7 Due Diligence Stage-II

The Due Diligence-II stage will involve the process of onsite verification of digital connectivity and associated infrastructure against the prescribed rating criteria including as provided in supporting documents. The detailed methodology for scoring against each criterion and sub-criteria and respective weightage will be decided by the Authority for different categories of buildings or areas.

The Due Diligence Stage-II will be completed within 60 days of submission of request by the Property Manager for Due Diligence-II evaluation.

4.10.8 Final evaluation by DCRA: After completion of Stage-II of due diligence, the DCRA will update the summary of the score against each evaluation criteria and sub-criteria in the rating platform portal against the URIN of Property Manager along with observations, if any. The DCRA shall keep the records of all the relevant information, data, and records, captured during the rating process and award of scores, including site video, photographs, and test logs etc. for a period of minimum three years or during the validity of the rating whichever is later. DCRA will be required to produce these details during the audit of DCRA under the rating framework. The Property Manager will be able to see and download

the scores provided by the DCRA.

4.10.9 Award of Rating: After the rating score card is updated in the rating portal, the DCRA shall generate rating certificate and sign it digitally. The Property Manager will be able to download the rating certificate through their registered account on the rating portal. Once the rating certificate is issued by DCRA, it will be available for the public to view or verify the rating certificates either through unique certificate number or QR code available on the certificate or other search and filter criteria.

4.10.10 Appeal for review of Rating awarded: In case the Property Manager is not satisfied with the rating score card, online appeal may be filed for the review of rating score card within 30 days of issue of rating certificate. In the appeal, the Property Manager must identify the specific sub-item(s) of rating score and submit the reason against that item on which the review is requested with justification and reasons/evidence, as applicable. No appeal shall be entertained after expiry of the appeal period. Further, in case the Property Manager want to get reassessed the building before the expiry of certificate say due to additional provision of DCI or availability of more service providers, the application under 're-rating before expiry period' may be submitted.

4.10.11 Review of appeal by DCRA: Depending upon the gravity and nature of the appeal, the Authority may authorize an independent DCRA or forward the appeal to the DCRA who conducted assessment. The DCRA shall review the facts and submission made by the Property Manager and decide on appeal request within 20 days of its receipt. In case there is any revision of score as an outcome of revised assessment, it shall be revised in the rating portal with brief reason for revision. In case the final score result in any change in the rating already awarded, the revised rating certificate shall be issued by the DCRA, and previous certificate shall be withdrawn simultaneously. The number of review

appeals, received against the ratings awarded by any DCRA, may also constitute one of the important criteria for evaluation of their performance.

4.10.12 Renewal of Rating after expiry of validity period of the Rating

The Property Manager may apply for renewal of rating of their buildings or areas 120 days in advance before the expiry of the validity of present certificate. Application for renewal will be applied against the existing certificate with required details. The details may inter-alia include either confirmation of details used for previous rating in case there is no change or submission of details of the added, modified, or deleted infrastructure and connectivity. The Property Manager will have the option in the portal to select the DCRA of their choice for renewal of their rating while applying for renewal.

4.10.13 Application of re-rating after upgradation of DCI within the validity period of existing certificate

The Property Manager shall be eligible to apply for re-rating of the buildings before expiry of its validity period in following cases-

- i) The DCI has been upgraded.
- ii) There has been a change/upgradation in the implemented technology leading to demand of enhanced service by the end consumer.
- iii) Any other changes which may affect the score as per the rating criteria.

Further, the DCRA may also initiate review of awarded rating in case there are significant number of user complaints regarding poor user experience or QoS which may call for re-assessment or downgrading of the existing rating. Such scenarios may arise due to poor maintenance of installed DCI or sudden increase in the users of the DCI for which it is not dimensioned and need upgradation. The Property Manager shall

extend all the support to the DCRA. The decision of the DCRA shall be final in this regard.

4.11 Validity Period of DCI Rating

4.11.1 During the initial years of roll-out, the standards and rating processes are likely to undergo amendments based on the increase in understanding of the subject. As the rating ecosystem will become mature and will be able to adapt to deal with the diversity of type of buildings to be rated.

4.11.2 Therefore, at the initial stage, the rating certificate may be valid for three years for all category of buildings. However, the validity period may be reviewed by the Authority from time to time and it may also vary for different category of buildings. Any such change shall be applicable prospectively for new buildings or for renewal of existing ratings.

4.12 Timelines for implementation of Rating framework

4.12.1 Introduction of Rating framework empowers the end users to exercise their choices judiciously, fulfilling their digital connectivity requirements. However, making Rating mandatory for the existing and new Buildings across the country may raise some concerns which need to be addressed before taking a final call in this regard. The market forces may push Property Managers to act in the direction of improving quality inside Buildings and adding value to their properties. It is expected that once a successful model emerges, various stakeholders would start adopting it.

4.12.2 Considering the benefits of the Rating system, initially Rating may be made mandatory, especially for Buildings of public interest and which have been developed through public funding. Accordingly, in Phase-1, the Buildings and Areas falling under category of 'Public Areas' and 'Govt. Buildings' as per the classification will be taken up. However, the eligible Property Managers of other category of buildings and areas

can also apply for rating and certification on voluntary basis.

4.13 Fees for Rating and Certification

4.13.1 A one-time registration fee of Rs. 5000/- plus taxes may be payable by the Property Managers for registration on the rating portal. The Property Managers should ensure that they can only apply for ratings of only those buildings which are under their legal possession. The application cannot be submitted for any other entity. In any such case, the registration of Property Manager shall be cancelled, and registration fee shall be forfeited.

4.13.2 The fees to be charged by the DCRA, for the rating of buildings or areas, may be mutually decided between the Property Manager and DCRA based on objective criteria like built up area etc.

4.14 Monitoring of progress of Rating of Buildings

The Authority, with the help of Advisory Committee, may monitor the progress of adoption rating framework. The requirement of digital connectivity in different type of buildings will continue to evolve, based on emergence of new technologies. Therefore, the rating framework is expected to be agile enough to respond to the evolving needs of end users. The Advisory Committee may also assist the Authority by providing the inputs on technology trends and their impact of the rating framework, if any.

4.15 Awareness campaigns for popularisation of rating framework

The concept of rating of buildings for digital connectivity is new in the country. Therefore, the adoption of the framework, to a large extent will depend on the strategy and approach to raise awareness amongst stakeholders especially the building owners, occupants and local government authorities who grant permissions related to the construction and access to the buildings. It is important to explain the stakeholders about the value behind seamless digital connectivity at the design stage and the actual savings of accruing out of planned

digital connectivity and their rating. As the impact of poor digital connectivity is likely to be more prominently felt in cities with multi-storey buildings, special awareness campaigns/ drives may be undertaken in collaboration with all stakeholders like builder associations, property managers, local governments, TSPs etc.

