CONSUMER PROTECTION ASSOCIATION
HIMMATNAGAR
DIST. : SABARKANTHA
GUJARAT

Comments on

Review of Rating of Properties for Digital Connectivity Regulations, 2024 (7 of 2024)

Introduction

Context and recent developments

Digital connectivity has become a critical enabler of modern life and is now as important as electricity or water. With most data consumption occurring indoors and high-frequency 4G/5G signals often weakened by walls and building materials, the quality of in-building connectivity directly affects consumer experience.

Benefits for consumers and stakeholders

The rating framework's objectives are multi-faceted:

- **Improved consumer experience.** By ensuring seamless connectivity inside buildings, the framework protects consumer interests and enables users to access digital services without disruption. Prospective tenants and buyers can compare properties based on their rating, allowing them to choose buildings with superior digital infrastructure.
- **Standardization and transparency.** The framework establishes a uniform methodology to assess digital connectivity and provides a

transparent measure of a property's connectivity readiness. Standardized criteria (fibre readiness, mobile coverage, Wi-Fi and service performance) enable comparability across diverse property types.

- **Market differentiation and higher property values.** Properties with higher ratings can command premium rents and attract tenants who prioritise reliable connectivity. Early integration of DCI improves property value and marketability.
- **Stakeholder collaboration.** The regulations encourage coordination between property managers, service providers and digital connectivity infrastructure providers to implement connectivity standards. TRAI is developing a digital platform to facilitate collaboration and provide a repository of ratings.
- **Capacity building.** The rating process fosters the creation of accredited DCRAs and a professional ecosystem of designers and auditors, providing employment and skill-development opportunities.

International practice

Similar certification schemes have been implemented internationally. **Wired Score**, for example, is a global standard that certifies buildings based on their digital infrastructure. It recognizes and promotes best-in-class digitally connected buildings, providing a trusted benchmark for asset managers and enabling them to improve, benchmark and promote their building's digital connectivity. Wired Score measures criteria such as Internet service provision, mobile performance, digital services, sustainability technology, infrastructure setup, technology resilience and future readiness. Certification has been shown to attract and retain occupiers and unlock higher rents, demonstrating that rating a building's connectivity can influence real estate values. The TRAI framework is India's first attempt at a comparable national standard, drawing inspiration from these global practices while tailoring criteria to the Indian environment.

Pros and cons of the consultation paper

Aspect	Benefits/Pros	Concerns/Cons
Standardized assessment	Establishes a uniform method for evaluating properties, ensuring comparability and transparency.	Some stakeholders worry that rigid criteria might not account for diversity in building types or regional variations, leading to unfair assessments.
Consumer empowerment	Provides consumers with clear information on digital infrastructure, enabling informed decisions.	If the rating becomes a marketing tool, there is a risk of misuse or misrepresentation of scores; auditing and enforcement mechanisms must be robust.
Improved connectivity and innovation	Encourages early integration of fibre, small cells and advanced technologies such as distributed antenna systems (DAS), thus improving network quality and supporting emerging services. It also promotes future readiness by evaluating support for upcoming frequency bands and upgradability of wireline infrastructure.	Compliance may require significant capital expenditure. Retrofitting existing buildings to meet standards could be costly and technically challenging, particularly in older structures.
Stakeholder coordination	Creates a collaborative platform for property	A contentious debate persists over who should

Aspect	Benefits/Pros	Concerns/Cons
	managers, service providers and DCRAs, fostering a holistic approach to in-building connectivity.	bear the cost of installing, maintaining and certifying in-building infrastructure. Telecom operators argue property managers should pay, while real estate developers contend that infrastructure providers should assume responsibility. Without clear cost-sharing guidelines, adoption may be slow.
Alignment with building codes	Incorporates digital connectivity requirements into Model Building Bye-Laws (MBBL) and the National Building Code (NBC), ensuring that new constructions are designed with dedicated telecom rooms, pathways, and fibre ducts.	Builders worry about additional documentation and compliance burdens. Real-estate associations have requested removal of clauses making property managers responsible for documentation and compliance.
Market impact	Properties with higher ratings could command premium pricing, incentivising investment and potentially increasing real-estate sector competitiveness. Better indoor coverage reduces customer churn for telecom	There is a risk that costs associated with compliance and certification will be passed on to end-users through higher rents or property prices, potentially worsening affordability.

Aspect	Benefits/Pros	Concerns/Cons
	operators.	

Benefits to consumers and side effects

Benefits to consumers:

- **Reliable indoor connectivity.** By ensuring buildings incorporate fibre networks, in-building solutions and Wi-Fi infrastructure, the framework addresses the problem of weak indoor signals. This enhances user experience for telemedicine, online education, remote work and entertainment.
- **Informed choices.** The rating acts as a trusted indicator of digital readiness, allowing consumers to select homes, offices or public spaces with robust connectivity.
- **Future readiness.** Requirements for support of future frequency bands and upgradability of wireline infrastructure ensure that buildings are prepared for upcoming technologies like 5G-Advanced and 6G.

Potential side effects:

- **Higher costs for occupants.** If developers pass certification and infrastructure costs to tenants, rents or sale prices could increase.
- **Inequality risk.** Premium connectivity ratings may create a two-tier market where only high-end properties provide superior digital services, widening the digital divide.
- **Privacy and security concerns.** Enhanced in-building networks, Wi-Fi systems and IoT devices could raise concerns about data security and surveillance. Ensuring robust cybersecurity standards will be essential.

Forward-looking precautions and suggestions

1. **Clarify cost-sharing mechanisms.** TRAI should provide clear guidelines on how costs for designing, implementing and maintaining

DCI will be shared among property managers, telecom operators and DCIPs. Regulatory backing (e.g., through the Real Estate (Regulation and Development) Act, RERA) could ensure enforceability.

2. **Integrate digital connectivity into building laws and smart-city planning.** Amendments to the Model Building Bye-Laws and the National Building Code should mandate telecom rooms, dedicated ducting, power redundancy and fibre pathways in new constructions. Smart-city projects should align with the rating framework so that digital infrastructure becomes a core component of urban planning.
3. **Provide incentives and subsidies.** To encourage retrofitting of existing buildings, the government could offer tax breaks or low-interest financing. This would mitigate the risk of costs being passed on to consumers and accelerate adoption.
4. **Capacity building and awareness.** Develop training programmes for architects, engineers and builders on designing digital-ready buildings. Educate consumers about the benefits of digital connectivity ratings and how to interpret them.
5. **Expand consumer feedback mechanisms.** Incorporate user experience and crowd-sourced data into rating assessments, ensuring that ratings reflect actual performance.
6. **Ensure cybersecurity and resilience.** Include criteria for network security, redundancy and power backup. The rating manual already considers redundancy of power sources and physical resilience; these should be updated to address evolving threats.
7. **Adopt open and future-proof technologies.** Encourage adoption of open architecture (e.g., Open RAN) and standardized interfaces to enable interoperability and reduce costs.

Technological advances and future readiness

- **5G-Advanced and 6G.** Research on **IMT-2030 (6G)** indicates that commercial 6G networks are expected around 2030. 6G aims to incorporate integrated sensing, native artificial intelligence and non-terrestrial networks to provide ultra-low latency and support new use cases. Existing 5G networks will evolve through 5G-Advanced, integrating AI/ML for improved network efficiency.

- **Wi-Fi 7 and fibre at scale.** Wi-Fi 7 (IEEE 802.11be) promises increased data rates, multi-link operation and enhanced coverage, meeting the growing demand for high-bandwidth applications. Fibre remains fundamental; India's fibre deployment lags global counterparts and needs to be scaled to support next-generation networks.

- **Open architecture and AI.** Open radio access networks (Open RAN) and open API specifications promote interoperability, simplify upgrades and lower total cost of ownership. AI-driven network management will optimize Wi-Fi 7 and 6G networks.

- **Smart buildings and digital twins.** Global trends indicate that property owners increasingly treat connectivity as an amenity and use digital twin technologies and edge computing to manage infrastructure. In the United States and Europe, *Wired Score* and *Smart Score* certifications show that smart, well-connected buildings command rental uplifts. India's rating framework positions its real-estate sector to leverage similar trends.

Changes in building laws and smart-city implications

The consultation envisages embedding digital connectivity into building regulations. The rating manual emphasizes compliance with Model Building Bye-Laws and the National Building Code. This includes obtaining formal approval for a property's digital connectivity blueprint, ensuring provision of telecom rooms, horizontal and vertical pathways, HVAC in telecom rooms and power redundancy. Such provisions will require coordination among

urban planning authorities, standards bodies (BIS), and municipalities to update building codes. Incorporating digital connectivity into **smart-city planning** ensures that smart health, smart transport and IoT services operate seamlessly. The framework therefore aligns with India's **Viksit Bharat @ 2047** vision of world-class, resilient infrastructure.

Conclusion

TRAI's consultation on the **Review of Rating of Properties for Digital Connectivity Regulations, 2024** reflects India's determination to make digital connectivity a core aspect of built infrastructure. By establishing a transparent rating system, aligning building regulations, and encouraging stakeholder collaboration, the initiative seeks to ensure that Indian buildings are ready for 5G, 6G and beyond. However, success will depend on clear cost-sharing mechanisms, regulatory clarity, and continued investment in fibre and emerging technologies. Drawing lessons from international practices such as Wired Score, India can develop a robust, future-ready ecosystem that benefits consumers, property owners and service providers alike.

Comments on Refinement of Digital Connectivity Star Ratings from Five to Nine Levels :

Q.1 Should the star rating framework be refined from 5 levels to 9 levels (including half-star increments) to provide consumers with clearer differentiation?

Context of the proposed change

The Digital Connectivity Rating framework is intended to serve as a consumer-facing indicator of a property's readiness to support high-speed and reliable digital services, based on a structured assessment of infrastructure readiness and related criteria. The current operational scorecard awards ratings from 1-star to 5-star across wide score ranges (e.g., 25–40, 41–55, 56–70, 71–85, and >85), which can compress materially different infrastructure

realities into the same star band and reduce meaningful comparability, especially near threshold edges.

TRAI's consultation explicitly recognizes this "threshold effect," observing that the existing five-star scale needs improvement to better differentiate properties with materially different digital connectivity performance, particularly where scores lie close to threshold values. In response, the consultation proposes introducing additional half-star levels—expanding the scale from five to nine rating levels—to improve differentiation without altering the core intent, principles, or assessment methodology of the framework.

These comments focus on whether moving from five levels to nine (half-star increments) advances consumer differentiation, market transparency, and future readiness—and how to implement the change in a manner that remains verifiable, technology-resilient, and consumer-protective.

Advancement of technology and the case for a more granular scale

The central consumer-interest rationale for moving to nine rating levels is that broadband and in-building connectivity capability has become both more essential and more differentiated across properties, driven by rapid evolution in wireless, wired, and hybrid architectures and the increasing technical complexity of indoor usage environments. The digital connectivity ecosystem envisioned for buildings explicitly spans wireless, wired, and satellite technologies, and therefore must remain robust as each of these evolutions accelerates.

Indoor environments are now the "primary theater" for high-demand connectivity use cases, while radio-propagation and building-material challenges can sharply differentiate user experience between two buildings with superficially similar "broadband availability." The 2022 in-building solutions addendum included in earlier work on building connectivity notes the practical need for in-building solutions to improve in-building coverage and better-quality high-speed data services, and also emphasizes that robust

in-building cabling (including shared duct space) supports flexibility for future requirements and multiple service types, including IoT/smart device solutions.

At the same time, Wi-Fi capability has progressed from a "home convenience" to a high-capacity access network underpinning enterprise telepresence, video conferencing, automation, e-learning, dense venues, and smart homes with many concurrently connected devices. Wi-Fi CERTIFIED 6 explicitly validates IEEE 802.11ax-based devices and highlights features such as OFDMA, MU-MIMO, wider channels, and power-efficiency mechanisms that are specifically designed to raise capacity and performance in congested environments. Wi-Fi CERTIFIED 7 (Wi-Fi 7) further expands capability with features including 320 MHz channels, Multi-Link Operation, and higher-order modulation ("4K QAM"), reinforcing that properties will increasingly differ in "readiness" depending on pathways, telecom spaces, backhaul, power, and upgrade headroom—even when they all claim "fiber" or "Wi-Fi."

A more granular rating scale can better "price in" incremental but meaningful differences in: - capacity headroom for additional telecom equipment, distribution points, and cable pathways (especially relevant as Wi-Fi generations and in-building cellular solutions densify);
- documentation/approval and as-built adherence for digital connectivity infrastructure, which becomes more consequential as in-building networks carry more mission-critical use;
- structured provisions supporting upgrades "over and above" mandatory baselines in a way that anticipates increasing demand and technology refresh cycles.

Technology-neutral terminology is important to prevent premature obsolescence. The regulatory framework already emphasizes infrastructure readiness and evaluation criteria rather than endorsing a single access technology, and earlier work explicitly frames digital connectivity as spanning wireless, wired, and satellite. Accordingly, in consumer disclosures and scoring explanations, terminology should remain neutral—e.g.,

"high-capacity broadband infrastructure," "structured in-building digital pathways," "telecom spaces and power readiness," and "multi-operator readiness"—so that the framework continues to make sense as new IEEE Wi-Fi generations, new cellular releases, and new satellite-backed or hybrid architectures mature.

Future-proofing and scalability should be reflected in the rating granularity itself. The current five-band scorecard creates large jumps between adjacent ratings and can under-reward "near-threshold" improvements. Introducing half-star steps can reduce cliff effects and allow measured recognition of intermediate future-readiness upgrades (e.g., incremental pathway capacity, better telecom room provisioning, improved structured cabling administration/testing readiness), helping properties signal progress without having to "hit the next full star."

Alignment with laws and standards

A nine-level scale should be implemented in a way that strengthens (not fragments) alignment with existing building governance and recognized ICT infrastructure standards, while also reducing risks of consumer misrepresentation.

The rating methodology already includes explicit evaluation of compliance with building governance baselines for digital connectivity infrastructure. The operational manual sets out a criterion on compliance with applicable Model Building Bye-Laws (MBBL) and the National Building Code for digital connectivity, and states that such compliance helps ensure structured telecom infrastructure, safety standards, and future readiness for advanced digital services. It also clarifies that where MBBL is not notified by the concerned State/UT, the provisions issued by the Ministry of Housing and Urban Affairs apply for assessment against that criterion.

Earlier consultations also document that the National Building Code of India 2016 included a chapter on requirements to enable ICT installations (Vol-II, Part 8, Section 6), demonstrating that ICT enablement is already a recognized

building-services dimension in national guidance. In parallel, the draft addendum to MBBL for in-building telecom infrastructure stresses common telecom infrastructure (CTI), ducts, and telecom rooms as integral to plan approval and completion certification, reinforcing regulatory intent to treat in-building digital infrastructure as a core building service.

Beyond building code alignment, national urban policy frameworks explicitly place digital connectivity inside the "core infrastructure" set for contemporary cities. The Smart Cities Mission guidelines list "robust IT connectivity and digitalization" among the core infrastructure elements required for a smart city, alongside electricity, sanitation, mobility, housing, and governance. This strengthens the policy case that a digital connectivity rating (and improvements to its granularity) is not merely a telecom industry mechanism, but also an urban infrastructure transparency tool.

International benchmarks further support structured, standard-based building ICT design. Earlier consultation material describes how BICSI manuals and credentials relate to structured cabling design practice and reference standards such as ANSI/EIA/TIA structured cabling specifications, highlighting that robustness and reliability of design is a vocational skill requiring institutionalization. In addition, International Organization for Standardization /IEC cabling standards such as ISO/IEC 11801-1 establish multi-vendor generic cabling requirements supporting a wide range of services including voice, data, and video (and potentially power delivery), providing a globally recognized baseline for structured premises cabling concepts.

A more granular nine-level rating can better recognize (and thereby incentivize) meaningful conformance and "beyond-baseline" practices without changing the underlying criteria. This is consistent with the consultation's stated intent to refine differentiation without altering core principles or assessment methodology.