4.16 Misuse of Ratings Awarded for Digital Connectivity of Buildings or Areas

The list of rating certificates awarded for digital connectivity may be made available on the online platform for verification. However, the rating certificate shall be subject to the terms and conditions as may be specified from time to time by the Authority. Any misuse of ratings or unauthorised display and reference of such certificate shall attract applicable penal provisions as may be specified in relevant regulation including the provision of relevant laws. The terms and conditions of the rating certificate may inter-alia include:

- (i) Validity of the Rating certificate
- (ii) Commitment for maintaining consistent performance and QoS after award of certificate.
- (iii) No significant alteration of the Design of DCI deployed used while obtaining Rating certificate.
- (iv) Conditions/situations where the Property Manager may use/leverage such Rating certificate.

Issues for Consultation

Q.1- Do you agree with the broad classification of Buildings or Areas (also referred as Buildings) from Digital Connectivity perspectives provided in Section-3 of this chapter? If not, what could be other yardsticks to classify Buildings for provisions of near uniform Digital Connectivity Infrastructures in similar types of Buildings. Please justify your answer with suitable examples.

Q.2- How the Infrastructure Providers (IPs) and Digital Communication Infrastructure Providers (DCIPs) can play an instrumental role in the effective development and deployment

of DCI in Buildings or Area? Please provide your answers supporting the best practices followed internationally or national level in this regard.

Q.3-What should be the key eligibility conditions including experience requirements for the Digital Connectivity Rating Agency (DCRA) proposed under the rating framework? Should there be any performance security for an agency to be DCRA and what should be criteria to evaluate their performances? Please also indicate broad scope of work covering additional aspects of Rating of Buildings for Digital Connectivity, if any, including area of operations [Nation-wide, State(s)/Union Territories(UTs) or Combination of States/UTs] of a DCRA.

Q.4-With reference to the rating criteria proposed in table at Section 6.2, kindly provide list of possible sub-criteria and corresponding sub-weightage against each criterion with justification? Please also indicate any other aspect which need to be included or modified in the proposed weightage criteria. Please provide your answer with suitable justifications.

Q.5- What should be the template and minimum score for award of ratings i.e., star-based ratings or any other template like Platinum, Gold, Silver, and Bronze? Please justify your suggestions.

Q.6- The proposed workflow and process of Rating of Buildings for digital connectivity is given in Section-8 of this Chapter. Kindly provide your comments or suggestion for improvement of the proposed workflow and process of rating with justification, if any.

CHAPTER 5: DRAFT REGULATION FOR IMPLEMENTATION OF RATING FRAMEWORK FOR DIGITAL CONNECTIVITY

Chapter-4 has covered methodology for implementation of rating framework for building or areas. To implement the proposed rating framework and bring all the stakeholders on a single platform, the following draft regulation has been proposed.

TELECOM REGULATORY AUTHORITY OF INDIA NOTIFICATION

NEW DELHI, THE....., 2023

F. No. ---- - In exercise of the powers conferred by section 36 read with sub-clauses (i) and (v) of clause (b) and clause (d) of sub-section (1) of section 11 of the Telecom Regulatory Authority of India Act, 1997 (24 of 1997), the Telecom Regulatory Authority of India hereby makes the following regulations, namely:-

RATING OF BUILDINGS OR AREAS FOR DIGITAL CONNECTIVITY REGULATIONS, 2023 (-- OF 2023)

SECTION-I PRELIMINARY

- 1. Short title, commencement, and application.** — (1) Rating of Buildings or Areas for Digital Connectivity Regulations, 2023, (-- of 2023).
- (2) They shall come into force with effect from the _____2024.
- (3) These regulations shall apply to:-
 - (i) Property Managers who intend to get their buildings or areas, hereunder referred as “buildings”, rated for digital connectivity either voluntarily or under the provisions of any law ;

- (ii) Digital Connectivity Rating Agencies, hereunder referred as “DCRA”, who shall evaluate and award ratings to the Property Managers for their buildings;
- (iii) Service providers, licensed under Section 4 of the Indian Telegraph Act, 1885, to provide telecommunication service.

2. Definitions. — (1) In these regulations, unless the context otherwise requires, -

- a) “**Act**” means the Telecom Regulatory Authority of India Act, 1997(24 of 1997);
- b) “**Authority**” means the Telecom Regulatory Authority of India established under sub-section (1) of section 3 of the Act;
- c) “**body corporate**” means a body corporate as defined under sub-section (11) of section 2 of the Companies Act, 2013(18 of 2013);
- d) “**buildings or areas**” or “**buildings**” means buildings and their surroundings controlled, owned or managed by a Property Manager;

Explanation: ‘buildings’ will include residential or commercial complexes, educational or non-educational campuses, offices, housing societies, industrial estates/parks, cantonment areas, ports, airports, railway stations, bus stations, metro stations, etc.

- e) “**digital connectivity**” means the connectivity made available to the users to deliver telecommunication services using wireless or wireline medium.
- f) “**Digital Connectivity Infrastructure**” or “**DCI**” means passive and active elements which include any apparatus, appliance, instrument, equipment, and system used or capable of extending seamless digital connectivity;

Explanation: All infrastructure required for establishing Wireless or Wireline Access Networks such as Radio Access Networks (RAN) and Wi-Fi systems, and Transmission Links Interface, Duct Space, Optical Fiber, Poles, Towers, Feeder cable, Antenna, Base Station, In-Building Solutions (IBS), Distributed Antenna System (DAS), or any other

equipment to be used for the provision of digital connectivity, may be part of DCI. However, it shall not include core network elements.

- g) **“Digital Connectivity Rating Agency”** or **“DCRA”** means a body corporate which is engaged in, or proposes to be engaged in, the business of rating of buildings for digital connectivity;
- h) **“form”** means any of the forms specified in the First Schedule;
- i) **“Property Manager”** means the person who is responsible to oversee and manage the operation and maintenance affairs of particular property, building, premises or an area and has the authority on behalf of the owner of the property to carry out the functions requisite for upkeep or upgradation of the systems deployed inside the building or property or an area;
- j) **“Quality of Service”** means main indicator of the performance of a telecommunication network and of the degree to which such network conforms to the standards of such quality of service as specified in the applicable regulation(s);
- k) **“rating”** means an opinion regarding digital connectivity in buildings, expressed in the form of standard symbols or any other standardised manner, assigned by DCRA to the specific buildings of a Property Manager, to comply with the requirements in these regulations;
- l) **“regulations”** means the Rating of Buildings or Areas for Digital Connectivity Regulations, 2023;
- m) **“schedule”** means any of the schedules appended to these regulations;
- n) **“service provider”** means any service provider licensed under Section 4 of the Indian Telegraph Act, 1885 (as amended from time to time), to provide telecommunication service;

o) **“telecommunication services”** means service of any description (including electronic mail, voice mail, data services, audio-tex services, video-tex services, radio paging and cellular mobile telephone services) which is made available to users by means of any transmission or reception of signs, signals, writing images, and sounds or intelligence of any nature, by wire, radio, visual or other electro - magnetic means;

(2) all other words and expressions used in these regulations but not defined in these regulations and defined in the Act and the rules and other regulations made thereunder, shall have the meanings respectively assigned to them in the Act, or the rules or the regulations, as the case may be.

SECTION II

REGISTRATION OF DIGITAL CONNECTIVITY RATING AGENCY

3. Application for registration. – (1) Any corporate body proposing to commence any activity as a digital connectivity rating agency or DCRA under these regulations shall make an application to the Authority for grant of registration on the rating platform.

(2) An application for the grant of registration under sub-regulation (1) shall be made to the Authority in Form A of the First Schedule which shall be accompanied by a non-refundable application fee, in the manner as may be specified.

4. Eligibility Criteria. – (1) The Authority shall not consider an application for registration under regulation 3, unless the applicant satisfies the following conditions namely:

- a) the applicant is set up and registered as a company under the Companies Act, 2013 (18 of 2013);
- b) the applicant has, in its Memorandum of Association, specified digital connectivity rating activity as one of its main objective;
- c) the applicant has a minimum net worth of rupees two crore;
- d) the applicant has, in its employment, persons having adequate professional and other relevant experience to the satisfaction of the Authority to meet obligations under rating framework;

(2) The Authority may, from time to time, review the eligibility criteria for DCRA for effective implementation of rating framework.

5. Application to conform to the requirements. – (1) Any application for registration, which is not complete in all respects or does not conform to the requirement of regulation 4 or instructions specified in Form A shall be rejected by the Authority:

Provided that before rejecting any such application, the applicant shall be given an opportunity to remove, within thirty days of the date of receipt of communication from the Authority, such objections as may be indicated by the Authority.

Provided further that the Authority may, on sufficient reason being shown, extend the time for removal of objections by such further time as the Authority may consider appropriate which shall not exceed beyond thirty days.

(2) The Authority, if it so desires, may ask the applicant or its authorised representative to appear before the nodal division of TRAI, for personal representation in connection with the grant of registration.

6. Grant of registration and listing on rating platform. – (1) The Authority, on being satisfied that the applicant is eligible, shall grant the registration on the rating platform and notify electronically to the applicant.

(2) The registration granted under sub-regulation (1) shall be subject to payment of non-refundable registration fee and returnable performance bank guarantee, to be in-force during validity period of registration, as may be specified by the Authority from time to time.

(3) The registration granted under sub-regulation (1) shall be valid unless it is suspended or cancelled by the Authority or upon the approval of the request of DCRA by the Authority for withdrawal of registration.

7. Conditions of registration of DCRA. – (1) The registration shall be subject to the following conditions, namely:

- (i) The DCRA shall comply with the provisions of the Act, the regulations made there under and the guidelines, directives, circulars and instructions issued by the Authority from time to time on the subject of rating of buildings for digital connectivity and eligibility criteria under regulation 4;
- (ii) where any information or particulars furnished to the Authority by the DCRA is found to be false or misleading in any material particular or has undergone change subsequently to its furnishing at the time of the application for registration, the DCRA shall forthwith inform the Authority in writing;
- (iii) where the DCRA proposes change in management control, it shall obtain prior approval of the Authority for continuing to act as such after the change.

SECTION III

GENERAL OBLIGATIONS OF DIGITAL CONNECTIVITY RATING AGENCY

- 8. Code of Conduct.** – Every DCRA shall abide by the Code of Conduct contained in the – Schedule.
- 9 Disclosure of Fees and other terms and conditions to the Property Manager.** - Every DCRA shall disclose the fee to be charged and other terms and conditions, if any, to the Property Manager and get their acceptance before commencement of rating activities.
- 10 Evaluation and Award of Ratings.** – (1) Every DCRA shall comply with the rating criteria set forth in the regulations or guidelines or directions issued by the Authority from time to time.
- (2) Every DCRA shall update the scores against each of rating criteria and sub-criteria in rating platform and generate the rating certificate with their digital signature which shall be downloadable by the Property Manager through their respective accounts.
- (3) Every DCRA shall generate rating certificate only through the rating platform set up or authorised by the Authority.

11 Monitoring of Ratings. – (1) Every DCRA shall periodically monitor consumer feedback and consumer complaints during the validity of rating certificate, registered on rating platform, with reference to all the ratings awarded to buildings by the DCRA.

(2) Every DCRA shall examine the consumer feedback and complaints received under sub-regulation (1) and evaluate the need for review of rating awarded to the Property Manager of concerned buildings.

12 Retention of Records. – (1) Every DCRA shall preserve the records pertaining to the assessment of digital connectivity and award of ratings thereof, including in digital form, during the validity period of their ratings.

(2) The Authority may appoint one or more persons as inspecting officers or an external audit agency, to undertake inspection or audit to ascertain the compliance of these regulations by the DCRA's.

13 Audit of DCRA's. - The Authority may, from time to time, notify the panel of auditors to ascertain the compliance of these regulations by the DCRA's.

SECTION IV

GENERAL OBLIGATIONS OF PROPERTY MANAGER

14 Registration on rating platform. – (1) Any Property Manager who intend to apply for rating of their buildings for digital connectivity under these regulations shall do one time registration on the rating platform by making payment of the registration fee as may be specified.

(2) An application for the registration under sub-regulation (1) shall be made to the Authority in the format prescribed by the Authority.

15 Application for rating of buildings or areas for digital connectivity. – (1) Every Property Manager who intends to get their buildings rated for digital connectivity under these regulations, shall apply through their registered account on the rating platform and provide required information or details and supporting documents as may be prescribed by the Authority from time to time.

(2) The application under sub-regulation (1) shall only be made for only those building(s) and area(s) which are under the legal possession of the concerned Property Manager.

(3) Submission of wrong details, information, undertaking(s) or supporting documents under sub-regulation (1) and (2) shall constitute the contravention of the provisions of the regulations.

16 Facilitation and co-operation during rating activities. – Every Property Manager shall co-ordinate and co-operate with the DCRA and grant access to the buildings for smooth conduct of assessment of digital connectivity as per provisions of the regulations.

17 Compliance of terms and conditions of rating certificate. - Every Property Manager shall adhere with the terms and conditions associated with the ratings awarded to their building(s).

18 Repair, maintenance, and upgradation of digital connectivity infrastructure. – Every Property Manager shall maintain and timely upgrade digital connectivity infrastructure during the validity of ratings.