Consumer protection laws heighten the need for careful representation of ratings. The Consumer Protection Act defines "unfair trade practice" to

include false representations that goods or services are of a particular standard, quality, or grade, and other misleading claims. The same Act empowers the Central Consumer Protection Authority to address unfair trade practices and false or misleading advertisements. In real estate marketing specifically, the Real Estate (Regulation and Development) Act, 2016 provides consumer remedies where purchasers rely on advertisements/prospectuses containing incorrect or false statements, and also penalizes the provision of false information in the registration context. **A nine-level scheme, if not communicated clearly, could increase the risk of "false precision" in marketing claims; thus, alignment with consumer protection norms should be a design constraint.**

Forward-looking regulatory approach

Moving to nine rating levels supports a more forward-looking approach because it better matches how consumer needs are evolving and how buildings are marketed, designed, and delivered.

First, consumer dependence on robust digital connectivity has expanded structurally: earlier consultation work links digital connectivity to remote work, distance learning, and digital access during the pandemic period, underscoring that connectivity is not discretionary but tied to essential services and participation. Wi-Fi technology documentation similarly frames the demand environment as including telepresence, e-learning, and remote services including healthcare monitoring—use cases where performance variability matters to consumer welfare.

Second, future readiness requires that compliance be addressed at design stage rather than only post-construction. **The consultation press note highlights that many properties are marketed and sold during construction, while the existing framework awards ratings only after completion of DCI and on-ground assessment. It therefore proposes introducing a design-stage assessment and certification mechanism for under-construction properties, while retaining final rating award only after completion and due diligence to preserve assessment integrity. This**

approach is directionally pro-consumer because it reduces information asymmetry at the stage when many buyers commit capital.

The operational manual already contemplates assessment support for properties under development: it states that property managers may apply for rating of under-construction properties to enable assessment and guidance by DCRAs on implementing DCI aligned with requirements, with the rating certificate issued only after DCI provisioning in line with criteria. A nine-level scale can complement this by enabling more nuanced "design-stage" differentiation (e.g., a design that is "close to" a higher tier but missing certain future-proofing provisions), provided disclosures clearly distinguish design-stage certification from the final operational rating.

Third, the framework should remain flexible for emerging access and enterprise connectivity models. Private 5G/non-public networks (NPNs) are formally defined within 5G specifications as networks intended for private use, with deployment models including stand-alone NPNs and public-integrated NPNs. Such architectures are relevant to campuses, hospitals, industrial estates, and other properties where indoor connectivity is mission-critical and may be provisioned through private networks rather than relying solely on consumer mobile rollout. Similarly, the framework's technology-neutral stance (wireless, wired, satellite) should translate into rating language and evidence criteria that can accommodate satellite broadband backhaul or hybrid last-mile solutions where appropriate, without over-fitting to one delivery method.

Fourth, digital inclusion considerations argue for granularity that encourages incremental improvement across the housing spectrum, not just premium developments. The Smart Cities guidance frames robust IT connectivity as a baseline civic infrastructure element and links it with inclusive development and essential public services. A nine-level scale can encourage "stepwise" improvements in Tier-2/3 cities and affordable housing by reducing the perception that "only a large capex leap" yields a visible rating change. This

aligns with the consultation's stated goal of improved transparency and on-ground practicality rather than a redesign of the scoring system.

Transparency and consumer protection safeguards for a nine-level regime

A more granular rating can improve market transparency only if consumers can understand what the rating means, how robust it is, and what it does *not* guarantee.

The operational framework already anticipates that ratings become publicly visible and that property managers may want a diagnostic step prior to formal rating; hence the proposal (in the consultation summary) for an optional digital connectivity audit for improvement purposes. **The operational manual similarly sets out a structured, multi-stage rating process designed for transparency, consistency, and reliability, and contemplates evidence submission, time-bound due diligence, and documented action points (mandatory/recommended/optional). These design features should be leveraged for consumer-friendly transparency under a nine-level scale.**

Key safeguards recommended for TRAI consideration are:

A standardized disclosure label should be mandatory wherever the rating is used in marketing and consumer communication, with plain-language explanations of: the rating level (including half-stars), what aspects were assessed (infrastructure readiness/service quality/user-experience proxies as applicable), and validity/renewal date. Because Wi-Fi CERTIFIED programs emphasize consumer trust through certification logos and interoperability/security assurances, a similar "trust mark" approach—adapted to property DCI and backed by verifiable evidence—would likely reduce confusion when half-stars are introduced.

Audit summaries should be published in an impartial, machine-readable form on the rating platform (or linked via QR code), providing a short consumer summary plus a technical annex for expert verification. This should include: rating score band (not necessarily full numeric score if

sensitive, but at least the band positioning), key prerequisites met (e.g., MBBL/NBC design compliance), and any major limitations disclosed at the time of certification.

Design-stage certifications must be separated from final ratings in both naming and representation. Since the consultation proposes design-stage assessment for under-construction properties while preserving final rating award post-construction and due diligence, the disclosure format should prohibit advertising a "final" star rating prior to completion. Instead, consumers should see a clearly caveated "Design-Stage Digital Connectivity Readiness Assessment" indicator, with explicit conditions precedent for the final rating.

Codes of conduct and penalties should be strengthened through explicit linkage to consumer protection norms. Under the Consumer Protection Act, false representations of standard/grade and misleading advertisements are regulated, and the Central Consumer Protection Authority has defined powers to address false or misleading advertising and impose penalties in such contexts. In real estate, RERA imposes obligations regarding veracity of advertisements/prospectuses and provides for compensation where consumers sustain loss due to incorrect or false statements; it also penalizes false information in certain compliance contexts. **A nine-level rating should therefore include clear rules for "fair use of ratings" in marketing and standardized penalty triggers for misrepresentation (e.g., claiming a higher rating, using an expired rating, or presenting design-stage outcomes as final).**

Finally, this consumer-centric transparency logic is consistent with TRAI's statutory consumer-protection mandate, including laying down and ensuring quality-of-service standards to protect consumer interest.

Practical implementation and transition recommendations

A nine-level rating can be implemented with minimal disruption if it is treated as a "presentation layer refinement" rather than a re-engineering of the

methodology—consistent with the consultation's stated intent not to alter core assessment methodology. Practical implementation should prioritize predictability, auditability, and manageable compliance costs.

First, the transition should preserve continuity with the existing scoring and operational process. The current rating scorecard has five broad bands. Introducing half-star levels can be achieved by subdividing the existing bands (or by inserting intermediate thresholds) without changing how evidence is collected or how criteria are scored, thereby reducing re-training burden and maintaining comparability over time.

Second, implementation should explicitly manage measurement uncertainty. Half-star increments may create perceptions of precision that exceed real-world measurement repeatability, especially where performance proxies vary over time. The solution is not to abandon granularity, but to adopt clear rounding and tie-break rules, and to publish confidence statements in audit summaries so consumers understand that 4.5 vs 5.0 is based on documented criteria and evidence rather than transient network conditions. The framework's structured documentation, evidence upload expectations, and staged due diligence model already create a basis for this.

Third, ease of compliance for developers and property managers should be supported through capacity building and standardized templates. The operational manual already describes the structured lifecycle, time-bound due diligence steps, and defined categories of action points (mandatory/recommended/optional), which can be extended into workshops and guidance materials to help stakeholders understand how incremental upgrades translate into incremental rating improvement. Earlier consultation experience also explicitly called for institutionalization of design robustness skills and references vocational development and certification ecosystems (including BICSI credentials) as relevant to nationwide capability building.

Fourth, phased implementation can prevent undue burden on smaller properties. A reasonable approach is: - an initial transition period where both "legacy five-star equivalence" and "new nine-level rating" are shown together

for consumer continuity, then a full transition after sufficient market familiarity; and

- targeted exemptions or simplified documentation pathways for smaller properties, while maintaining core consumer truthfulness safeguards (e.g., prohibiting any rating claims without verifiable certification).

Fifth, the proposed optional audit mechanism is a practical complement to a nine-level system. The consultation summary notes that some property managers prefer to assess and improve before seeking a publicly visible rating, and proposes an optional audit mechanism for evaluation and improvement. This is especially valuable under a more granular system, because it can reduce gaming behavior and allow properties to invest in improvements before public labeling.

Finally, the implementation design should continue to encourage infrastructure expansion and upgrade provisions “over and above” baseline building code requirements, because these provisions are directly linked to future readiness as demand grows.

Conclusion

On balance, expanding the Digital Connectivity Rating from five to nine levels (with half-star increments) is a consumer-positive refinement—**provided it is implemented with strong disclosure discipline and auditability.**

The consultation’s stated rationale is sound: the five-star system can insufficiently differentiate materially different properties near thresholds, and half-star levels can reduce cliff effects while improving comparability without changing the assessment methodology. This refinement is also consistent with the technology trajectory: rapid evolution in in-building connectivity requirements (including Wi-Fi 6/7 capability expectations and dense smart-device environments) increases the value of incremental infrastructure differences and therefore the value of granular consumer signals.

However, nine-level ratings will enhance market transparency only if they are accompanied by clear, impartial disclosures and protections against

misleading marketing. Consumer protection frameworks already prohibit false representations of standard/grade and regulate misleading advertisements, and real estate laws create specific liabilities for incorrect statements in advertisements and for false information in compliance contexts. These legal realities make it essential that **half-star ratings are presented with standardized labels, clear validity status, and publicly accessible audit summaries—especially for design-stage certifications for under-construction properties.**

Subject to these safeguards, a nine-level rating regime is likely to improve consumer differentiation, strengthen trust in property rating claims, and better future-proof the framework as building connectivity standards and use-cases continue to evolve.

Q2 – Should under-construction properties be allowed to display a "Designed for XX Stars" certificate at the design stage to help consumers make informed purchase decisions?

Comments :

Consultation focus and consumer-interest framing

TRAI's consultation explicitly identifies the consumer information gap created by the fact that a significant proportion of properties are marketed and sold during construction, while final Digital Connectivity Ratings are only awarded after completion of Digital Connectivity Infrastructure (DCI) and post-construction verification. In response, the consultation proposes a **design-stage assessment and certification mechanism** to provide structured visibility of DCI preparedness during planning and construction, enabling prospective buyers and tenants to understand the *intended* level of digital connectivity.

Within that framework, the consultation answers the specific marketing question directly: **a "Designed for XX Stars" certificate may be used for marketing purposes during construction**, provided it is clearly represented as *design-stage only*, is not presented as a final Digital Connectivity Rating, and does not mislead consumers about the final rating outcome. The

consultation further clarifies that the **design-stage star level should be publicly visible on the rating platform with an explicit indication that it is not a final rating**, and that the **target star level declared at application does not guarantee the final rating**, which will be determined through on-ground assessment at Due Diligence Stage-II upon completion.

Against this backdrop, these comments support allowing "Designed for XX Stars" design-stage certificates, but recommend **tight, consumer-protective guardrails** so the certificate functions as an honest "design intent + verified plans" signal—rather than a marketing instrument that creates false certainty.

Advancement of technology

The technology environment increasingly makes **design-stage readiness** a practical necessity rather than an optional enhancement. In-building digital performance is no longer explained simply by "availability of internet service" at the street; it depends materially on how buildings are designed for **high-capacity broadband infrastructure** (spaces, pathways, cabling topology, power, and accommodation for multi-operator equipment and upgrades). This is especially important in a period where both wireless and wired ecosystems are evolving quickly, and where dense indoor usage is normal.

Wi-Fi evolution illustrates why design-stage infrastructure decisions matter. The Wi-Fi Alliance describes Wi-Fi CERTIFIED 6 (IEEE 802.11ax) as bringing capabilities such as OFDMA, MU-MIMO, and Target Wake Time (relevant for IoT power efficiency), targeting improved capacity/efficiency in congested environments and supporting diverse device/application profiles including smart home and industrial IoT scenarios. Wi-Fi CERTIFIED 7 then pushes further—introducing features such as 320 MHz channels (where 6 GHz is available), Multi-Link Operation for improved throughput/reliability/latency, and higher-order modulation. These evolutions increase the premium on **upgrade headroom**, **proper RF-agnostic pathways**, and **structured telecom spaces**—decisions that must be baked into drawings and approvals well before occupancy.

5G evolution reinforces the same design-stage imperative. 3GPP explains that 5G specifications support **non-public networks** (private networks) deployed either as stand-alone non-public networks (SNPN) or public-integrated non-public networks (PNI-NPN), reflecting enterprise and campus needs for controlled local connectivity and security. In practical building terms, private 5G (and future indoor cellular forms) can require **dedicated equipment locations**, **backhaul**, **power**, and **managed access arrangements**—again pointing to the importance of plan-stage provisioning.

Given technology churn, the design-stage certification should stay **technology-neutral**. Instead of anchoring the certificate wording to specific standards ("Wi-Fi 7-ready," "5G-ready"), consumer-facing language should consistently refer to **high-capacity broadband infrastructure** and **in-building digital connectivity infrastructure**, while the technical annex (for expert audiences) can map design provisions to applicable criteria and recognized standards. This reduces obsolescence risk as new standards emerge and avoids incentivizing superficial "label chasing."

A key benefit of allowing "Designed for XX Stars" at design stage is that it can shift market incentives from retrofits to **doing the right thing early**—aligning building design workflows with the real technology lifecycle (where upgrading pathways and telecom spaces after occupancy is typically disruptive and costly).

Alignment with laws and standards

A design-stage "Designed for XX Stars" mechanism aligns well with Indian building governance and international ICT infrastructure norms **if** it is framed as a verified design assessment (not a promise of delivered performance).

Model Building Bye-Laws and associated addendum approach. Government materials on Right of Way and allied issues record that an **addendum to Model Building Bye-Laws, 2016 on "In-building Access by Telecom Service Provider"** was issued (noted as March 2022) and focuses on providing common telecom infrastructure and in-building solutions,

ensuring access permission to service providers, and emphasizing that common telecom infrastructure should not be treated as a revenue source but as a facilitative utility comparable to water/electricity. TRAI's own recommendations also describe the MoHUA addendum (issued through TCPO) as emphasizing Common Telecom Infrastructure (CTI) and setting expectations such as demarcated spaces, power for "always-on" services, fair and non-discriminatory access for service providers, and non-exploitative charging approaches.

The design-stage certificate can become a practical tool to demonstrate that such requirements have been **incorporated into sanction drawings** and **DCI design documentation**, supporting a more consistent compliance culture.

National Building Code alignment. A Central government guide for using the National Building Code of India 2016 shows that NBC Volume 2, Part 8 (Building Services) includes Section 6 on "Information and communication enabled installations." TRAI's consultation materials further explain that NBC-2016 includes a chapter on Information and Communication Enabled Installations (ICT) under Building Services, and that Section 6 provides details specific to telecom/ICT enabling requirements, focusing on ICT installations, technology systems, and related cabling installations, including telecom spaces and pathway/passive infrastructure requirements.

A design-stage "Designed for XX Stars" certificate is therefore conceptually aligned with NBC's framing of ICT as a building service—provided the certification methodology maps to those ICT-enablement principles and does not collapse into a marketing claim unmoored from deliverable, inspectable building provisions.

Smart Cities Mission and "core infrastructure" framing. Government Smart Cities Mission guidelines identify "Robust IT connectivity and digitalization" as a core infrastructure element (alongside water, electricity, sanitation, mobility, and affordable housing). Design-stage certification aligns with this policy direction because it treats in-building digital infrastructure as part of planned urban infrastructure quality rather than as an afterthought.

International ICT infrastructure standards. Two internationally recognized reference families are particularly relevant to design-stage certification:

- **ISO/IEC generic cabling.** ISO/IEC 11801-1 defines general requirements for generic cabling for customer premises and specifies a *multi-vendor cabling system* supporting a wide range of services (voice/data/video and potentially power delivery), which is directly relevant to future-proof building cabling concepts.
- **BICSI and installation best practice.** Descriptions of NECA/BICSI 568 characterize it as setting **minimum requirements and procedures for installing telecommunications infrastructure**, including balanced twisted-pair copper and optical fiber cabling for voice/data/video transport, and linking to "neat and workmanlike" installation expectations. A university telecommunications design guideline explicitly lists BICSI's Telecommunications Distribution Methods Manual alongside foundational TIA standards (e.g., pathways/spaces, administration, grounding/bonding), underscoring common global baselines for telecommunications building design and documentation.

The design-stage certificate should explicitly state that the assessment verifies **design conformance** with applicable Indian building frameworks (MBBL addendum principles and NBC ICT-enablement provisions) and uses recognized ICT infrastructure standards as references for cabling/pathways/spaces/administration—while avoiding prescriptions that would lock the framework to a single vendor or technology.

Consumer protection and misrepresentation risk. The principal legal risk is that a design-stage "Designed for" label may be interpreted by consumers as a guaranteed outcome. The Consumer Protection Act, 2019 defines "unfair trade practice" to include false representations that goods or services are of a particular standard/quality/grade, or that they have approval/characteristics/benefits they do not have. The Real Estate (Regulation and Development) Act, 2016 directly addresses reliance on advertisements/prospectuses: where a person makes an advance/deposit

based on an advertisement or prospectus and suffers loss due to an incorrect/false statement, the person is to be compensated by the promoter, with a right to withdraw and recover investment with interest as prescribed.

Accordingly, permitting design-stage certificates is defensible only if TRAI codifies strict **anti-misleading presentation rules** and evidentiary requirements so the certificate is closer to a verified "design intent assessment" than a "service performance promise."

Forward-looking regulatory approach

A future-oriented regulatory posture should prioritize two things simultaneously: (a) enabling buyers/tenants to make informed decisions at the stage where decisions are actually made, and (b) preserving credibility by ensuring design-stage claims are verifiable and clearly provisional.

Design-stage certification supports evolving consumer needs. The consultation itself frames the objective as giving structured visibility at the stage when properties are often marketed and sold, enabling systematic integration of digital connectivity into building design and allowing prospective buyers and tenants to understand the intended level of connectivity. This directly serves future consumer needs that are increasingly connectivity-dependent (remote work, telemedicine, online education, digital public services), where "basic availability" is insufficient and where building-level readiness becomes a differentiator.

Early compliance reduces future retrofit burden and improves long-term service quality. The consultation's proposed design review corresponds to Due Diligence Stage-I for under-construction properties—where the DCRA verifies design documents and declarations for completeness/consistency/alignment with the framework, and where parameters that cannot be physically verified are assessed based on structured responses and documentary evidence and are explicitly "indicative" pending verification during Due Diligence Stage-II. This structure is appropriate for future-oriented regulation because it encourages "getting

the building plumbing right" early, but keeps performance verification anchored to post-construction reality.

Flexibility for satellite broadband, private 5G, and emerging technologies. The design-stage certification should explicitly avoid binding itself to a single access mode. TRAI's consultation logic already anticipates that some parameters cannot be physically verified at under-construction stage and therefore uses documentary evidence with later verification. A technology-neutral, criteria-based certificate can support:
- campus or enterprise deployments using 5G non-public networks (SNPN or PNI-NPN), recognized in 3GPP specifications;
- continued evolution in Wi-Fi capacity/latency features from Wi-Fi 6 to Wi-Fi 7 and beyond;
- hybrid architectures where satellite broadband may contribute to backhaul or redundancy, while the building still needs structured internal distribution.

Digital inclusion and Tier-2/3 cities and affordable housing. Smart Cities Mission guidelines treat robust IT connectivity alongside affordable housing within "core infrastructure." A well-designed "Designed for XX Stars" regime can promote inclusion by making design-stage choices visible and comparable even outside premium markets—provided compliance pathways do not impose disproportionate cost on smaller projects (addressed in implementation recommendations below).

Transparency and consumer protection

The consultation already articulates key consumer-protection guardrails: the "Designed for XX Stars" certificate may be used in marketing only if it is **clearly represented as design-stage only**, **not presented as a final rating**, and **not misleading regarding the final outcome**. To operationalize these principles and minimize consumer harm and litigation risk under consumer protection and real estate law, additional safeguards should be embedded in the final regulatory design.

Design-stage disclosures should be standardized, prominent, and verifiable. TRAI should require that every "Designed for XX Stars" display include, with equal prominence (not buried in fine print):
- "Design-stage assessment only; final rating issued post-construction after on-ground verification," consistent with TRAI's own consultation language.
- validity period and certificate ID, with a scannable QR code linking to the rating platform listing and a public summary of what was reviewed at design stage.
- a plain-language statement that the target star level does **not** guarantee the final rating.

These requirements directly reduce the risk that the design-stage label becomes a misleading "grade" under unfair trade practice concepts.

Audit summaries should separate "design intent" from "delivered performance." Because some parameters (speed, coverage, number of service providers) cannot be physically verified during construction and are therefore assessed based on declarations and documentation, the public summary should clearly show which elements were verified as design provisions (spaces, pathways, cabling plans, power, access design) versus those that will be verified only after completion. This also aligns with the consultation's commitment to preserving assessment integrity by awarding the final rating only after completion and Due Diligence Stage-II.

Codes of conduct, misuse controls, and penalties should be explicit. Given that the Real Estate Act provides compensation remedies for reliance on false statements in advertisements or prospectuses, "Designed for" misuse can create real consumer harm and exposure. TRAI should therefore adopt enforceable rules (through DCRA registration conditions and property manager obligations) that treat the following as serious violations:
- presenting "Designed for XX Stars" as a final rating or omitting the "design-stage only" disclosure;
- continuing to use a certificate after material design changes without re-assessment;

- using an expired or withdrawn design-stage certificate;
- representing the certificate as a guarantee of speeds/coverage/providers prior to project completion where such claims are not yet verifiable.

Such prohibitions are not simply “best practice”; they are necessary to avoid consumer deception risks that fall within unfair trade practices and real-estate advertising liability frameworks.

Practical implementation with international benchmarks and infrastructure standards

The consultation’s proposed structure for under-construction properties—design documentation review at Due Diligence Stage-I, indicative assessment where physical verification is not possible, and final rating only after construction and Stage-II verification—is a strong base for practical implementation. To ensure scalability and adoption without undermining credibility, TRAI could incorporate the following implementation features (all consistent with consumer protection and international precedents).

Use a “pre-certification” pattern similar to international benchmarks. The global building connectivity rating ecosystem includes pre-certification approaches. For example, the Wired Score pre-certification policy allows property owners to obtain a pre-certification designation and promote a targeted level while the project proceeds through certification, with the pre-certification valid until certification is finalized and with defined communication rules (pre-certified status promotion and target-level promotion). TRAI’s “Designed for XX Stars” can be framed similarly—i.e., as a regulated “design intent certification” with controlled communications—thereby leveraging an internationally recognizable governance approach while adapting it to Indian regulatory and consumer contexts.

Make compliance easy through standardized templates and checklists. TRAI should publish:
- a mandatory design-stage evidence checklist (drawings, telecom spaces, risers/shafts, pathways, power provisioning, access policies) mapped to

criteria;
- a standardized “Design-Stage Consumer Disclosure Label” for brochures, websites, and site hoardings;
- standard change-control triggers requiring re-assessment (e.g., revisions to telecom room size/location, pathway/riser changes, major architectural material changes affecting indoor propagation assumptions).

This approach reduces compliance friction for developers and property managers and reduces “creative marketing interpretations.”

Embed infrastructure standards by reference, not by brand. To be future-proof and auditable, TRAI should reference a compact basket of infrastructure standards in technical guidance: ISO/IEC generic cabling concepts (e.g., ISO/IEC 11801-1) for multi-vendor structured cabling; and BICSI-aligned installation and design good practice (including installation best practices and standard telecom pathway/space approaches as commonly cataloged in BICSI/TIA-based guidance). This helps maintain objective expectations without forcing adoption of proprietary vendor solutions.

Create capacity-building and phased rollout to avoid burdening smaller projects. Given the digital inclusion objective implicit in treating IT connectivity as “core infrastructure,” implementation should not become an urban-elite compliance program. A phased approach could include:
- an initial period where design-stage certification is voluntary but strongly encouraged for projects marketed pre-completion;
- scaled documentation requirements for smaller projects (while preserving core truth-in-advertising rules);
- workshops for architects, EPC contractors, and DCRAs focused on NBC ICT-enablement provisions and MoHUA addendum principles on CTI/access, using the government framing that in-building digital enablement is part of building services.

Conclusion

A regulated "Designed for XX Stars" design-stage certificate for under-construction properties should be **permitted**, because it improves consumer decision-making at the stage when many purchase/lease decisions are made and because it incentivizes early incorporation of high-capacity broadband infrastructure into building design. Rapid evolution of in-building connectivity (Wi-Fi 6/7 capacity and latency features; private 5G/non-public network deployment models; and growth in IoT device density) strengthens the case that design-stage readiness is a material predictor of future user experience and upgrade feasibility.

However, to maintain credibility and prevent misuse, TRAI should treat "Designed for XX Stars" as **a controlled pre-certification communication instrument**, not as a proxy final rating. The consultation already requires that it be clearly represented as design-stage only, not presented as a final rating, and not misleading as to the final outcome—and explicitly notes that the target star level does not guarantee the final rating. These safeguards should be strengthened by mandatory standardized disclosures, public audit summaries distinguishing design verification from post-construction performance verification, and enforceable penalties for misrepresentation—reflecting the clear consumer protection and advertising-reliance liabilities recognized under the Consumer Protection Act, 2019 and the Real Estate (Regulation and Development) Act, 2016.

International benchmarks (such as pre-certification practices in building connectivity certification) indicate that design-stage promotion can be workable and credible when communications are standardized, time-limited, and tightly governed. Aligning TRAI's design-stage certificate with Indian building governance (MBBL addendum principles and NBC ICT-enablement framing) and international infrastructure standards (ISO/IEC generic cabling principles and BICSI-aligned design/installation practices) will enhance both market usefulness and consumer trust.

Q. 3 Should hospitals, hotels, and educational institutions be reclassified into Category A, and should metro corridors be explicitly included under transport corridors, to better reflect consumer needs?

Comments :

These proposals are directionally sound and consumer-positive because (a) hospitals, hotels, and educational institutions are predominantly **building-centric environments** where building-plan approvals, dedicated telecom spaces, structured cabling, power resilience, and upgrade pathways can be designed and enforced—making the **Category A assessment model** (which includes explicit building-code alignment) more appropriate; and (b) metro corridors are telecom-intensive, safety-critical, passenger-facing transport systems whose digital needs align structurally with a "transport corridors" grouping—so explicit inclusion reduces interpretive ambiguity and improves consistency.

However, to preserve credibility and prevent misuse, TRAI should finalize these changes with (i) clearer **objective classification rules** (because categorization exists to apply relevant criteria), (ii) plain-language disclosures to avoid consumers misreading "Category A/B" and star ratings as guarantees, and (iii) practical calibration for metro corridor assessments (notably, corridor length bands and evidence collection methods) so that the framework remains workable for metro systems, including MetroLite/MetroNeo deployments in Tier-2/3 cities.

Advancement of technology

The rating framework and property categorization should reflect that digital connectivity is now a **core utility** for essential service delivery and daily life, and that requirements vary materially by property type and usage density. The Rating Manual positions digital infrastructure as a foundational enabler for governance, productivity, and inclusion, while also referencing fast evolution of 4G/5G and growing dependence on smart devices, and the rise of IoT-enabled environments.

Hospitals increasingly depend on **telemedicine and telehealth workflows** that rely on ICT-enabled remote clinical services such as videoconferencing, remote diagnostics, and remote patient monitoring; the WHO defines telehealth/telemedicine in this "distance-separated" delivery context. India's Telemedicine Practice Guidelines (released by the Ministry of Health and Family Welfare in March 2020, as discussed in peer-reviewed commentary) further reinforce that registered medical practitioners may deliver healthcare using technology under structured protocols, which practically presumes reliable and secure connectivity within care environments.

Hotels operate as high-density, multi-user environments where digital connectivity is central to guest experience (work-from-anywhere usage patterns, video calling, streaming) and increasingly to smart-room/IoT services (e.g., connected sensors and device ecosystems). Wi-Fi technology evolution demonstrates why these environments require **high-capacity broadband infrastructure** rather than minimal connectivity: Wi-Fi CERTIFIED 6 (IEEE 802.11ax) capabilities such as OFDMA, MU-MIMO, and Target Wake Time are designed to improve efficiency, support many devices, and improve power efficiency for IoT device classes. Wi-Fi CERTIFIED 7 further advances capacity and reliability through features like 320 MHz channels (where 6 GHz is available), Multi-Link Operation, and 4K QAM—raising the premium on structured pathways, telecom spaces, and upgrade headroom within properties.

Educational institutions increasingly blend on-campus and remote activity (digital classrooms, online exams, learning management systems, digital labs), and they frequently resemble small "campuses" with multiple high-occupancy buildings and large numbers of concurrently connected devices. The Rating Manual itself links digital services growth to sectors including healthcare and education and emphasizes that connectivity quality is now essential for modern life and services.

Because 5G evolution includes private/non-public network configurations intended for localized, controlled performance and security (e.g., Standalone

Non-Public Networks and Public-integrated NPNs), hospitals, educational campuses, and large hospitality complexes may increasingly deploy private 5G or hybrid architectures. [9] This reinforces that categorization and criteria should remain **technology-neutral**, focusing on "high-capacity broadband infrastructure" (spaces, pathways, power, in-building solutions readiness, multi-operator readiness, structured cabling) rather than naming a particular access technology.

Alignment with laws and standards

Mapping the proposed Category A move to Indian building governance

Under the current regulations and rating manual classification table, hospitals, hotels, and educational institutions are included under "Other private or public areas" in Category B, while "Commercial Establishments" are Category A. TRAI's consultation proposes moving hospitals, hotels, and educational institutions into Category A (within commercial/institutional building types), and the press note highlights that categorization exists to apply the most relevant rating criteria and that some categories may not align with actual usage patterns.

This shift aligns with national building governance because Category A assessment explicitly includes **compliance to applicable Model Building Bye Laws and the National Building Code for digital connectivity**, and the Rating Manual operationalizes this by requiring documentary review and verification of design provisions (including horizontal/vertical pathways, entry points, telecom rooms/telecom areas, and HVAC in telecom rooms/areas as per NBC considerations).

The policy direction is reinforced by the March 2022 addendum to Model Building Bye-Laws, 2016 on "In-building Access by Telecom Service Provider," as summarized in government materials: it emphasizes dedicated telecom space/telecom rooms, common telecom infrastructure (CTI), in-building/gated building solutions, fair and non-discriminatory access for service providers/infrastructure providers, and the principle that CTI should

not be treated as a revenue source (instead treated as an enabling utility akin to water/electricity).

Linking Category A expectations to NBC-2016 Part 8, Section 6

The Bureau of Indian Standards' guide to NBC 2016 notes that Part 8 (Building Services) includes Section 6 on "Information and Communication Enabled Installations," covering essential requirements for ICT-enabled installations and "basic design and integration requirements for telecommunication spaces," cabling infrastructure, pathways, and passive connectivity hardware.

This maps directly to why hospitals/hotels/educational institutions are structurally better suited to Category A: these are building types where telecom spaces, pathways, risers, equipment rooms, and internal distribution can be designed, approved, inspected, and maintained as part of building services—whereas many Category B environments (e.g., linear corridors, open public areas) are less naturally governed through building-plan ICT provisions alone.

Smart Cities Mission and public policy alignment

Smart Cities Mission guidelines explicitly list "Robust IT Connectivity and Digitalization" as part of core/basic infrastructure expectations for smart cities. Reclassifying hospitals, hotels, and educational institutions into Category A strengthens alignment with this policy emphasis because it incentivizes higher-quality, building-integrated DCI (not merely opportunistic or post-hoc deployments).

International ICT infrastructure benchmarks

Internationally recognized infrastructure standards support more demanding expectations for structured ICT provisioning in complex, high-occupancy buildings:

- ISO/IEC 11801-1 specifies a multi-vendor generic cabling system supporting a wide range of services (voice/data/video and potentially

power), reinforcing the need for standardized structured cabling and pathways within premises rather than ad hoc wiring.

- NECA/BICSI 568 describes minimum requirements and procedures for installation of telecommunications infrastructure, including balanced twisted-pair copper and optical fiber cabling, and references structured cabling building elements such as entrance facilities and telecommunications rooms.