19 Renewal of ratings. - Every Property Manager shall apply for renewal of ratings well in advance, preferably at least 90 days prior to the expiry of validity of present rating, on the rating platform.

20 No exclusive arrangement with the service providers. – No Property Manager shall enter in exclusive arrangement or tie-up with any service provider for access of digital connectivity infrastructure in their building(s).

21 Review of ratings. – The DCRA may initiate the process of review of the ratings already awarded, based on consumer feedback or consumer complaints, and modify the ratings based on revised assessment, wherever applicable.

Provided that, before initiating the process of review, the Property Manager shall be given an opportunity to remove, within thirty days of the date of receipt of relevant communication from the DCRA through the rating portal, such defects or deficiencies and resolve consumer complaints as may be indicated by the DCRA.

22 DCRA’s right to inspect. – Every Property Manager shall extend support and grant the access to the concerned DCRA of the buildings which have been rated for digital connectivity under these regulations.

**SECTION V
GENERAL OBLIGATIONS OF SERVICE PROVIDERS**

23 No exclusive arrangement with Property Manager for digital connectivity. – No service provider shall enter in exclusive arrangement or tie-up with any of the Property Manager for development or access of digital connectivity or digital connectivity infrastructure in their buildings.

24 Provision of digital connectivity in buildings. – Every service provider shall make efforts to expeditiously extend the digital connectivity, subject to consumer demand, in the buildings or areas where digital connectivity infrastructure has been created as per the provisions of applicable laws.

**SECTION VI
RATING CRITERIA FOR ASSESSMENT OF DIGITAL CONNECTIVITY IN
BUILDINGS**






25 Rating criteria for evaluation of digital connectivity and assignment of ratings. - (1) The DCRA shall evaluate the buildings based on following criteria and sub-criteria and corresponding weightage

Criteria No.	Main Criteria	Weightage	Sub-Criteria Name: sub-weightage
1	Compliance to Model Building Bye Laws (MBBL) for digital connectivity	20	
2	Provision in civil infrastructure, over and above MBBL requirements, for ensuring robust digital connectivity	10	Preventive measures for safeguarding the digital communication infrastructures and the occupants/users of the

			building or area against intrusions and floods.
3	Provision in power infrastructure, over and above MBBL requirements, for ensuring reliable digital connectivity	10	(i) Alternate power source (ii) UPS power availability (iii) Power backup availability (iv) Power backup (in Hrs.)
4	Digital Connectivity Infrastructure Resilience	10	(i) Alternate entry paths (ii) Non-flooding measures for telecom equipment room (iii) Alternate power path
5	Future Readiness of Digital Connectivity Infrastructure	10	Whether Digital Connectivity Infrastructure can accommodate future wireless and wireline technologies
6	Provision of Wired Connectivity infrastructure	10	(i) Fibre connectivity (ii) Ethernet connectivity
7	Provision of Wireless Connectivity infrastructure	10	(i) Mobile network (ii) Wi-Fi network
8	Availability of Service Providers	10	(i) No. of ISPs having integration with Digital Connectivity Infrastructure (ii) No. of TSPs having integration with digital connectivity infrastructure
9	User Experience	10	(i) Subjective assessment i.e., user feedback (ii) Objective assessment i.e., network coverage, average latency and average data rates for wireline and wireless network

(2) The weightage of score against each main criteria and corresponding each sub-criteria may be reviewed by the Authority from time to time for different categories of buildings.

26 Award of Rating. - The DCRA shall award the star ratings for buildings as per following minimum scoring criteria: -

S. No	Score Range	Digital Connectivity Rating to be awarded
1	25-40	
2	41-55	
3	56-70	
4	71-85	
5	More than 85	

SECTION VII

PROCEDURE FOR ACTION IN CASE OF DEFAULT

27 Consequences for the failure of DCRA to comply with the provisions of the regulations or directions or guidelines.-

(1) If a DCRA fails to comply with the provisions of the regulations specified under Section-II, Section-III and Section-VI of the regulations or directions of guidelines issued by the Authority, it shall, without prejudice to the terms and conditions of its registration and listing on rating platform, or the Act or rules or regulations or orders made, or directions issued, thereunder, be liable for action as per terms and conditions of the registration agreement with TRAI.

(2) If a DCRA fails to comply with the provisions of the regulations specified under Section-II, Section-III and Section-VI of the regulations or directions or guidelines issued by the Authority for more than three months after receipt of notice of non-compliance from the Authority, its registration and listing on rating portal shall, without prejudice to the terms and conditions of its registration and listing on rating platform, or the Act or rules or regulations or orders made, or directions issued, thereunder, be liable for suspension or termination:

Provided that no order for suspension or termination of registration or listing shall be made by the Authority unless the DCRA has been given a reasonable opportunity of representing against the contravention of the regulation observed by the Authority.

28 Consequences for the failure of Property Manager to comply with the provisions of the regulations or directions or guidelines.- (1) If a Property Manager fails to comply with the provisions of the regulations specified under Section-IV of the regulations orders of guidelines issued by the Authority, it shall, without prejudice to the terms and conditions of its registration on rating platform and ratings issued, , be liable for suspension of its registration or withdrawal of one or more rating(s) already awarded or in-process including freezing of registered account and permanent debarment from the rating platform as the Authority may, by order, direct:

Provided that no recommendation for withdrawal of ratings or permanent blacklisting of the Property Manager shall be made by the DCRA unless the Property Manager has been given a reasonable opportunity of representing against the contravention of the regulation observed by the DCRA.

SECTION VIII

MISCELLANEOUS

29 Review. —(1) The provision of this regulation may be reviewed by the Authority from time to time.

(2) The Authority, on reference from any affected party for good and sufficient reasons, may review and modify these regulations.

30 Interpretation. — In case of any doubt regarding interpretation of any of the provisions of these regulations, the clarification issued by the Authority shall be final and binding.

Secretary

Note –

SCHEDULE-I

1. Form-A

2. Code of Conduct for DCRA's

Issues for Consultation

Q.7- Do you agree with the eligibility conditions for registration of DCRA, proposed in regulation 4? If no, what additional eligibility conditions for registration of DCRA may be incorporated, considering the present rating ecosystem in other domains in the country, with suitable justifications?

Q.8- Do you agree with the process of registrations of DCRA proposed under regulation 7? If not, kindly suggest proposed changes with justifications.

Q.9- Please suggest code of conduct for DCRAs proposed to be included under regulation 8 including the criteria for fees to be charged by DCRAs from Property Managers for different types of Buildings.

Q.10- Do you agree with the general obligations of DCRA provided in Section III of the draft regulations? If not, please provide suggested changes with justifications.