Anchoring "Category A" expectations for hospitals/hotels/educational institutions in such standards (by reference, not by mandating procurement) improves auditability, interoperability, and long-term maintainability—key consumer-interest outcomes when properties are marketed as connectivity-ready.

Consumer protection and misclassification risk

Categorization affects which criteria are applied; the Rating Manual explicitly states that the objective of classification/grouping is solely to apply rating criteria relevant to assessing digital connectivity for that category. Therefore, misclassification is not just a technical issue—it can yield ratings that are not comparable or not reflective of the relevant infrastructure obligations for that property type, risking consumer confusion and misleading marketing.

Separately, consumer protection law principles require guarding against false representations of "standard/grade" or "approval/characteristics" in marketing. The Consumer Protection Act, 2019 defines "unfair trade practice" to include false representations that goods/services are of a particular standard/grade or have approvals/benefits they do not have. Where real estate sales/leases are involved, RERA provides compensation rights for losses caused by incorrect/false statements in advertisements/prospectuses relied upon for advances/deposits. These provisions make it essential that any category change (and the resulting criteria application) is communicated clearly and verifiably to avoid "false precision" or category-based consumer deception.

Forward-looking regulatory approach

Rationale for reclassifying hospitals, hotels, and educational institutions into Category A

The Rating Manual's structure shows that Category A properties are assessed with explicit emphasis on building-code-aligned design and infrastructure readiness (including MBBL/NBC compliance) while still covering service performance and user experience. For hospitals, hotels, and educational institutions, this approach better matches future connectivity demands because these are environments where:

- critical/mission-sensitive operations increasingly depend on connected systems (clinical services, campus networks, guest services),
- capacity needs grow with device density and higher-performance Wi-Fi generations,
- and upgrade pathways depend heavily on design-stage telecom spaces, cabling pathways, and power/environmental readiness rather than solely on "as-used" experience at a point in time.

Reclassification to Category A is therefore consistent with a proactive, future-ready regulatory posture: encourage DCI as part of building services at the planning/design stage, reducing retrofit cost and disruption.

Case for explicitly including metro corridors under transport corridors

Under the 2024 regulations and rating manual, transport corridors are Category B and include expressways, highways, and railway routes; metro corridors were not explicitly listed in the base table. TRAI's consultation proposes explicitly listing "Metro corridors etc." under transport corridors in the revised classification table, which is an important clarification because metros are often managed and conceptualized separately from conventional rail routes and may otherwise be inconsistently interpreted across rating agencies and property managers.

From a technology-and-operations standpoint, metro corridors are inherently digital systems:

- Government of India (Ministry of Housing and Urban Affairs[32]) MetroNeo standard specifications explicitly require radio-based communication between driver and control room and fiber-optic-based communication for CCTV surveillance, public information, data communication, and master clock, and also specify automatic fare collection and digital ticketing mechanisms (NCMC/QR and other methods).
- Mumbai Metro Rail Corporation[34] describes metro telecommunication infrastructure as the backbone enabling integrated functioning of subsystems such as signaling/train control, electrical SCADA, and automatic fare collection, and also supporting passenger amenities (PIDS/PAS/CCTV).
- Delhi Metro Rail Corporation tender specifications similarly describe communication systems enabling communications between train personnel and the operations control center and between train personnel and passengers (including public address/intercom and passenger intercom functions).

These sources show that metro “corridors” are not simply right-of-way assets: they are telecom-embedded corridors with safety, control, passenger information, and transaction systems that require robust connectivity.

Digital inclusion and Tier-2/3 cities

A forward-looking category/scope update should also anticipate rapid metro expansion into Tier-2 cities through lower-cost mass transit models. MoHUA’s annual reporting notes MetroLite and MetroNeo as low-cost transit options intended to fulfill aspirations of smaller cities, with standard specifications issued (MetroNeo in November 2020), supporting accelerated adoption beyond major metros. Explicitly including metro corridors under transport corridors therefore supports consistent assessment as these

systems expand geographically, which is aligned with digital inclusion and equitable QoS expectations.

Transparency and consumer protection

Objective criteria for Category A classification and for metro corridor scope

Because classification exists solely to apply relevant rating criteria, TRAI should adopt and publish an objective rule-set to minimize ambiguity and reduce "category shopping." A consumer-protective and auditable approach is:

- A property should be Category A when it is primarily a **building/building complex** where MBBL/NBC ICT-enablement provisions can be verified through approved drawings, sanctioned telecom spaces, and in-building infrastructure evidence (telecom rooms, risers, pathways, and distribution).
- A property should be Category B when it is primarily a **high-footfall public area or linear corridor** where building bye-law compliance is not the principal determinant and where assessment relies more on corridor-level infrastructure, service provider availability, and measured user experience/performance in public areas.

This logic supports reclassifying hospitals/hotels/educational institutions to Category A while keeping metro corridors as Category B transport corridors.

Plain-language disclosures for consumers

TRAI's regulations require fair use of ratings and that property managers display only the latest rating in marketing; they also require compliance with Schedule-II terms for use of rating and rating certificate. In addition, the Rating Manual notes that once issued, rating certificates can be publicly verified via unique certificate number/QR code on the rating platform, supporting transparent consumer verification.

To ensure consumers are not misled by the category changes, disclosures should be standardized and require that marketing materials state, in plain language:

- why the property is Category A or Category B (e.g., “Category A: assessed using building-code-aligned infrastructure criteria including MBBL/NBC compliance checks”),
- key limitations (e.g., ratings reflect verified criteria at the time of assessment; not a guarantee of service continuity from any single provider),
- and where to verify the certificate (QR/code search).

This is particularly important given legal risk under consumer protection law for false representation of standard/grade or implied approvals/benefits, and under RERA where reliance on incorrect/false statements in advertisements can trigger compensation/withdrawal rights.

Codes of conduct, conflicts of interest, and penalties

The regulations and associated framework emphasize that DCRAs must follow a code of conduct and that ethical marketing/advertising should not misrepresent roles/capabilities, and property managers must ensure fair use of rating certificates. TRAI should explicitly connect category misrepresentation (e.g., presenting a hospital as Category B to avoid Category A documentation expectations, or selectively marketing corridor ratings) to (i) delisting/audit escalation mechanisms already contemplated in the regulatory ecosystem and (ii) referral pathways to applicable consumer protection enforcement where deception is material.

Practical implementation

Ease of compliance through templates and checklists

The Rating Manual already uses structured compliance checklists for Category A, including document review requirements to verify alignment with MBBL/NBC and the presence of design provisions such as pathways and

telecom rooms, and establishes scoring based on compliance/minor deviations. TRAI should leverage and extend these artifacts into publicly available standard templates for hospitals, hotels, and educational institutions—especially for campus-style institutions—so compliance remains predictable.

Voluntary audits, public access to results, and capacity building

TRAI's ecosystem emphasizes transparency through public certificate verification and structured assessment reporting. Maintaining high trust is essential because the rating system is currently voluntary (though encouraged), so uptake depends strongly on perceived fairness and reputational value.

Capacity-building workshops (architects, facility managers, developers, and DCRAs) should focus on: (i) MoHUA addendum principles (CTI, telecom rooms, non-discriminatory access) and (ii) NBC ICT-enablement essentials (telecom spaces, pathways, cabling integration). International references (ISO/IEC 11801-1; NECA/BICSI 568) should be presented as "design and installation best-practice anchors" rather than procurement mandates, to avoid cost escalation while improving consistency.

Phased implementation and proportionality for smaller institutions

Hospitals and educational institutions range from small facilities to multi-building campuses; hotels range from budget accommodations to large convention hotels. To avoid burdening smaller projects, TRAI could phase the requirements by property size/occupancy intensity while retaining core consumer-protective transparency rules (e.g., never permitting misleading use of rating/category). A size-tier approach is already reflected in the framework's fee/area banding logic across categories.

Metro corridors: calibrating scope and length bands

A key implementation issue is that the Rating Manual's corridor-length banding example for "Transport corridors" shows lengths starting at 100–500

km (and above), which fits highways/rail routes but may not directly fit typical metro line lengths, many of which are below 100 km—especially in Tier-2 deployments. If metro corridors are explicitly included under transport corridors (as the consultation proposes), TRAI should add metro-appropriate corridor length bands (e.g., <50 km; 50–100 km; 100–200 km; etc.) or use a combined metric (route-km + number of stations) to keep evidence collection and fee/effort proportional.

Additionally, the scope definition should clarify whether "metro corridor" assessment includes (a) stations/platforms/concourses, (b) tunnels/elevated sections, and (c) passenger areas where public connectivity and safety systems operate—because metro telecom systems span CCTV, passenger information, public address, operations control, and fare collection, and these functions are distributed across corridor and station assets.

Conclusion

Reclassifying hospitals, hotels, and educational institutions into Category A better reflects their **building-centric, code-governable** nature and their escalating need for **high-capacity broadband infrastructure**, while still allowing service performance and user experience to be assessed within the Category A methodology. This classification is consistent with MoHUA's in-building access addendum principles (CTI, telecom spaces, non-discriminatory access), NBC-2016 ICT-enabled installation framing, and Smart Cities Mission's positioning of robust IT connectivity as core infrastructure.

Explicitly including metro corridors under transport corridors is also appropriate and improves regulatory clarity, because metro corridors are digitally intensive safety- and passenger-service environments whose telecom infrastructure is foundational to signaling/control integration, passenger information, surveillance, and digital ticketing systems.

To ensure these changes enhance consumer decision-making while maintaining credibility, TRAI should pair the reclassification and corridor

inclusion with objective classification rules, plain-language disclosures, enforceable fair-use/misrepresentation controls aligned with consumer protection principles, and calibrated operational guidance—especially for metro corridor length bands and Tier-2/3 metro systems.

Q4 – Should Property Managers be allowed to conduct optional digital connectivity audits before applying for ratings, and would consumers benefit from such transparency?

Comments :

The Authority's proposal to permit an **Optional Digital Connectivity Audit**—so that property managers can identify gaps and implement improvements *before* applying for a formal, publicly visible rating—directly responds to real-world implementation dynamics (i.e., reputational risk once a rating is published and the desire to avoid "trial-and-error" in the public domain).

This approach is technologically justified because in-building connectivity is increasingly determined not only by external network availability, but by (i) building materials and design (attenuation/shadowing), (ii) the availability of structured pathways/spaces for telecom equipment, and (iii) internal distribution layers (fiber, Ethernet, Wi-Fi, in-building cellular solutions). The Authority has itself noted that a significant share of data consumption occurs indoors and that higher-frequency mobile technologies (including 5G) are more susceptible to attenuation from walls/building materials, making in-building infrastructure a critical determinant of user experience and QoS.

A pre-rating audit also reflects the pace of change in in-building wireless and "edge" systems. For example, the Wi-Fi Alliance has positioned Wi-Fi 6/7 certification as enabling higher capacity, improved congestion performance, lower latency/deterministic behavior, and improved reliability for new use cases (e.g., industrial IoT, hybrid work, AR/VR/XR) and has highlighted specific capabilities such as 320 MHz channels and Multi-Link Operation for Wi-Fi CERTIFIED 7. The practical implication for buildings is that "digital

connectivity readiness" cannot be treated as a one-time design choice tied to a single generation of technology; it is a lifecycle capability.

Accordingly, audit and disclosure language should be **technology-neutral**, centered on functional outcomes and infrastructure primitives (e.g., "high-capacity broadband infrastructure," "structured in-building pathways/spaces," "resilient power and environmental provisioning for ICT rooms," "multi-operator readiness," "high-density wireless distribution capability"), rather than embedding specific technology names into compliance claims. This approach is also consistent with the Authority's design of the framework to remain current: the Rating Manual explicitly provides a protocol for periodic review/updates so the assessment remains relevant as technology and user expectations evolve.

A recommended principle is that an optional audit should evaluate a property's **upgradeability and scalability**—i.e., whether the building can accommodate future standards with predictable cost and minimal disruption. This is especially important where the physical constraints of buildings (shafts, risers, equipment rooms, power backup) create long-lived bottlenecks that outlast any particular wireless generation.

Alignment with laws and standards

A design that allows optional audits is strongly aligned with India's building and urban digitization trajectory, provided audit outputs are properly bounded and do not become misleading "shadow ratings."

First, the Ministry of Housing and Urban Affairs[5] addendum to Model Building Bye-Laws, 2016 on in-building access emphasizes enabling **common telecom infrastructure** and fair access, and discourages treating in-building telecom facilities as a revenue source, framing digital connectivity as comparable to essential building utilities. These expectations naturally translate into auditable readiness items (presence of telecom rooms/spaces, non-discriminatory access provisions, basic enabling infrastructure).

Second, the Bureau of Indian Standards guidance for NBC 2016 highlights that Part 8 includes **Section 6: Information and Communication Enabled Installations**, which covers essential requirements for ICT-enabled installations and telecommunication spaces and integration requirements for telecom spaces and cabling infrastructure. Since the Rating Manual already contemplates compliance assessment with MBBL/NBC for digital connectivity (not merely performance testing), optional audits can legitimately be framed as an early compliance and gap-analysis step aligned to these building-service expectations.

Third, Smart City frameworks treat robust connectivity as core infrastructure. The Smart Cities Mission guidelines explicitly list "Robust IT Connectivity and Digitalization" among essential features/core infrastructure. Optional audits can serve as a standardized method for cities, developers, and property managers to demonstrate readiness against this policy intent—while keeping the final public rating reserved for the formal rating process.

Internationally, recognized ICT infrastructure standards also support the case for structured pre-assessment. ISO/IEC 11801-1:2017 sets expectations for generic cabling for customer premises and is explicitly scoped to support a wide range of services (voice, data, video) and may incorporate supply of power—reinforcing the role of in-building cabling as foundational, technology-agnostic infrastructure. Likewise, the availability of joint, installation-focused guidance such as NECA/BICSI 568 demonstrates that global practice distinguishes between (a) design/installation quality controls and (b) outcome labels—precisely the separation that optional audits can reinforce.

Finally, consumer protection and real-estate disclosure laws argue for **strict controls on how "audit" outcomes are communicated**. Under RERA, where a person acts on information in an advertisement/prospectus/model and sustains loss due to an incorrect/false statement, compensation/withdrawal remedies can apply—making misstatements about connectivity readiness legally and financially consequential. The Consumer Protection Act also

defines unfair trade practice to include false representations that goods/services are of a particular standard/grade, and empowers the Central Authority to act against false or misleading advertisements with penalties. Any optional audit mechanism must therefore embed *communication discipline* so that a diagnostic audit is not marketed as a "rating" or "certification of performance."

Importantly, the Authority's own rating regulations already recognize harms from misrepresentation and provide guardrails: they include a DCRA code of conduct (Schedule I), a requirement for fair use of ratings and rating certificates (Schedule II), and restrictions such as displaying only the latest awarded rating. The regulations' explanatory provisions also emphasize public verifiability of rating certificates and warn that misuse/misrepresentation or unauthorized display should attract penal provisions (including under other relevant laws). These instruments can be extended—carefully—to an optional audit context.

Forward-looking regulatory approach

Permitting optional audits is forward-looking because it shifts the ecosystem from reactive remediation (after public rating or consumer complaints) to **preventive compliance and continuous improvement**.

The Rating Manual itself frames in-building digital infrastructure as a critical utility supporting remote work, reliable mobile coverage, and intelligent building systems. Optional audits operationalize that framing by enabling property managers to test readiness against prescribed criteria before entering the public rating pipeline. In effect, they become a "readiness rehearsal," reducing the probability that consumers encounter poor connectivity outcomes despite marketing claims.

Optional audits also enhance readiness for **enterprise-grade and mission-critical use cases** that increasingly occur inside buildings: telemedicine consult rooms, emergency response coordination in hospitals, digital public services kiosks, online education labs/classrooms, and high-density Wi-Fi in

hotels and campuses. A regulatory system that encourages early gap identification is better suited to these needs than one that relies only on post-facto public ratings.

Flexibility for emerging architectures is another reason to allow audits. Buildings may increasingly deploy hybrid connectivity models: fiber plus Wi-Fi densification, in-building cellular solutions, satellite backhaul for remote locations, and private/enterprise mobile networks. 3GPP describes non-public/private network options supported by 5G specifications, including standalone and public-network-integrated configurations. From a building-readiness perspective, what matters is not the specific architecture chosen but whether the premises can support secure, resilient deployment (space, power, pathways, and governance controls).