Q.11- What should be the terms & conditions for the Property Managers to ensure use of ratings awarded to their buildings, in legalised manner?

Q.12- Please suggest changes, if any, in the general obligations of Property Managers, provided under Section IV of draft regulations, with justifications.

Q.13- Draft regulation 25 provides broad rating criteria and distribution of weightage out of total rating score at a scale of 100. Please suggest new criteria or changes in proposed criteria if any, and relevant sub-criteria for each criterion and their sub-weightage against respective main criteria with suitable justifications in context of rating of buildings for digital connectivity.

Q.14- The score threshold for ratings is provided in draft regulation 26. Do you agree with the proposed thresholds? If no, please suggest changes with justification and global references, if any.

CHAPTER 6: ISSUES FOR CONSULTATION

1. The Chapter-4 provides the overview of framework for rating of buildings and areas for digital connectivity. The Chapter-5 covers the draft regulation to implement the proposed rating framework in the country.
2. The comments are invited from stakeholders on the issues for consultation provided in respective chapter. To receive inputs/comments in the structured form for analysis, the stakeholders are encouraged to provide their comments in the following template:

S. No.	Chapter No.	Regulation No/Clause No.	Proposed provision in consultation paper	Suggested modification	Justification/ Global references with supporting data points if any

3. Summary of all issues for consultation is given below.

<u>Issues for Consultation</u>
<p>Q.1- Do you agree with the broad classification of Buildings or Areas (also referred as Buildings) from Digital Connectivity perspectives provided in Section-3 of this chapter? If not, what could be other yardsticks to classify Buildings for provisions of near uniform Digital Connectivity Infrastructures in similar types of Buildings. Please justify your answer with suitable examples.</p>
<p>Q.2- How the Infrastructure Providers (IPs) and Digital Communication Infrastructure Providers (DCIPs) can play an instrumental role in the effective development and deployment of DCI in Buildings or Area? Please provide your answers supporting the best practices followed internationally or national level in this regard.</p>
<p>Q.3-What should be the key eligibility conditions including experience requirements for the Digital Connectivity Rating Agency (DCRA) proposed under the rating framework? Should there be any performance security for an agency to be DCRA and what should be criteria to evaluate their performances? Please also indicate broad scope of work covering additional aspects of</p>

Rating of Buildings for Digital Connectivity, if any, including area of operations [Nation-wide, State(s)/Union Territories(UTs) or Combination of States/UTs] of a DCRA.

Q.4- With reference to the rating criteria proposed in table at Section 6.2, kindly provide list of possible sub-criteria and corresponding sub-weightage against each criterion with justification? Please also indicate any other aspect which need to be included or modified in the proposed weightage criteria. Please provide your answer with suitable justifications.

Q.5- What should be the template and minimum score for award of ratings i.e., star-based ratings or any other template like Platinum, Gold, Silver, and Bronze? Please justify your suggestions.

Q.6- The proposed workflow and process of Rating of Buildings for digital connectivity is given in Section-8 of this Chapter. Kindly provide your comments or suggestion for improvement of the proposed workflow and process of rating with justification, if any.

Q.7. Do you agree with the eligibility conditions for registration of DCRA, proposed in regulation 4? If no, what additional eligibility conditions for registration of DCRA may be incorporated, considering the present rating ecosystem in other domains in the country, with suitable justifications?

Q.8- Do you agree with the process of registrations of DCRA proposed under regulation 7? If not, kindly suggest proposed changes with justifications.

Q.9- Please suggest code of conduct for DCRAs proposed to be included under regulation 8 including the criteria for fees to be charged by DCRAs from Property Managers for different types of Buildings.

Q.10- Do you agree with the general obligations of DCRA provided in Section III of the draft regulations? If not, please provide suggested changes with justifications.

Q.11- What should be the terms & conditions for the Property Managers to ensure use of ratings awarded to their buildings, in legalised manner?

Q.12- Please suggest changes, if any, in the general obligations of Property Managers, provided under Section IV of draft regulations, with justifications.

Q.13- Draft regulation 25 provides broad rating criteria and distribution of weightage out of total rating score at a scale of 100. Please suggest new criteria or changes in proposed criteria if any, and relevant sub-criteria for each criterion and their sub-weightage against respective main criteria with suitable justifications in context of rating of buildings for digital connectivity.

Q.14- The score threshold for ratings is provided in draft regulation 26. Do you agree with the proposed thresholds? If no, please suggest changes with justification and global references, if any.

1. WiredScore Certification Programs

WiredScore⁷, a global organization rates quality and resilience of digital infrastructure in the Buildings. It is operating in multiple countries and regions including USA, Canada, Australia, UK, and Europe. Such certification acts as an independent digital connectivity benchmark and provides landlords/ managers with insights to enhance their Building's digital infrastructure. The Buildings so rated include commercial, residential properties and mixed-use neighbourhoods. It rates them on a scale of five, based on points earned through credit scores.

2. SPIRE program by UL and TIA for assessing smart buildings

In the USA, Underwriters Laboratory (UL)⁸ and the Telecommunications Industry Association (TIA) announced that they would provide a joint program for assessing smart buildings. The SPIRE Smart Building Program offered both self-certification programs as well as Verified Assessment Ratings completed jointly by UL and TIA that measures the effectiveness and security of smart buildings based on six primary criteria of life and property safety, health and well-being, connectivity, power and energy, cybersecurity and sustainability. The SPIRE Self-Assessment online tool can evaluate building intelligence and performance based on an expertly curated, objective and holistic framework across these six criteria.

3. Other programs of certification of buildings

There are similar efforts to certify certain aspects of the built environment, by the US Green Building Council's LEED Certification but its focus is on sustainability. Arc Skoru power the LEED certification and has a relationship with Green Business Certification Inc. The WELL

⁷ <https://wiredscore.com/>

⁸ <https://ul.org/>

building certification standard focuses on the human health and well-being aspect of smart buildings.

4. Summary of initiatives or practices for Ratings in other Countries

Initiatives	WiredScore	Europe’s Smart Readiness Indicator ⁹
Purpose	<p>WiredScore Certification provides digital connectivity certification.</p> <p>It is operating in multiple countries and regions including USA, Canada, Australia, UK, and Europe.</p> <p>WiredScore certification measures the quality and resilience of the digital infrastructure of a building, mobile coverage, the choice of internet service providers and whether the buildings’ critical digital infrastructure is safe and secure from any physical damage.</p>	<p>The revision of the European Energy Performance of Buildings Directive (EPBD) in 2018 introduced concept of a Smart Readiness Indicator (SRI)</p> <p>This indicator allows for rating the smart readiness of buildings, i.e., the capability of buildings to adapt their operation to the needs of the occupant, also optimising energy efficiency and overall performance, and to adapt their operation in reaction to signals from the grid (energy flexibility).</p> <p>The smart readiness indicator will raise awareness amongst building owners and occupants of the value behind building automation and electronic monitoring of technical building systems and should give confidence to occupants about the actual savings of those new enhanced functionalities.</p>

⁹https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/smart-readiness-indicator_en

Initiatives	WiredScore	Europe's Smart Readiness Indicator⁹
Applicability	WiredScore certifies buildings including commercial, residential properties and mixed-use neighbourhoods.	EU countries may decide to implement the SRI on (part of) their territory, for all buildings or only for certain categories of buildings.
Voluntary/ Mandatory	Voluntary	The SRI is an optional common EU scheme; EU Member States may decide to implement the SRI on (part of) their territory, for all buildings or only for certain categories of buildings.
Validity of rating	-	10 years

ANNEXURE-II

Summary of Recommendations on “*Rating of Buildings or Areas for Digital Connectivity*” dated 20th February, 2023

1. The Authority recommends that Model Building Bye-Laws (MBBL) and National Building Code of India (NBC) should be amended to incorporate necessary provisions on Digital Connectivity Infrastructure (DCI) as recommended herein. (Para 2.2.7)
2. The Authority also recommends that, DCI should be made an essential component of the building development plans, on the line of water supply, electrical services, gas supply, fire protection and fire safety requirements, etc. (Para 2.2.7)
3. In case of development of Buildings in rural, semi-urban, remote and hilly areas, etc. where MBBL is not directly applicable, the Authority recommends that the Government may work with State Governments/ UTs for incorporation of suitable provisions for DCI development in the respective byelaws or other relevant laws of the State Governments/ UTs. (Para 2.2.7)
4. As RERA act protects the interests of the consumers of the real estate sector and provides platform for speedy disposal of their disputes, the Authority recommends that provisions for mandating DCI inside the Buildings, its maintenance, timely upgradation, etc. should be incorporated in the builder-buyer agreement for covering it under the jurisdiction of RERA act and its enforceability by the RERA. (Para 2.2.7)
5. The Authority recommends that the actors to design, deploy and evaluate the DCI should include the Property Manager and DCI Professionals i.e., DCI Designer, DCI Engineer and DCI Evaluator, where:
 - a) The Property Manager is the person or body who is responsible to oversee and manage the development, operation and maintenance of a Building and has the authority either as owner(s) of the Building

or as an agent of the owner(s). The term “Property Manager” would include an owner or a developer or a builder of a real estate project(s) or an area(s) responsible to plan, design and build facilities like Multi-storey residential buildings, Commercial buildings or complexes, etc.

- b) DCI Designer is a professional who has the competence and possesses prescribed qualifications to design DCI for Buildings.
 - c) DCI Engineer is a professional who has the competence and possesses prescribed qualifications to implement the DCI designed for Buildings.
 - d) DCI Evaluator is a professional who has the competence and possesses prescribed qualifications to measure and evaluate the quality of the DCI deployed inside Buildings. (Para 2.3.5)
6. The Authority further recommends that any person who possesses the requisite skills, as may be prescribed, can perform the functions as DCI Designer or DCI Engineer or DCI Evaluator. (Para 2.3.5)
 7. The Authority recommends that a separate chapter should be included in MBBL on comprehensive framework for development of DCI. (Para 2.4.8)
 8. The Authority recommends that the Bureau of Indian Standards (BIS) should be tasked to review existing standards and procedures of DCI for Buildings. (Para 2.4.8)
 9. The Authority recommends that the “National Building Code Sectional Committee” constituted under NBC, also referred as Guiding Committee should include members from the Department of Telecommunication and Telecom Industry. (Para 2.4.8)
 10. The Authority further recommends that the Panel on ‘Information and Communication Enabled Installations’ under NBC (Volume II, Part 8, Section 6) should be expanded to include representatives from

Telecommunication Engineering Centre (TEC) and Telecommunications Standards Development Society India (TSDSI) and, experts on telecom RF planning and experts on digital modelling of Buildings. The convener of this panel should be the representative nominated by DoT. (Para 2.4.8)

11. On standards for products and procedures for DCI, the Authority recommends that,
 - a) the BIS should prescribe and update standard templates which will be used by Property Managers for collecting building-related information and connectivity requirements of users. In case of non-availability of data from the users, the Property Manager shall use the data available for similar Buildings. Data collected through such templates shall be used by the DCI Designers.
 - b) the standards and procedures framed, and templates prescribed for DCI by BIS should be made part of the National Building Code (NBC).
 - c) TEC should continue to work as the equipment standardisation and certification agency for standard products and equipment required for DCI.
 - d) TEC should prescribe necessary specifications in respect of new products required for upgradation of DCI.
 - e) TEC should also ensure that the certified products for DCI are shareable and interoperable.
 - f) TEC should enlist and publish such DCI products and equipment which require certification. (Para 2.4.8)
12. The Authority recommends that BIS should prescribe different standards for different classes of Buildings for DCI. (Para 2.4.8)
13. Further, the Authority recommends that BIS should also prescribe such provisions of DCI that would be mandatorily required (essential

requirements) to be completed for issuance of completion/occupancy certificate for Buildings. (Para 2.4.8)

14. The Authority recommends that the Property Manager shall be the owner of the deployed DCI whether created by himself or through his agent and shall be responsible for maintenance, expansion and upgradation of such DCI. The Property Manager shall allow access of DCI to all service providers in fair, non-chargeable, transparent and non-discriminatory manner and shall not have any exclusive arrangements or agreements with any infrastructure/service provider.

Provided that in case active wireless equipment is installed by a licensee, the licensee will be responsible for maintenance, expansion and upgradation of such DCI and to that extent, the ownership lies with that licensee. However, this installation of active wireless equipment will be carried out on behalf of the Property Manager and Property Manager shall be responsible for ensuring that the licensee compulsorily gives access of such active wireless equipment to all service providers on fair, transparent, non-discriminatory, and non-exclusive manner. (Para 2.5.6)

15. Further, the Authority recommends that, an amendment to the present Unified license conditions with a proviso for compulsory sharing of active wireless equipment in the Buildings may be carried out. (Para 2.5.6)
16. The Authority recommends that the revenues earned by sharing of active wireless equipment, as part of DCI, by lessor licensees should not attract License Fee (LF). For the same, such revenues should be reduced from the Gross Revenues (GR) of the lessor licensee to arrive at Applicable Gross Revenue (ApGR) of such lessor licensee.