Optional audits can also be structured to promote **digital inclusion**. If designed with tiered templates and proportionate evidentiary requirements, audits can help Tier-2/3 cities and affordable housing projects identify a minimum viable "high-capacity broadband infrastructure" baseline (ducts, shared telecom spaces where feasible, safe power provisioning, basic internal distribution) without forcing an immediate full rating attempt. This aligns with the policy direction that treats robust IT connectivity as a core urban feature rather than a premium amenity.

In short, optional audits fit a regulatory philosophy that rewards early compliance and reduces retrofit costs, while preserving the integrity of the final rating (which remains the authoritative consumer-facing label). The Authority's proposal explicitly preserves this integrity by positioning the audit as a pre-application improvement tool rather than a substitute for the formal rating process.

Transparency and consumer protection

A consumer-centric design should allow optional audits **only if** the regime prevents "audit-washing" (i.e., using an audit as a marketing proxy for a

rating). This requires standardized disclosures, clear public verifiability, and enforceable consequences for misrepresentation.

A key consumer-risk driver is that awarded ratings become publicly visible—creating incentives for selective disclosure and pre-emptive marketing. Therefore, the Authority should require that any public reference to an optional audit uses a standardized, plain-language descriptor such as:

"Optional Digital Connectivity Audit completed on [date]. This is not a Digital Connectivity Rating and does not indicate star level."

This is consistent with consumer law concepts that prohibit false representations of standard/grade and penalize misleading advertising. It also aligns with RERA's remedies for losses caused by incorrect statements in advertisements/prospectuses.

Transparency can be implemented without forcing disclosure of sensitive infrastructure details. A balanced model is:

- Publicly disclose a one-page "audit summary" (non-technical, non-sensitive), including scope, date, DCRA identity, and high-level findings (e.g., "telecom room present," "multi-operator pathways: partial," "power redundancy: compliant/non-compliant," "indoor coverage verification: not part of design-stage audit," etc.).
- Keep detailed network diagrams, specific equipment locations, and security-related details restricted to the property manager and auditor, with controlled sharing to prospective buyers/tenants upon request under appropriate safeguards.

This approach mirrors the logic already present for ratings: the regulations propose a public mechanism for certificate verification to protect end users' ability to validate claims and to deter misuse. The same principle can apply to audits by creating an **audit registry entry** (unique ID, validity end date, and public summary) on the rating platform, while clearly distinguishing audit entries from rating certificates.

The Authority should also extend integrity safeguards to optional audits by leveraging existing regulatory tools:

- The regulations include a DCRA code of conduct (impartiality, independence, ethical marketing). Optional audits should be explicitly brought under a parallel code requirement, including heightened conflict-of-interest rules (e.g., auditors should not simultaneously act as the paid implementer/vendor for a given property's improvement works unless properly disclosed and subject to separation controls).
- The regulations empower record retention and allow the Authority to direct verification/audit of DCRAs, including publication of audit results on the rating platform. This is a strong compliance lever that can deter low-quality or biased optional audits if applied to the audit mechanism as well.

Penalties and remedies should be explicit. The regulations already state that misuse/misrepresentation of ratings or unauthorized certificate display can attract penal provisions, including provisions of other relevant laws. The optional audit framework should cross-reference these consequences, and clarify that marketing an "audit" as a "rating" constitutes misrepresentation.

Practical implementation

Optional audits should be simple enough to encourage adoption, but structured enough to preserve credibility and comparability.

The Authority's proposed concept is operationally viable because it uses the existing institutional roles: property managers engage a registered DCRA to audit against the prescribed criteria/sub-criteria for evaluation and improvement. This avoids creating a parallel ecosystem of "unregulated consultants" issuing quasi-certifications.

A practical implementation design can be built on three operational elements already embedded in the framework:

8. The Rating Manual provides standardized processes, roles, and methodologies for assessing digital connectivity readiness (including parameters such as fiber availability, in-building solutions, coverage, service performance).
9. The manual anticipates periodic updates to remain aligned with technological evolution, which can also govern how optional audit templates are updated over time.
10. The regulations already include mechanisms for integrity: codes of conduct and enforceable fair-use terms (Schedules I & II).

Operationally, the optional audit should be structured as a **gap-analysis report** rather than a star label. The output should include (i) a criterion-wise checklist status, (ii) evidence references (photos, as-built drawings, test logs where relevant), and (iii) a prioritized remediation plan with indicative timelines. Where measurement is performed (e.g., coverage sampling, throughput), the audit should require disclosure of test conditions and limitations so consumers are not misled by best-case results.

To ensure public benefit while keeping the mechanism genuinely "optional," a proportionate rule is recommended: **audit results need not be publicly posted unless the property manager uses the audit in marketing or consumer-facing disclosures**. Once used publicly, the public audit summary and registry entry should become mandatory, so consumers can verify claims and understand limitations. This supports transparency without discouraging internal improvement efforts.

Capacity building is essential for compliance at scale. The manual's ecosystem explicitly includes architects, developers, infrastructure providers, and property managers as stakeholders, implying the need for training and consistent practice. A targeted program of workshops (templates, evidence standards, "common failure modes," and example remediation playbooks) should be rolled out, ideally with online modules and region-specific sessions for Tier-2/3 cities.

Phased implementation is advisable. The Authority can pilot optional audits first for Category A properties (larger/higher-demand premises) and then expand to other categories once auditor capacity and consumer communication practices stabilize. The Rating Manual already distinguishes Category A/B methodologies, which can be used to scope the initial rollout.

International implementation and best practices

International experience supports the concept of pre-assessments or pre-certifications, especially where marketing value exists before final certification.

A particularly relevant benchmark is Wired Score's published pre-certification policy, which sets clear requirements for achieving pre-certified status (including signing certification terms and conditions, defining a point of contact, and completing a kick-off process) and separately defines what is required to promote a target certification level. Importantly, the policy also provides a pre-certification package that includes seals, fact sheets, and a messaging guide—an explicit recognition that communication rules are as important as technical evaluation in preventing market confusion.

A second-best practice is finite validity and re-audit/renewal cycles. Wired Score describes renewal as involving new on-site visits and assessment against the most up-to-date standards, to keep certifications accurate and reflective of real-world performance. Even third-party industry summaries note defined validity periods for development and occupied certifications, reinforcing that "technology labels" must be time-bounded to remain credible.

Adaptation to the Indian regulatory and consumer context suggests three concrete takeaways:

- **Standardized messaging**: the Authority should publish a short, mandatory "audit communications guide" (permitted phrases, prohibited claims, and required disclaimers), analogous to the messaging toolkits used internationally.

- **Validity periods**: optional audits should carry short validity (e.g., 6–12 months) and must be re-issued if the building design/installation materially changes, to avoid stale claims—consistent with renewal logic in international schemes.
- **Separation of stages**: optional audits should be explicitly positioned as "readiness and improvement," while "rating certificates" remain the only star-based label, consistent with how pre-certification differs from final certification internationally.

These practices are directly relevant to reducing consumer confusion and preventing audit outcomes from being converted into misleading star-equivalent marketing.

Conclusion

Property Managers **should be permitted** to conduct optional digital connectivity audits prior to applying for formal ratings, because such audits: (i) encourage early remediation, (ii) reduce reputational and compliance risk that arises once ratings are publicly visible, and (iii) improve the likelihood that final published ratings reflect well-engineered, future-ready, and scalable digital infrastructure rather than last-minute fixes.

Consumers would benefit from the resulting transparency **only if** the Authority implements strong safeguards that maintain credibility and prevent misuse. **Those safeguards should include: (a) strict separation between "audit" and "rating," (b) standardized public audit summaries and verifiable registry entries when audits are used in marketing, (c) adoption of codes of conduct and enforceable conflict-of-interest controls for auditors, (d) clear validity periods, and (e) penalties aligned with the existing rating framework and broader consumer protection and real-estate advertising obligations.**

Q5 – How can impartiality and independence of Digital Connectivity Rating Agencies (DCRAs) be ensured to protect consumer trust in ratings?

Comments :

Ensuring Impartiality and Independence of Digital Connectivity Rating Agencies to Protect Consumer Trust

Digital Connectivity Ratings are intended to become a trusted market signal for buyers, tenants, residents, and other end users comparing properties on their "digital connectivity readiness" and service experience. The credibility of this signal rests substantially on the **impartiality, independence, and technical competence** of Digital Connectivity Rating Agencies (DCRAs), because DCRAs (i) evaluate evidence and field measurements, (ii) assign scores and issue rating certificates, (iii) monitor feedback/complaints during validity, and (iv) may be engaged for optional audits and design-stage assessments under the ongoing review proposals.

The existing Regulations already embed several safeguards: a Code of Conduct mandating "impartiality and independence," conflict-of-interest constraints, disclosure obligations, record retention, and Authority-led audit powers (including publication of audit results on the rating platform). These comments recommend **strengthening governance and enforceability** (without undermining scalability) by adopting globally proven independence controls used in third-party certification schemes and financial ratings, adapted to the Indian property and consumer context.

Advancement of technology

The rapid evolution of indoor connectivity solutions increases the risk that ratings can be (or appear to be) influenced by vendor preferences, preferred deployment models, or commercial relationships—unless DCRAs operate under strict neutrality and competence requirements.

Indoor digital connectivity challenges are amplified by advanced mobile technologies using higher frequency bands, which are more susceptible to

signal attenuation from walls and building materials, making in-building infrastructure a key determinant of user experience and QoS. The Rating Manual similarly emphasizes that technology innovation and accelerating data demand make robust connectivity inside buildings and public spaces a foundational enabler for governance, productivity, and inclusion—and therefore necessitate standardized and objective assessment practices.

The emergence of **private/enterprise mobile networks** further underscores why impartiality matters. 3GPP describes Non-Public Networks (NPNs) as "private networks" intended for non-public use, and notes that 5G specifications support multiple NPN configurations, including Standalone Non-Public Networks (SNPN) and Public Network Integrated NPNs (PNI-NPN). In practice, this means some properties may adopt public network solutions, others private networks, and others hybrid architectures—so a biased evaluator could overvalue one architecture over another without a technology-neutral rubric.

Accordingly, DCRA assessment should remain **technology-neutral** by design and vocabulary. The Regulations define Digital Connectivity Infrastructure broadly to include wired and wireless components (explicitly naming, as examples, radio access networks, Wi-Fi systems, duct space, optical fiber, IBS/DAS, and related infrastructure), while excluding core network elements—signaling an intent to rate "readiness and enabling infrastructure," not endorse a single technology vendor or access mode.

To remain future-proof, DCRA governance should also embed a continuous-upskilling expectation. The Code of Conduct already requires qualified personnel and ongoing training/upskilling to account for technological upgrades, and requires continuous improvement in methodologies aligned with technological advancements and best practices. Strengthening *how* this is verified (e.g., through periodic competency audits and publicly disclosed training requirements) will be increasingly important as indoor networks become more complex and security-sensitive.

Alignment with laws and standards

Independence safeguards should be framed not only as “good governance” but as **compliance alignment** with India’s building and consumer protection ecosystem, and with mature international ICT infrastructure standards.

Building governance alignment is already embedded in the rating framework. Category A rating criteria directly include “Compliance to applicable Model Building Bye Laws (MBBL) and National Building Code (NBC) for digital connectivity.” [10] The Code of Conduct further requires DCRAs to ensure that assessments align with building bye-laws and other relevant regulations.

The **NBC 2016** foundation for ICT enablement is explicit. BIS’s NBC guide notes that Part 8, Section 6 covers essential requirements for information and communication enabled installations, including basic design and integration requirements for telecommunication spaces along with cabling infrastructure, pathway components, and passive connectivity hardware. This creates a strong rationale for standardized DCRA checklists and evidence rules that reduce subjective interpretation, particularly for pathways/spaces/cabling provisions that should be objectively verifiable at design and as-built stages.

The intent of MoHUA’s in-building telecom access reforms also supports independence requirements. A Government of India document summarizing the March 2022 addendum to Model Building Bye-Laws highlights dedicated telecom space/telecom room requirements, provision of Common Telecom Infrastructure, and fair/transparent/non-discriminatory access to service providers, as well as the principle that CTI should not be treated as a revenue source but as an enabling utility. DCRAs must be independent to verify such requirements without being influenced by a particular service provider, infrastructure provider, or real estate promoter relationship—especially given the framework’s own prohibition on exclusive arrangements between property managers and service providers.

Smart city policy alignment likewise points toward objective, auditable assessment. The Smart Cities Mission guidelines list “Robust IT connectivity and digitalization” among essential core infrastructure features. If ratings are to function as public-trust infrastructure signals, DCRAs must be governed like public-interest certifiers: independent, consistent, and transparent.

International ICT infrastructure standards reinforce the need for objective frameworks. ISO/IEC 11801-1 specifies a multi-vendor cabling system supporting a wide range of services (voice, data, video, and potentially power), explicitly emphasizing multi-vendor implement ability—an underpinning for vendor-neutral building infrastructure evaluation. A BICSI standard such as NECA/BICSI 568 describes minimum requirements and procedures for installing telecommunications infrastructure (balanced twisted pair copper and optical fiber), and uses structured cabling concepts (telecom rooms, entrance facilities, etc.) that map naturally into auditable evidence requirements.

Finally, consumer protection law makes independence a consumer-rights issue because ratings will be used in marketing and consumer decision-making. Ratings are publicly visible on the rating platform, and property managers are allowed to use them in marketing provided the use is accurate and non-misleading. If DCRAs are not independent, consumers face a risk of “ratings inflation” or selective favorable scoring. That can translate into misleading representations—especially in real estate marketing contexts where the Real Estate (Regulation and Development) Act recognizes compensation rights where consumers rely on incorrect/false statements in advertisements or prospectuses and sustain loss/damage. Similarly, the Consumer Protection Act’s definition of “unfair trade practice” includes false representations regarding standard/quality/grade and claims of sponsorship/approval/benefits not actually present. Ensuring DCRA independence is therefore an upstream mechanism to reduce downstream consumer deception risk.

Forward-looking regulatory approach

Independent DCRAs are essential for future consumer needs because the value of ratings will increase as households and institutions rely on indoor connectivity for work-from-home/work-from-anywhere, telemedicine, education, and digital public services—use cases explicitly recognized in the Regulations' explanatory material and policy statements accompanying the framework.

A forward-looking approach should also anticipate that new architectures (satellite broadband/hybrid backhaul, private 5G/NPNs, Wi-Fi evolution, and converged building systems) will complicate inference and increase the "grey zone" where a biased agency could steer outcomes. The right regulatory stance is therefore not to tighten to technology-specific rules, but to strengthen the governance that ensures **technology-neutral, evidence-based application** of criteria over time.

Critically, conflict patterns will increase if rating agencies are allowed to become quasi-implementers. Stakeholders' inputs (captured in the Regulations' explanatory portion) explicitly cautioned against DCRAs offering fee-based services beyond ratings, and emphasized the need to maintain high corporate governance standards and avoid conflicts of interest. The cleanest future-proof model is a **structural separation** between: - rating and certification decisions (DCRA core function), - consulting/advisory on how to improve (if allowed at all, it should be tightly bounded and transparently disclosed), and - implementation/procurement/vendor selection (which should remain separate to avoid incentives to "sell solutions" through favorable ratings).

This separation is consistent with global best practice in other rating/certification contexts and can be implemented through licensing conditions and enforceable Code-of-Conduct provisions (expanded below).

Digital inclusion should be treated as a governance objective. If DCRAs are concentrated in Tier-1 markets or are informally tied to premium real estate

ecosystems, ratings may become less accessible or less comparable for Tier-2/3 cities and affordable housing. The Code of Conduct already requires fair, non-discriminatory practices and fair fee structures displayed on the platform. Enforcement should ensure that independence and quality controls apply uniformly across geographies and building types, and that "lower capacity markets" do not receive lower-integrity evaluations.