To implement above recommendation, it is further recommended that, a new item named as “Revenue earned from other licensees from sharing of active wireless equipment, as part of DCI” should be inserted under the license provisions namely “List of other items to be excluded from GR to arrive at ApGR”. It is also recommended that, appropriate modification

may be carried out in UL, UL(VNO) and ISP licenses. Also, the information collected in “Format of Statement of Revenue and License Fee” that is attached with each authorization chapter in UL, UL(VNO) and with ISP licenses needs to be modified to capture information from such revenues under a separate head. (Para 2.5.6)

17. For existing Buildings where DCI is partly created, the Authority recommends a collaborative approach among stakeholders to decide ownership i.e., Property Manager for development, upgradation and expansion of DCI. However, in cases where DCI is developed by a service provider/ IP-I(s), till no suitable arrangement is worked out to transfer the DCI to the Property Manager, such service providers/ IP-Is shall be governed by the mandatory provisions of the license/ registration conditions. (Para 2.5.6)
18. The Authority reiterates its recommendation in para 2.90 of its recommendations dated 29th November 2022 on “*Use of Street Furniture for Small Cell and Aerial Fibre Deployment*” wherein it was recommended that “*enabling provisions or suitable terms and conditions shall be introduced in all telecom licenses and IP-I registration agreement prohibiting the TSPs/IP-I providers from entering into any exclusive contract or right of ways with infrastructure owners/CAAs or any other authority*”. (Para 2.5.6)
19. The Authority recommends that in case of introduction of new spectrum bands, change in technologies, increased users’ demands etc.,
 - a) DoT should take up with BIS and MoHUA for incorporation of amendments in National Building Code and Model Building Byelaws, respectively.
 - b) BIS should also prescribe essential provisions that would be required to be carried out by Property Manager for upgradation and expansion of DCI. (Para 2.6.6)

20. The Authority recommends that the MBBL should have appropriate provisions for the approval of upgradation and expansion of DCI. (Para 2.6.6)
21. The Authority further recommends that the Property Manager should ensure upgradation and expansion of DCI in the timeline as will be prescribed in the MBBL. (Para 2.6.6)
22. The Authority recommends that, in all existing Buildings owned by the Government, PSUs or autonomous bodies of the Government, commercial buildings and public places such as airports, ports, railway stations, bus stations, metro stations or any other Building as may be decided by MoHUA in consultation with DoT, DCI shall be upgraded or provided to meet the requirements of state-of-the-art digital connectivity. In such cases, the Authority also recommends that the building bye-laws should prescribe a reasonable time frame so as to ensure availability and accessibility of upgraded DCI. (Para 2.6.6)
23. The Authority further recommends that for existing Buildings other than those mentioned in recommendation no. 22, the new building byelaws should be issued by MoHUA within three years after due consultation with the various stakeholders. Till then, it is recommended that, the Property Managers of such existing Buildings shall implement the new byelaws voluntarily. (Para 2.6.6)
24. The Authority recommends that, the Indian Telegraph Act, 1885 should be amended as follows:
 - a) The Central Government may prescribe through rules for formation of Council of Digital Connectivity Infrastructure (CoDCI).
 - b) The rules may specify the manner of certification of persons to design, deploy and evaluate DCI.
 - c) Such rules may specify the qualification of and terms and conditions subject to which, such certification may be granted, including

through conduct of examinations for granting such certifications, the fees and charges to be paid thereof, and other connected matters. (Para 2.7.6)

25. The Authority recommends that a Council of DCI (CoDCI) should be established under the Department of Telecommunications (DoT), Ministry of Communication in collaboration with the Ministry of Housing and Urban Affairs (MoHUA), All India Council for Technical Education (AICTE), National Skill Development Council (NSDC), Telecom Sector Skill Council (TSSC), and Construction Skill Development Council (CSDC) or any other organisation/institution as deemed appropriate. The CoDCI shall be responsible for taking all decisions in respect of certification, registration and capacity building of DCI Professionals. (Para 2.7.6)
26. The Authority recommends that broad roles and responsibilities of CoDCI are as follows:
 - a) To prescribe the qualification, roles and responsibilities of DCI Professionals.
 - b) To study the content of existing similar courses within and outside India and their suitability for DCI Professionals in India.
 - c) To suggest appropriate Graduate and Diploma courses including elective/ certification courses at various levels for DCI Professionals.
 - d) To accredit institutes and organisations for offering courses related to DCI. Considering that there are large number of Buildings in each State and UT, there may be a requirement of accreditation of institutions across all States and UTs for offering such courses and development of the workforce.
 - e) To conduct examination and certify DCI Professionals.
 - f) To organise training for trainers and skill upgradation of DCI professionals.

- g) To register qualified and certified DCI Professionals, on similar lines to the CoA. Such Professionals once engaged by Property Managers for development of DCI and declared on their plan documents shall be Persons on Record.
 - h) To maintain a register of DCI Professionals and publish the same on online portal for access and use by various stakeholders.
 - i) To keep a track of various activities related to capacity building and dissemination of the information to all stakeholders, the council needs to develop a digital platform for the cohesive implementation of DCI and linking of the same with various agencies.
 - j) Any other work related to capacity building as deemed fit by the council. (Para 2.7.6)
27. The Authority recommends that the CoDCI, within one year of its establishment or three years from the date of these recommendations, whichever is earlier, should establish a mechanism for certification, registration and capacity building of DCI Professionals including setting up of digital platform for the cohesive implementation of DCI. (Para 2.7.6)
28. The Authority further recommends that till the time CoDCI is established, the provisions in new building bye-laws for DCI as recommended herein must be implemented by utilizing the services of the existing professionals already working in the field of design and development of Buildings and DCI. (Para 2.7.6)
29. The Authority recommends that a digital platform should be developed and maintained by CoDCI. The broad objectives of the digital platform include but not limited to the following:
- a) Activities related to capacity building of DCI Professionals:
 - i. Publish details of the courses, accredited institutions and the process for admissions, and applicable fee structures if any.

- ii. Facility for conducting examinations for certification of DCI Professionals.
- iii. Registration facility for certified DCI Professionals.
- b) Publish the list of registered DCI Professionals and certified products and tools.
- c) Provide a marketplace for buying and selling of certified products. Such e-marketplace should be linked with Open Network for Digital Commerce (ONDC).
- d) Enable Property Managers to hire services of registered DCI Professionals.
- e) Enable interaction and collaboration among various stakeholders through various technologies and tools.
- f) To provide a feedback mechanism for the services delivered by registered DCI Professionals and certified products used.
- g) To maintain details with regard to development projects/ Buildings approved – ongoing, completed and put to use by the local bodies and other competent authorities.
- h) To create a repository in respect of the service providers along with technologies and spectrum bands, who are offering services in the area and update the same from time to time.
- i) To create a repository of knowledge based on past learning of implementation of DCI projects to support in standardisation of the processes.
- j) To make available on a regular basis the information on standards, technology and best practices within India and at global level related to DCI.
- k) To publish analytical reports/articles on DCI development and related issues.