Consumer-first transparency and consumer protection

The Regulations already establish a meaningful baseline of transparency and enforcement. Ratings are to be available for public viewing on the rating platform. DCRAs must monitor feedback or complaints from service providers or end users during the validity of rating certificates and take follow-up actions where required. DCRAs must preserve evaluation records digitally and provide them to the Authority upon direction; the Authority can order audits/verification (including inspections of DCRA records) using officers or a notified panel of auditors, with results potentially published on the rating platform. The Authority can also suspend/cancel registration, de-list, or blacklist DCRAs for contravention.

To further protect consumer trust, transparency should shift from "availability of ratings" to "verifiability of integrity." The following governance disclosures are recommended as mandatory DCRA-side disclosures on the rating platform (and within rating reports), because they directly affect consumer confidence and conflict risks:

- Ownership and control disclosures (including beneficial ownership and material shareholders) and whether any shareholder has material interests in real estate development, property management, telecom service provision, or infrastructure provision. This directly supports the Code-of-Conduct requirement that DCRAs should not have financial/ownership/operational interests in the property and should avoid conflict-of-interest relationships with property owners/managers, infrastructure providers, or service providers.

- A standardized “Conflict of Interest Declaration” per rating engagement, including disclosure of any ancillary services provided to the rated entity (or affiliates) and whether any staff had recent employment/consulting relationships with the property manager, telecom operator, or infrastructure provider. This aligns with the Code of Conduct’s conflict-of-interest prohibition and ethical marketing clauses.
- Methodology transparency: a publicly accessible methodology summary that is stable, versioned, and linked to the rating manual criteria—so consumers understand what a star rating captures (and what it does not).
- Audit trail commitments: standardized evidence references (what documents/tests were reviewed), without publishing sensitive network security details. This is consistent with the regulatory requirement to preserve digital records and with the audit powers and potential publication of audit outcomes.

Plain-language rating summaries should also be mandatory for consumer comprehension. The rating framework explicitly aims to provide transparent measures and enable stakeholders to make informed choices. A consumer-first summary should include: validity period; key strengths; key limitations; and a statement that ratings represent assessed readiness and measured outcomes at the time of evaluation, and are not a guarantee of uninterrupted service from any particular provider.

Finally, enforcement must be “real” to be trusted. Given that consumer protection law recognizes harms from false representations of standard/grade and misleading claims, rating integrity failures must have predictable consequences. The Regulations already provide for suspension/cancellation/de-listing/blacklisting for DCRAs, and also empower publication of audit results—these should be used actively for deterrence, not only as backstop powers.

Practical implementation

The most effective independence safeguards are those that are **simple to comply with, easy to audit, and difficult to game**. The current framework already provides several "implementation hooks," notably: formal registration for five years with renewal; eligibility conditions including ISO-certified quality management system (or undertaking to obtain one within a year); conditions of registration; and structured obligations including conflicts rules and auditability.

Building on this base, the following implementation steps are recommended:

A licensing/accreditation framework for DCRAs should explicitly include an "independence module" at onboarding and renewal. Registration is already time-bound (five years) and renewable, enabling periodic re-approval gates. Licensing should require DCRAs to implement a documented independence management system (conflicts register, mandatory staff declarations, internal review separation, and engagement acceptance rules) that can be inspected using the Regulation's audit powers.

Standardized templates and checklists should be mandatory to reduce discretion. The manual is already written around objectives, assessment methodology, and supporting documents/checklists for many sub-criteria, promoting uniform evidence structures. Standardization reduces the space where conflicts can be "expressed" as subjective judgments and makes peer comparison of agency performance easier.

Random audits and cross-checks should be institutionalized. The Regulations allow the Authority to audit DCRAs via officers or a panel of auditors, specify the objective criteria and frequency for audits, and publish the results on the platform. To maximize deterrence, the audit program should include: - truly random sampling of ratings across agencies and property categories, - risk-based sampling (e.g., very high ratings, rapid rating upgrades, unusually fast turnaround, repeated engagements with the same promoter), - and targeted

audits triggered by complaint clusters from end users/service providers via the monitoring mechanism.

Separation-of-duties within DCRA teams should be a hard requirement, not merely good practice. The Schedule-I Code of Conduct already requires that reviews of ratings not be taken up by the same personnel involved in the initial ratings. This principle can be expanded into: (i) independent internal quality review of evidence before certificate issuance, and (ii) mandatory second-level sign-off for high-stakes ratings (e.g., 5-star equivalents, large public premises).

Phased implementation can preserve competition while raising integrity. Smaller agencies may need time to establish robust independence systems. However, core independence controls (conflict declarations, ownership disclosures, separation of rating vs implementation work) should be non-negotiable from Day 1, while higher-cost controls (e.g., external peer review participation) can be phased in. The Regulations already allow the Authority to issue orders/directions and evolve objective criteria over time.

International implementation and best practices

Global experience shows that independence is best protected through a combination of: (i) structural separation, (ii) disclosure discipline, and (iii) third-party oversight/audits.

Financial rating agency governance provides directly relevant analogies. The IOSCO Code of Conduct Fundamentals for Credit Rating Agencies emphasizes independence and managing conflicts of interest so that ratings decisions remain free from economic pressures, and also highlights transparency as a core objective. Regulators translate these principles into enforceable rules. For example, the U.S. SEC's 2007 press release on credit rating agency rules states that Rule 17g-5 requires NRSROs to disclose and manage conflicts of interest, and Rule 17g-6 prohibits coercive or abusive practices such as threatening lower ratings to induce purchase of other products. The Electronic Code of Federal Regulations text for Rule 17g-5

similarly operationalizes a prohibition on conflicts unless disclosure and written policies/procedures to manage conflicts are in place. European regulation also contains strong separation mandates; ESMA's CRA "Annex I" materials state that a credit rating agency (and significant owners) must not provide consultancy/advisory services to the rated entity regarding its corporate/legal structure, assets, liabilities, or activities, while allowing limited "ancillary services" only where conflicts are avoided and disclosed. Australia's ASIC similarly emphasizes the need to separate advisory services from credit rating services and analysts as a conflicts-of-interest control.

Third-party certification and building certification schemes similarly embed conflicts controls. The LEED Certification Manual (2024 edition) indicates that project review assignments are made assuming no conflict of interest exists between the review team and the project, and that the boundaries of conflict of interest for LEED purposes are defined contractually and must be managed at assignment acceptance. BREEAM's public materials explicitly emphasize impartiality and avoidance of undue influence from conflicts of interest; BRE's impartiality statement notes that it operates under guidelines/procedures to remain impartial and avoid conflicts, and states it does not offer consultancy/advice/guidance where that could conflict with assurance services. BREEAM USA In-Use conflict guidance further requires separation where assessors are from the same company producing evidence, requires disclosure of potential conflicts, and warns assessments may be scrutinized more closely or not proceed if concerns remain unresolved.

International conformity assessment standards provide a formal "impartiality management" blueprint. ISO/IEC 17065 and ISO/IEC 17021 both require certification bodies to identify, analyze, and manage risks to impartiality arising from relationships (ownership, governance, contracts, marketing inducements, etc.), to avoid commercial/financial pressures compromising impartiality, and to maintain mechanisms (including committee oversight) where needed. These standards are highly relevant for DCRA governance design because DCRAs perform third-party evaluation and certification-like functions in a market context.

Finally, pre-certification frameworks illustrate how communication rules preserve integrity. WiredScore's pre-certification policy allows public "pre-certified status" and "target level promotion" during development, while making clear the designation is valid until certification is finalized and specifying communication types. This is analogous to India's proposed design-stage certifications and optional audits; the lesson is that **communication governance** (what can be claimed, validity, and how to distinguish pre-assessments from final certifications) is a critical complement to technical evaluation controls.

Conclusion

Impartiality and independence of DCRAs can be ensured—and consumer trust materially strengthened—by treating DCRAs as **neutral, third-party certifiers operating under enforceable conflict-of-interest and transparency controls**, not as market intermediaries blending rating, consulting, and implementation.

India's current regulatory foundation is strong: the Regulations mandate impartiality and independence, prohibit conflicts of interest, require transparent fee disclosure, require record retention, empower Authority-led audits (with results potentially published), provide public visibility of ratings on the platform, and enable serious penalties including suspension/cancellation/de-listing/blacklisting. The Rating Manual operationalizes a standardized methodology and emphasizes objectivity and comparability as the basis for meaningful consumer choice.

To ensure these provisions translate into durable consumer trust, the Authority should strengthen (i) mandatory ownership/COI disclosures, (ii) structural separation between rating and consulting/implementation work, (iii) standardized evidence formats and audit trails, and (iv) a visible, risk-based and random audit program. These steps are consistent with global best practices (IOSCO principles; SEC and ESMA conflict regimes; LEED and BREEAM conflicts controls; and ISO impartiality management standards) and are well-suited to the Indian consumer and real estate

marketing context where misleading “standard/grade” claims can cause tangible consumer harm.

Q.6 Should Model Building Bye-laws (MBBL) issued by MoHUA be referenced where local/state bye-laws lack digital connectivity provisions, ensuring uniform standards for consumers?

Comments :

Advancement of technology

Modern buildings must anticipate rapidly evolving connectivity needs. 5G and next-generation Wi-Fi (6/7) promise multi-gigabit speeds, and the Internet of Things (IoT) will dramatically increase device density. 5G’s use of higher-frequency bands (mmWave) means signal penetration is poor through conventional walls, so **in-building networks** (fiber ducts, telecom rooms, dense Wi-Fi, or DAS) become critical. Consumers now expect high-capacity broadband in homes, offices, hospitals, schools, etc., for telemedicine, remote work, smart controls, and more. A uniform baseline (like a reference to MoHUA’s MBBL provisions) ensures every new building provides at least “high-capacity broadband infrastructure” (a technology-neutral term) in its design. This avoids patchy code adoption and future-proofs structures for upcoming standards. As one regulatory analysis notes, up to 60–80% of data traffic originates indoors, underscoring why *all* new buildings should meet a national benchmark for digital readiness. Adopting MBBL by reference keeps the standard scalable: as new tech emerges (e.g. Wi-Fi 7, private 5G/NPNs, hybrid satellite broadband), states can update their enforcement based on the centrally developed MBBL framework without rewriting local codes.

Alignment with laws & standards

The Model Building Bye Laws issued by MoHUA serve as a **national reference** for telecom infrastructure in buildings. The 2022 MBBL addendum on in-building access, for example, mandates common telecom infrastructure (CTI), dedicated telecom rooms, and fair access to service providers (no

exclusive arrangements) as core requirements.【eservices.dot.gov.in†】 Where state/local codes lack ICT or digital wiring requirements, invoking the MBBL closes gaps. This harmonizes with the National Building Code (NBC) 2016, Part 8, Section 6, which requires ICT-enabled installations (pathways, cabling, spaces) for "Information and Communication Enabled Installations"【bis.gov.in†】. Smart Cities Mission guidelines similarly list "robust IT connectivity" and digitalization as essential urban infrastructure. Uniform reference to MBBL aligns all these pieces: states need not duplicate national rules, yet buildings everywhere meet a consistent baseline. Internationally, standards like ISO/IEC 11801-1 call for multi-vendor generic cabling systems to support any service【iso.org†】, and BICSI/NECA codes emphasize standardized pathways and spaces. Referencing MBBL implements this ethos: it ties local law to global best practice without prescribing specific vendors or equipment. Finally, uniform standards strengthen consumer protection. Misrepresentation (e.g. advertising a building as "connectivity-ready" without proper infrastructure) can be tackled by law only if there is a clear baseline to measure against. RERA and consumer laws penalize false claims about amenities; a national "ICT-ready building" standard means buyers have one consistent definition of digital readiness, reducing deception.

Forward-looking regulatory approach

Referencing MBBL in deficient states is inherently future-proof. It encourages **design-stage compliance**: developers will plan telecom shafts, fiber ducts, power backups, and telecom rooms from the outset, rather than retrofit after occupancy. This supports emerging consumer needs – the same infrastructure that carries high-speed Internet also enables widespread telemedicine equipment, on-line classrooms, remote-work hubs, and smart-building IoT systems (sensors, controls, AR/VR applications). MBBL's framework covers broad categories of technology without naming them; for example, it requires conduits and cabling for "wireless broadband and backbone" without limiting it to current 4G/5G standards. This leaves room

for satellite broadband, private 5G networks, or other future architectures. Importantly, it levels the playing field so that Tier-2 and Tier-3 cities (where local codes often lag) are not left behind: any project there would still have to follow MoHUA's digital connectivity norms. Early compliance also lowers costs and disruptions – a building with pre-installed high-capacity wiring needs only equipment upgrades to stay current, rather than tearing out walls later.

Consumer-first transparency & protection

Uniform national standards (via MBBL) protect consumers by eliminating wide variance in connectivity quality from building to building. If every new building claims to meet "high capacity broadband" norms, renters and buyers can compare properties on a fair, reliable basis. In particular, disclosures should indicate whether a building design follows MBBL-aligned ICT provisions. For example, marketing materials or occupancy certificates could plainly state: "Building planned with in-building telecom infrastructure as per Model Building Bye Laws," rather than vague claims. This prevents fraudulent advertising. Without MBBL reference, a buyer in one state might find fiber ducts and telecom rooms mandatory, while another in a neighboring state gets none. That inconsistency undermines trust.

To reinforce transparency, TRAI can require that developers/developers prove compliance with MBBL provisions via audit reports (by certified agencies) before marketing the connectivity grade. Any claims of "5G-ready" or "smart-ready" would then be verifiable against the MBBL criteria. This eliminates information asymmetry – consumers see the same checklist of requirements nationwide. Ultimately, referencing MBBL greatly enhances consumer protection: it reduces the chance of "connectivity fraud," ensures minimal quality of experience regardless of location, and gives a concrete legal standard for consumer recourse if promised infrastructure is missing or substandard.

Practical implementation

A straightforward mechanism is proposed: **whenever a state or local building code is silent on digital connectivity, the MBBL provisions become the default requirement**. The rating regulations (or building permits) can explicitly cite MoHUA's code: "For ICT infrastructure requirements, apply Section 6 of NBC-2016 and the MoHUA Model Building Bye Laws addendum." Authorities can adopt standard checklists (from MBBL/NBC) for plan approval and completion certificates. For example, if a state byelaw requires a telecom room for a certain area size in MBBL, that same rule would automatically apply if the state law is silent.

To ease implementation, TRAI or MoHUA can publish standardized templates and compliance checklists for architects and facility managers. These would align with MBBL wording (high-capacity ducts, multi-operator interfaces, fiber termination points, power backup, in-building signal solutions, etc.). Capacity-building workshops and advisories for state governments, developers, and planners will help ensure they understand MBBL's defaults. Critically, this should be phased: large or high-rise projects can be targeted first, while smaller townships get a lead time to retrofit their procedures. The key is clarity and predictability: developers in any state will clearly know what digital infrastructure to include. If done well, this "MBBL by reference" approach should actually **reduce** burdens by avoiding contradictory local rules, instead giving a single national standard to meet.

International practices and precedents

Other countries handle divergent local codes by using national model codes or baseline standards. In the U.S., for instance, the National Electrical Code (NEC) is a model code adopted state-by-state; it includes provisions for telecommunications pathways. The EU is working on harmonizing building digital readiness through frameworks like the EU Blueprint for Telecommunications Infrastructures of Buildings, which sets uniform benchmarks despite varied local rules. On the rating side, international building certification systems (like Wired Score or national efforts such as

Singapore's Green Building Masterplan) rely on consistent criteria so that a "4-star building" means the same thing everywhere. Globally, the trend is clear: uniform baseline standards (anchored in a model code) ensure fairness and comparability.

Applying these lessons to India means adapting a model-code approach: states retain autonomy, but default to the central MBBL standard for connectivity if they don't have their own. This respects local governance while ensuring no citizen is disadvantaged by geography. For example, just as "plumbing code" or fire-safety norms are often inherited from national or international codes, telecom connectivity can follow MoHUA's nationally vetted bye-laws. Over time, states can augment or exceed these norms, but the baseline remains common.

Conclusion

On balance, referencing MoHUA's Model Building Bye Laws wherever state/local rules lack digital connectivity provisions is strongly consumer-positive. It promotes uniformity, reduces confusion, and raises the floor of service quality nationwide. Uniform standards mean consumers can shop for properties on a level field and trust that "connectivity-ready" has a clear definition everywhere. For TRAI's digital connectivity ratings, this harmonization is critical: a "5-star" rating in one city must imply the same underlying infrastructure as in another. We therefore support a policy that invokes the MBBL framework as the default in states where local codes are silent or weak on ICT infrastructure. This ensures buildings are future-ready, prevents wide disparities in connectivity, and ultimately strengthens consumer trust and market transparency.

Q7 – Should optional audit reports (Annexure-V) be permitted, and how should they be used to increase transparency for stakeholders, indirectly benefiting consumers?

Comments :

1. Advancement of Technology

The rapid evolution of digital connectivity ecosystems—particularly **5G, Wi-Fi 6/7, IoT, private 5G networks, and smart-building systems**—has significantly increased the complexity of in-building connectivity requirements. As noted in the consultation paper, in-building connectivity is now a **critical determinant of Quality of Service due to signal attenuation and indoor usage patterns** .

In this context, **optional digital connectivity audits (Annexure V)** serve as an essential pre-assessment mechanism to evaluate whether a property is equipped with **"high-capacity broadband infrastructure"**—a technology-neutral concept that ensures flexibility across evolving standards.

- **Technology-neutrality:** Optional audits should avoid prescribing specific technologies (e.g., 5G vs Wi-Fi) and instead assess readiness based on parameters such as capacity, scalability, redundancy, and multi-operator support.
- **Scalability:** Given continuous advancements (e.g., Wi-Fi 7, edge computing, hybrid satellite connectivity), audit frameworks must remain adaptable, ensuring long-term relevance without frequent regulatory revisions.
- **Early-stage diagnostics:** Optional audits enable identification of infrastructure gaps before formal rating, particularly important in complex smart-building ecosystems.

Thus, permitting optional audits aligns with technological realities and supports **future-proof infrastructure planning**.

2. Alignment with Laws & Standards

Optional audit reports should be firmly anchored in existing regulatory and technical frameworks:

- **MoHUA Model Building Bye-Laws (MBBL) & 2022 Addendum:** Provide baseline requirements for in-building telecom infrastructure, including common telecom facilities and non-discriminatory access.
- **National Building Code (NBC) 2016, Part 8 Section 6:** Establishes ICT-enabled infrastructure requirements, including pathways, cabling, and telecom spaces.
- **Smart Cities Mission:** Recognizes **robust IT connectivity as core urban infrastructure**, reinforcing the need for standardized evaluation mechanisms.
- **International Standards:**
    - **ISO/IEC 11801-1:** Structured cabling for multi-service environments
    - **BICSI standards:** Best practices for pathways, spaces, and telecom infrastructure

Optional audits should assess compliance against these frameworks to ensure **objective, standardized, and comparable outcomes**.

Further, **consumer protection laws (Consumer Protection Act, RERA)** require that:

- Optional audits **must not be misrepresented as official ratings**
- Any indicative score must be clearly labelled as **non-binding and for internal use only**, as also emphasized in the consultation paper

3. Forward-Looking Regulatory Approach

The consultation paper itself recognizes that optional audits can help property managers **identify gaps and undertake improvements before applying for formal ratings** .

From a forward-looking perspective:

- **Supports emerging consumer needs:**
    - Remote work ecosystems

  - Telemedicine infrastructure
  - Digital education platforms
  - Smart home and IoT integration
- **Encourages design-stage compliance:**
  - Integrating ducts, fiber pathways, telecom rooms early reduces retrofit costs
  - Enhances efficiency and reduces long-term infrastructure disruption
- **Technology flexibility:**
  - Supports integration of **satellite broadband, private 5G, hybrid architectures**
  - Avoids lock-in to current technologies
- **Promotes digital inclusion:**
  - Enables Tier-2/3 cities and affordable housing projects to **benchmark and improve infrastructure progressively**
  - Reduces digital divide by providing structured improvement pathways

Thus, optional audits act as a **preparatory and capacity-building tool within the regulatory ecosystem**.

4. Consumer First: Transparency & Consumer Protection

Optional audit reports can significantly enhance transparency if designed with strong safeguards:

Recommended Safeguards

- **Clear distinction:**
  Mandatory labelling as:

  “Optional Digital Connectivity Audit – Not a Digital Connectivity Rating”

- **Standardized, plain-language summaries:**

    - Infrastructure readiness (e.g., fiber readiness, telecom rooms, redundancy)
    - Identified gaps and improvement areas
    - No technical jargon for consumer-facing sections
- **Mandatory disclosures:**
    - Date of audit
    - Scope and limitations
    - Non-binding nature of findings
- **Conflict-of-interest safeguards:**
    - DCRAs must disclose any advisory/consulting role with the same property
    - Separation between audit and implementation services
- **Penalties for misuse:**
    - Misrepresentation of audit as rating should attract regulatory penalties
    - Public grievance mechanism for consumers

Consumer Benefit

- Reduces **information asymmetry**
- Enables **informed property selection decisions**
- Builds **trust in the rating ecosystem**

5. Practical Implementation

To ensure effectiveness without burdening stakeholders:

Standardization

- TRAI should prescribe:
    - **Annexure V-based uniform templates**
    - Checklists aligned with rating criteria
    - Evidence formats (design drawings, test reports, site photos)

Voluntary but Transparent

- Optional audits should remain **voluntary**
- However, once conducted:
    - **Summary should be publicly visible on the rating platform**
    - Full report may remain confidential

Capacity Building

- Workshops for:
    - Property Managers
    - Developers and architects
    - DCRAs

Phased Implementation

- Phase 1: Large commercial and urban projects
- Phase 2: Residential and Tier-2/3 markets

Complementary Role

- Optional audits should:
    - **Not replace formal rating processes**
    - Serve as **pre-assessment and improvement tools**

This ensures **ease of compliance, scalability, and ecosystem readiness**.

6. International Implementation & Best Practices

Global frameworks provide strong precedents for optional/pre-assessment mechanisms:

Examples

- **Wired Score Pre-certification:**
    - Design-stage and pre-assessment certification
    - Clear communication rules distinguishing final certification
- **LEED (Green Buildings):**

    - Preliminary reviews before final certification
    - Transparent scoring methodology
- **BREEAM:**
    - Interim assessments with clear disclaimers

Common Principles

- Clear distinction between:
    - Preliminary assessment vs final certification
- Defined **validity periods**
- Transparent methodologies
- Third-party verification mechanisms

Adaptation for India

- Align with TRAI's digital connectivity rating framework
- Integrate with MBBL/NBC compliance
- Ensure **consumer-centric disclosures**

Conclusion

Optional audit reports (Annexure V) **should be permitted**, subject to strong regulatory safeguards.

Key Position

- **Yes, optional audits are beneficial and should be enabled**

Rationale

- Enhance **early-stage infrastructure planning**
- Promote **incremental improvements in digital connectivity**
- Reduce **information asymmetry**
- Improve **market transparency and consumer trust**
- Encourage **wider adoption of the rating framework**

Conditions for Success

- Clear distinction from final ratings
- Standardized formats and disclosures
- Strong conflict-of-interest and governance safeguards
- Public visibility of summarized outcomes

Final Recommendation

Optional audits should function as:

"A structured, transparent, and non-binding pre-assessment mechanism that strengthens the digital connectivity ecosystem while indirectly benefiting consumers through improved infrastructure quality and informed decision-making."

Q8 – Are the declaration requirements for under-construction properties (Annexure-IV) sufficient to provide assurance and accountability to buyers at the design stage?

Comments :

1. Advancement of Technology

The rapid evolution of **5G, Wi-Fi 6/7, IoT ecosystems, private 5G networks, and smart-building technologies** has fundamentally transformed the expectations from in-building digital connectivity. As the consultation paper highlights, **in-building connectivity is a critical determinant of Quality of Service due to signal attenuation and indoor usage dominance** .

In this context, **design-stage declarations (Annexure IV)** become a foundational instrument for ensuring that properties are planned with **"high-capacity broadband infrastructure"** rather than legacy or inadequate systems.

- **Need for robust declarations:**
  With increasing device density and mission-critical applications (telemedicine, IoT automation), design-stage commitments must be **technically detailed and verifiable**, not merely indicative.
- **Technology-neutral approach:**
  Declarations should avoid specifying technologies (e.g., "5G-ready") and instead refer to:
  - Capacity (bandwidth support)
  - Scalability (upgrade readiness)
  - Redundancy and resilience
    This ensures future compatibility.
- **Scalability and future-proofing:**
  As new standards emerge, declarations must remain valid by focusing on **infrastructure readiness (ducts, fiber pathways, telecom rooms)** rather than specific technologies.

Assessment: Annexure IV is conceptually aligned with technological needs but requires strengthening in terms of **technical specificity and verifiability**.

2. Alignment with Laws & Standards

Annexure IV declarations must be tightly aligned with established regulatory and technical frameworks:

- **MoHUA Model Building Bye-Laws (MBBL) & 2022 Addendum:**
  - Mandate common telecom infrastructure (CTI)
  - Ensure non-discriminatory access to service providers
- **National Building Code (NBC) 2016, Part 8 Section 6:**
  - Defines ICT-enabled installations including pathways, spaces, and structured cabling
- **Smart Cities Mission:**
  - Recognizes **robust IT connectivity as essential infrastructure**
- **International Standards:**
  - **ISO/IEC 11801-1:** Structured cabling systems

- **BICSI:** Telecom infrastructure design best practices

Critical Gap

While Annexure IV requires:

- Target star rating
- Criterion-wise and sub-criterion-wise plans
- Supporting design documents

...it does **not explicitly mandate standardized mapping to these national/international standards**.

Consumer Protection Dimension

- Declarations must comply with **Consumer Protection Act and RERA principles**
- Any misleading or incomplete declaration can result in:
  - False marketing claims
  - Buyer disputes

Assessment: Annexure IV is aligned in intent but needs **explicit standard-referencing and compliance mapping** to ensure enforceability and consumer protection.

3. Forward-Looking Regulatory Approach

Annexure IV plays a crucial role in shifting the ecosystem from **post-construction assessment to design-stage accountability**, as recognized in the consultation paper where buyers currently lack visibility into planned connectivity .

Key Benefits

- **Supports future consumer needs:**
  - Remote work ecosystems

    - Telemedicine infrastructure
    - Digital education platforms
    - Smart building automation
- **Encourages early compliance:**
    - Embedding infrastructure during design stage reduces retrofit costs
    - Improves long-term efficiency
- **Technology flexibility:**
    - Enables integration of:
        - Satellite broadband
        - Private 5G networks
        - Hybrid connectivity architectures
- **Promotes digital inclusion:**
    - Standardized declarations ensure that Tier-2/3 cities and affordable housing projects are not left behind

Assessment: Annexure IV is a **forward-looking regulatory tool**, but its effectiveness depends on **strengthening verification and accountability mechanisms**.

4. Consumer First: Transparency & Consumer Protection

The consultation paper clearly identifies that **buyers currently lack visibility of planned digital connectivity at the construction stage** . Annexure IV is intended to address this gap.

Strengths

- Structured declaration format
- Requirement of supporting documents
- Integration with DCRA design-stage assessment

Areas for Strengthening

1. Standardization & Plain Language

- Declarations should include:
  - Consumer-friendly summary
  - Key infrastructure features explained simply
  - Expected user experience outcomes

2. Clear Distinction

- Mandatory labeling:

  "Design-stage declaration – subject to verification during final assessment"

3. Public Accessibility

- Declaration summaries should be:
  - Available on TRAI rating platform
  - Linked to property listings

4. Accountability Mechanisms

- Mandatory:
  - Developer declaration with legal accountability
  - DCRA verification note

5. Penalties & Safeguards

- Misrepresentation should attract:
  - Regulatory penalties
  - Rating disqualification
  - Public disclosure of non-compliance

6. Conflict of Interest Controls

- DCRAs involved in design advisory must:
  - Disclose their role
  - Maintain independence in assessment

Assessment: Annexure IV provides a **strong foundation**, but requires **enhanced transparency, public disclosure, and enforcement safeguards**.

5. Practical Implementation

To ensure effective implementation:

Standardization

- TRAI should prescribe:
  - Uniform Annexure IV templates
  - Checklist-based declarations
  - Evidence formats (drawings, schematics, compliance reports)

Digital Integration

- Mandatory:
  - Online submission via rating platform
  - Public visibility of summary declarations

Capacity Building

- Training programs for:
  - Developers
  - Architects
  - Property Managers
  - DCRAs

Phased Implementation

- Phase 1: Large urban and commercial projects
- Phase 2: Residential and Tier-2/3 markets

Complementary Role

- Declarations must:

- **Complement—not replace—Due Diligence Stage I & II**
- Remain subject to **on-ground verification**

Assessment: Implementation is feasible but requires **standardization, digital integration, and ecosystem capacity building**.

6. International Implementation & Best Practices

Global frameworks provide strong precedents:

Examples

- **WiredScore Pre-Certification:**
  - Design-stage evaluation with clear disclaimers
  - Focus on infrastructure readiness
- **LEED (Green Buildings):**
  - Preliminary reviews before final certification
  - Transparent scoring and documentation
- **BREEAM:**
  - Interim certifications with audit trails

Key Lessons

- Clear distinction between:
  - Design-stage declaration vs final certification
- Mandatory:
  - Auditability
  - Documentation standards
- Defined:
  - Validity periods
  - Re-verification requirements

Adaptation for India

- Integrate Annexure IV with:

    - MBBL and NBC frameworks
    - TRAI rating platform
- Ensure:
    - Uniformity across states
    - Consumer-friendly disclosures

Assessment: Annexure IV aligns with global best practices but needs **stronger auditability and communication rules**.

Conclusion

Position

Annexure IV is **a necessary and progressive step**, but **not fully sufficient in its current form** to provide complete assurance and accountability to buyers.

Key Findings

- Provides **structured design-stage visibility**
- Encourages **early planning and compliance**
- However, lacks:
    - Standardized benchmarking
    - Strong verification mechanisms
    - Consumer-facing clarity
    - Enforcement safeguards

Recommendations

Annexure IV should be **strengthened through:**

1. Standardized templates aligned with NBC, MBBL, ISO/BICSI
2. Mandatory plain-language consumer summaries
3. Public disclosure on rating platform
4. Clear distinction from final ratings
5. Legal accountability and penalties for misrepresentation

6. Integration with DCRA verification and audit trails

"Design-stage declarations under Annexure IV are a critical foundation for transparency; however, their effectiveness in ensuring consumer assurance depends on standardization, verifiability, and strong regulatory safeguards. Strengthened declarations will significantly reduce consumer risk, improve accountability, and enhance trust in the digital connectivity rating framework."

Q9 – Should the code of conduct for DCRAs be strengthened further to ensure impartiality, independence, and avoidance of conflicts of interest, thereby safeguarding consumer trust?

Comments :

1. Advancement of Technology

The digital connectivity ecosystem is undergoing rapid transformation with the deployment of **5G, Wi-Fi 6/7, IoT ecosystems, private 5G networks, and smart-building systems**. As highlighted in the consultation paper, **in-building connectivity has become a critical determinant of Quality of Service due to increasing indoor data consumption and signal attenuation challenges** .

In such a dynamic environment, DCRAs play a pivotal role in evaluating infrastructure readiness. Therefore:

- **Technical Competence & Neutrality:**
  DCRAs must assess properties using **technology-neutral criteria** such as:
  - "high-capacity broadband infrastructure"
  - scalability and redundancy
    rather than favoring specific technologies or vendors.

- **Avoidance of Vendor Bias:**
  Without strict safeguards, DCRAs may inadvertently or deliberately favor:
  - specific equipment vendors
  - proprietary solutions
    leading to distorted ratings.
- **Scalability of Governance:**
  As new technologies emerge (e.g., Wi-Fi 7, edge computing, hybrid satellite connectivity), DCRA frameworks must:
  - evolve continuously
  - maintain relevance without frequent regulatory overhaul

Implication: Strengthening the code of conduct is essential to ensure **future-proof, unbiased, and technically sound assessments**.