- l) To make available acts/ laws/ byelaws/ rules/ regulations related to DCI.
 - m) To facilitate online application, clearance and approval process for service providers seeking access to DCI created in Buildings (Para 2.8.6)
30. The Authority further recommends that, till the time CoDCI is established, the digital platform should be created by DoT to meet immediate objectives, which can later be handed over to the CoDCI. (Para 2.8.6)
31. The Authority recommends that, approval of DCI design, deployment and use of Buildings should remain with the existing institutions as per statute of State/UT Governments for the purpose. (Para 4.7)
32. The Authority further recommends that, the Authorities of the States/UTs responsible for approval of DCI development plans and evaluations thereof, should hire the services of a suitable expert/agency duly registered and certified by the Council of DCI (CoDCI). (Para 4.7)
33. The Authority recommends that the BIS Panel on 'Information and Communication Enabled Installations' should develop standards in respect of DCI for the Buildings, to be included in the National Building Code as mentioned in Appendix-II to this chapter. The Authority further recommends that definitions, related to DCI, as mentioned in para 6.1 of Appendix-I, should be made part of the NBC. (Para 4.7)
34. The Authority recommends that appropriate provisions for Rating of Buildings for Digital Connectivity should be included in the MBBL, on the lines of the provisions made in the MBBL for rating of green buildings. (Para 3.2.6)
35. The Authority recommends that to start with, the Rating of Buildings for digital connectivity should be made mandatory for all existing as well as new Buildings of public importance within two years of issue of the

regulatory framework by TRAI or two years from obtaining occupancy certificate, whichever is later. The Authority further recommends that Rating of the following Buildings of public importance should be made mandatory:

- a) Airports,
- b) Ports,
- c) Railway/ metro stations,
- d) Bus stations,
- e) Buildings of Central/ State/ UT Governments/ Local authorities/ Government agencies/ PSUs,
- f) Government residential colonies,
- g) Industrial estates including industrial parks, SEZs, multi-modal logistic parks,
- h) Large commercial office complexes,
- i) Large commercial shopping complexes,
- j) All institutes of higher education including research institutes,
- k) All multi-speciality hospitals, and
- l) Any other Buildings as Government may decide. (Para 3.4.6)

36. The Authority also recommends that, the Rating of Buildings for digital connectivity should be made mandatory for all new Buildings, excluding the class of Buildings as may be decided by MoHUA in consultation with the States/ UTs and other stakeholders. (Para 3.4.6)

37. The Authority recommends that the Property Manager should get Buildings rated for digital connectivity within two years of obtaining the occupancy certificate once TRAI has issued the regulatory framework. (Para 3.4.6)

38. The Authority also recommends that for Buildings other than those mandated, the Property Manager may get their Buildings rated for digital connectivity on voluntary basis. (Para 3.4.6)

39. The Authority recommends that, a new draft chapter on DCI for the Buildings, as suggested in the Appendix-I to this chapter, should be included in the Model Building Bye Laws, in line with the recommendation no. 7 at para 2.4.8. (Para 4.7)

LIST OF ACRONYMS

S. No.	Acronyms	Full Text
1	4G	Fourth Generation
2	5G	Fifth Generation
3	6G	Sixth Generation
4	AI	Artificial Intelligence
5	AICTE	All India Council for Technical Education
6	ApGR	Applicable Gross Revenue
7	BBU	Baseband Unit
8	BEE	Bureau of Energy Efficiency
9	BIM	Building Information Modelling
10	BIS	Bureau of Indian Standards
11	CAA	Controlling Administrative Authority
12	CAD	Computer Aided Design
13	CoA	Council of Architecture
14	CoDCI	Council of Digital Connectivity Infrastructure
15	CP	Consultation Paper
16	CPWD	Central Public Works Department
17	CRA	Credit Rating Agency
18	CREDAI	Confederation of Real Estate Developers' Associations of India
19	CRSBS	Centre for Research on Sustainable Building Science
20	CSDC	Construction Skill Development Council

21	CTI	Common Telecom Infrastructure
22	DAS	Distributed Antenna System
23	DCC	Digital Communications Commission
24	DCI	Digital Connectivity Infrastructure
25	DCIP	Digital Connectivity Infrastructure Provider
26	DCRA	Digital Connectivity Rating Agency
27	DoT	Department of Telecommunications
28	EPBD	European Energy Performance of Buildings Directive
29	EU	European Union
30	FHRAI	Federation of Hotel & Restaurant Associations of India
31	GHG	Green House Gas
32	GR	Gross Revenue
33	GRIHA	Green Rating for Integrated Habitat Assessment
34	HLR	Home Location Register
35	HRACC	Hotel & Restaurant Approval & Classification Committee
36	IBS	In-Building Solution
37	IN	Intelligent Network
38	ISP	Internet Service Provider
39	IT	Information Technology
40	KPI	Key Performance Indicator
41	LEED	Leadership in Energy and Environmental Design
42	LTE	Long-Term Evolution

43	LF	License Fee
44	MBBL	Model Building Bye-Laws
45	ML	Machine Learning
46	MNRE	Ministry of New and Renewable Energy
47	MoHUA	Ministry of Housing and Urban Affairs
48	MSC	Mobile Switching Centre
49	MSO	Multi-System Operators
50	NBC	National Building Code of India
51	NDCP	National Digital Communication Policy
52	NLD	National Long Distance
53	NOC	No Objection Certificate
54	NSDC	National Skill Development Council
55	ONDC	Open Network for Digital Commerce
56	O-RAN	Open Radio Access Networks
57	PSU	Public Sector Undertaking
58	QoS	Quality of Service
59	QoE	Quality of Experience
60	QR Code	Quick Response Code
61	RAN	Radio Access Network
62	RERA	Real Estate Regulatory Authority
63	RF	Radio Frequency
64	RU	Radio Unit
65	RWA	Residents Welfare Association

66	SEBI	Securities and Exchange Board of India
67	SEZ	Special Economic Zone
68	SRI	Smart Readiness Indicator
69	TEC	Telecommunication Engineering Centre
70	TERI	The Energy and Resources Institute
71	TIA	Telecommunications Industry Association
72	TRAI	Telecom Regulatory Authority of India
73	TSDSI	Telecommunications Standards Development Society India
74	TSP	Telecom Service Provider
75	TSSC	Telecom Sector Skill Council
76	UL	Unified License
77	UL (VNO)	Unified License (Virtual Network Operator)
78	UPS	Uninterruptible Power Supply
79	URIN	Unique Request Identification Number
80	UT	Union Territory
81	WFA	Work from Anywhere
82	WFH	Work From Home
83	Wi-Fi	Wireless Fidelity