2. Alignment with Laws & Standards

A robust DCRA code of conduct must align with established regulatory and technical frameworks:

- **MoHUA Model Building Bye-Laws (MBBL) & 2022 Addendum:**
  - Ensure fair access to telecom infrastructure
  - Prevent exclusive or restrictive arrangements
- **NBC 2016, Part 8 Section 6:**
  - Defines ICT-enabled infrastructure requirements (pathways, cabling, telecom spaces)
- **Smart Cities Mission:**
  - Recognizes **robust IT connectivity as essential infrastructure**
- **International Standards:**
  - **ISO/IEC 11801-1:** Structured cabling systems
  - **BICSI:** Infrastructure design best practices

Consumer Protection Perspective

The consultation framework emphasizes transparency and consumer interest. Biased or conflicted ratings can:

- Mislead consumers
- Distort property valuation
- Undermine regulatory credibility

Implication: Strengthening the DCRA code of conduct ensures alignment with **national standards and consumer protection principles**, reducing risks of misleading assessments.

3. Forward-Looking Regulatory Approach

Independent and impartial DCRAs are critical for supporting future digital ecosystems:

Why Independence Matters

- Consumers increasingly depend on:
  - remote work infrastructure
  - telemedicine services
  - online education platforms
  - digital public services

Biased ratings can directly impact these outcomes.

Key Governance Recommendations

- **Separation of Functions:**
  - Rating (assessment)
  - Consulting (advisory)
  - Implementation (execution)

  must be clearly separated to avoid conflicts of interest
- **Future-Ready Governance:**
  - DCRAs must evaluate readiness for:

        - satellite broadband
        - private 5G networks
        - hybrid connectivity architectures
- **Digital Inclusion:**
    - Ensure fair and unbiased ratings across:
        - Tier-2/3 cities
        - affordable housing projects

          preventing urban bias

Implication: A strengthened code of conduct is necessary to ensure **long-term neutrality and equitable digital development**.

4. Consumer First: Transparency & Consumer Protection

Consumer trust is the cornerstone of the rating framework. To safeguard this:

Mandatory Disclosure Norms

DCRAs should disclose:

- Ownership structure
- Financial interests
- Past and ongoing engagements with property developers
- Methodology used for rating
- Audit trail and evidence basis

Plain Language Communication

- Ratings should include:
    - simplified summaries
    - explanation of infrastructure quality
    - expected user experience

Conflict of Interest Safeguards

- Mandatory:
  - Conflict of interest declarations for each project
  - Cooling-off periods between consulting and rating roles

Verification Mechanism

- Public platform should allow:
  - verification via certificate ID / QR code
  - access to summary audit reports

Penalties

- Strong enforcement mechanisms:
  - suspension or cancellation of DCRA registration
  - financial penalties
  - public disclosure of violations

Implication: Strengthening transparency and accountability mechanisms will significantly enhance **consumer confidence and trust**.

5. Practical Implementation

To operationalize a stronger code of conduct:

Licensing & Accreditation

- Introduce:
  - **mandatory licensing framework**
  - periodic renewal based on performance and compliance

Standardization

- Develop:
  - uniform assessment templates
  - standardized checklists
  - evidence-based documentation formats

Oversight Mechanisms

- Conduct:
  - random audits of DCRA assessments
  - peer reviews across agencies
  - cross-verification of ratings

Capacity Building

- Regular training programs for DCRAs on:
  - evolving technologies
  - updated standards
  - regulatory expectations

Phased Implementation

- Allow gradual strengthening:
  - Phase 1: Large agencies and high-value projects
  - Phase 2: Smaller agencies and broader adoption

Implication: A structured implementation approach ensures **high integrity without overburdening the ecosystem**.

6. International Implementation & Best Practices

Global frameworks provide valuable guidance:

Examples

- **WiredScore / SmartScore:**
  - Transparent methodology
  - strict governance of assessors
- **LEED & BREEAM:**
  - Clear separation between consulting and certification
  - independent verification processes

- **Financial Rating Agencies (e.g., SEBI-regulated):**
  - strict conflict-of-interest rules
  - mandatory disclosures
  - periodic audits

Common Principles

- Separation of roles (rating vs consulting)
- Transparent methodologies
- Public disclosure of conflicts
- Third-party audits and oversight

Adaptation for India

- Integrate these principles into TRAI framework:
  - tailored to Indian real estate ecosystem
  - aligned with MBBL and NBC
  - focused on consumer protection

Implication: International best practices strongly support **strengthening DCRA governance frameworks**.

Conclusion

Position

Yes, the code of conduct for DCRAs must be strengthened further.

Rationale

- Prevents conflicts of interest and biased assessments
- Enhances transparency and accountability
- Aligns with national and international standards
- Protects consumer interests and trust

Key Recommendations

1. Strict separation of rating, consulting, and implementation roles
2. Mandatory disclosures and conflict-of-interest declarations
3. Licensing, accreditation, and periodic renewal of DCRAs
4. Standardized methodologies and audit frameworks
5. Strong enforcement mechanisms and penalties
6. Public verification systems for rating authenticity

"A strengthened code of conduct for DCRAs is essential to ensure impartiality, independence, and credibility of digital connectivity ratings. Robust governance, transparency, and conflict-of-interest safeguards will not only protect consumers but also enhance market confidence, fairness, and long-term regulatory stability. DCRAs must function as neutral, technically competent, and consumer-centric institutions."

Additional dimensions that should be considered beyond the consultation Paper :

Comments :

Policy & Regulatory Safeguards

- **Spectrum access:** Regulatory measures must guard against spectrum hoarding by incumbents. Recent TRAI proposals for auctions include a **uniform spectrum cap (35%)** and lower entry criteria for new entrants. For fairness, all usable bands should be auctioned (as recommended by TRAI) with caps and set-asides to ensure new/innovative players can compete.
- **Data privacy:** India's new Digital Personal Data Protection Act (2023) and rules (effective 2025–27) impose strict consent, security and breach-notification requirements on service providers. Telecom regulations should align with this regime – mandating minimal data collection, clear user consent and timely breach alerts. For example,

under new rules companies must collect **only necessary data** and tell users if their data was breached. We therefore urge explicit telecom guidelines enforcing these principles (privacy-by-design, regular audits) to protect customer data on par with GDPR-like standards.

- **Cross-sector coordination:** Digital infrastructure must integrate with energy, transport and urban planning policies. For instance, PM Gati Shakti's asset-mapping (fiber, towers) can streamline RoW and sharing; smart cities initiatives create demand for 5G/IoT. The new National Telecom Policy (2025) explicitly calls for **cross-sector collaboration** (with industry, academia and government) to drive smart city, IoT and rural broadband use-cases. We recommend formal mechanisms (inter-ministerial councils or joint telecom-energy task forces) to align licencing, grid upgrades and corridor planning, avoiding fragmentation and leveraging shared ducts/poles.
- **Regulatory agility:** Telecom rules must evolve rapidly with 5G, 6G and satellite broadband advances. Recent policy steps (e.g. NFAP-2025) identify mid-band spectrum (6.4–7.125 GHz) for 5G/6G and allocate Ka/Q/V bands for satellite services. TRAI and DoT should institutionalize flexible tools: *spectrum sandbox* trials, dynamic spectrum sharing, multi-year technology-neutral licenses, and streamlined approvals for experimental deployments. As TRAI noted, "as networks become more data-intensive and service-oriented, regulatory agility and predictability will be key". In practice this means regular consultations on emerging tech, pre-assigned unlicensed bands (e.g. for private 5G/IoT), and sunset clauses to reassess outdated rules.

Implementation Barriers

- **High capital expenditure:** Rolling out fiber, towers and 5G densification entails huge upfront costs. For example, **BharatNet Phase-III** alone is budgeted at ~₹1.39–1.40 lakh crore to connect hundreds of thousands of villages. Government support (as in Budget 2026: ~₹73,990 cr for telecom, largely to fund BharatNet and BSNL capex) helps, but carriers still face equipment shortages and steep

prices. Optical-fiber prices have surged ~70% since late 2025, threatening rural build-out budgets. We urge policies to address this: incentivize shared infrastructure (e.g. tower/duct sharing), extend moratoriums on rollout obligations in difficult areas, and continue public funding for "last-mile" connectivity (e.g. Aerial Fiber through electricity poles or public Wi-Fi in villages).

- **Right of Way (RoW) delays:** Fragmented permission regimes have historically stalled cable/fiber installation. Recent reforms (Telecom RoW Rules 2024) and a Centralized RoW portal have dramatically cut delays. For instance, average RoW approval times fell from ~455 days (2019) to ~30.4 days (2025), and 33 of 36 states have adopted the new rules. We commend these steps, but urge continuous monitoring: ensure remaining states (e.g. TN, WB) implement rules promptly, and that local bodies comply with single-window timelines. Consistent enforcement is needed so that fiber/cell tower permits can't be stalled by ad hoc local demands.
- **Technology obsolescence risk:** Telecom assets have long lifecycles (often 15–20 years) but technology evolves faster. Equipment installed for 5G today may be superseded by 6G-enabled services within a decade. Policies should therefore be technology-neutral and allow adaptive use. For example, any spectrum rules or rollout conditions should not lock operators into only legacy technologies if newer standards emerge. Spectrum/trial frameworks must anticipate upgrades (as NFAP-2025's inclusion of 6GHz for future IMT shows). We suggest building options (e.g. phased upgrades, module-based hardware) into regulations and providing depreciation relief or accelerated incentives to offset early asset-stranding.
- **Skilled workforce shortage:** Deployment in rural and semi-urban areas is hampered by a lack of trained field engineers and technicians. This gap spans civil works (fiber splicing, tower maintenance) to newer skills (5G small cells, network security). We recommend coordination with Skill India and telecom training institutes to expand courses for fiber

techs, tower installers and RF engineers. Subsidized training programs or apprenticeships (especially in Tier-2/3 regions) can ensure a pipeline of local technicians. Regulatory consultation can highlight this need, and spectrum or infrastructure licenses could include minimum training or rural employment commitments.

Consumer Issues

- **Digital divide & affordability:** While national Internet penetration has soared to ~72% (1.0 billion subscribers), rural/low-income segments lag. Only ~47 Internet users per 100 people live in rural India, versus ~70+ in urban areas. Poor connectivity and low ARPU in villages keep private investment tentative. We urge policies to ensure no one is "left behind": continuation of subsidies or universal service funds for low-cost broadband, transparent rural free Wi-Fi projects (PM-WANI), and local "Gram Panchayat" Internet kiosks. Device affordability is also key: schemes for low-cost data-capable phones and digital literacy camps can boost demand and inclusion.
- **Service quality:** Consumers frequently face call drops, dead zones and variable broadband speeds. Industry data show **calls and coverage** as the top complaint (65% cite coverage issues). TRAI has strengthened QoS monitoring (e.g. MySpeed app for crowdsourced speeds) and mandated strict resolution timelines. We support continued enforcement: require operators to meet LTE/5G benchmarks and resolve call/drop complaints quickly. The revamped TRAI MySpeed app empowers users to log real-world performance; its data should feed into license checks. Additionally, force majeure clauses in licensing should not excuse chronic outages – operators must maintain **minimum service levels** or face penalties. Special attention is needed for emergency services (e.g. guaranteeing 112/108 call connectivity for all networks during outages).
- **Tariff transparency:** Complex plans and hidden charges erode consumer trust. Subscribers still report opaque validity, "ambiguous monthly" plans, surprise roaming charges, and unwanted value-added

services. TRAI's Easy Bill Plan (2020) attempted to simplify choices, but billing confusion persists. We suggest: mandate "bill summary" dashboards (in local languages) showing core charges vs add-ons; cap uplifts on price after intro offers; and require explicit opt-in (not opt-out) for all paid services. Consumer education (via MySpeed/DND apps and social media) can raise awareness of rights to clear bills and speedy resolution (e.g. TRAI's mandate to resolve 98% billing complaints in 4 weeks). Telecom retailers and call centers should also be monitored to prevent aggressive or misleading upselling.

- **Accessibility:** Connectivity must serve differently-abled and elderly citizens. TRAI's recommendations (2018) call for **accessible devices and services**: affordable handsets with built-in assistive features, closed captioning on TV/broadcast, and special tariffs or customer support for Persons with Disabilities. For example, telecom retailers should not disable screen-readers or magnifiers on phones sold. Service providers should offer customer care with TTY/relay centers for the deaf and sign-language lines for speech-impaired users. We urge regulators to enforce these norms: license terms can require offering a basic-call plan at concessionary rates for PWDs, and operators must publish clear guidance (in Braille/large print) on dialing emergency services. Periodic audits should verify that major operators have adequate accessibility features as per TRAI's guidelines.

Socio-Economic Impact

- **Environmental sustainability:** The telecom sector's energy use and e-waste are growing concerns. Telecom networks (base stations, data centers) already consume significant power, often diesel-backup or grid electricity, contributing to carbon emissions. The new NTP-2025 explicitly calls for **energy efficiency, renewable energy and e-waste management** in the sector. Companies should be incentivized to deploy solar/battery at towers (target: 30% green power by 2030) and use efficient cooling in data centers. On e-waste: globally, ~62 million tons of telecom and ICT waste is generated as devices (phones,

routers, etc.) become obsolete. India should strengthen its e-waste rules: e.g. enforce Extended Producer Responsibility for handsets and batteries, and support certified recyclers. We recommend a "green rating" for telecom projects (urban masterplans, public tenders) that includes energy footprint and recyclability.

- **Cybersecurity:** Next-gen networks (5G/IoT, private LTE, satellite links) expand the attack surface. For example, low-cost IoT sensors may have weak security; network slicing can introduce new vulnerabilities. India's NDCP-2019 mandates baseline security, but we urge specific telecom measures: enforce mandatory security audits for carriers, require end-to-end encryption for critical data, and share threat intelligence among operators. Regulators should also consider licensing vetted "trusted sources" for core network equipment. Given emerging national threats, telecom licenses could require minimum localization of cybersecurity functions (like firewalls and anomaly detection) and periodic drills (e.g. joint breach simulations with CERT-In). When introducing innovations (AI-managed networks, autonomous infrastructure drones, etc.), clear security standards must be defined in advance. (TRAI has emphasized cyber-resilience in its policies, and we support embedding those requirements in each license.)
- **Local manufacturing and supply chains:** Promoting "Make in India" is vital but must recognize global realities. India has succeeded in boosting equipment assembly: PLI and component schemes are driving local production of routers, switches, even 5G radios. However, many core components (chipsets, PCBs) are still imported. We applaud efforts like the Electronics Component Manufacturing Scheme, but caution that strict localization requirements can impede rollouts if global shortages arise. A balanced approach is needed: continue to attract FDI and technology partnerships (as Ericsson is doing for R&D), while building niche capabilities (optical transceivers, passive hardware) domestically. Coordination between DoT and MeitY should be strengthened (as industry suggests) so that telecom and broader

electronics policies reinforce each other. Support for startups (via R&D grants) can help India capture design innovation, not just assembly.

- **Disaster resilience:** Telecom networks must withstand floods, cyclones, earthquakes and cyber-attacks. Recent experiences show progress: during Cyclone Montha (Oct 2025), DoT ordered fuel reserves, deployed Cells-on-Wheels, and successfully tested an indigenous Cell Broadcast system to send early alerts. For Cyclone Ditwah (Nov 2025), coordinated planning with TN government resulted in **zero network outages**. These examples illustrate that proactive measures (priority call routing, diversified power backup, pre-deployed BTS units) work. We urge: mandate such resilience standards in license conditions. For instance, require critical cell sites to have backup power for ≥48 hours of outages, define minimum flood-elevation or earthquake-hardened designs, and integrate terrestrial networks with backup (satellite or high-altitude platforms) for truly "always-on" coverage. The new National Disaster Management Plan already calls for rapid telecom restoration teams; compliance should be audited post-disaster. Lastly, strengthen the national alert system: the DoT–NDMA cell broadcast MoU has achieved 95% national reach, so operators must routinely test and refine this "Alert for All" capability (e.g. multi-language warnings for remote areas) to save lives.

Future-Readiness

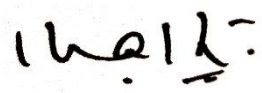
- **Policy flexibility for emerging tech:** As TRAI leaders noted, technologies like AI, 5G/6G and satellite broadband will redefine networks. Regulatory frameworks must be forward-looking: for example, introduce *regulatory sandboxes* or testbeds for 5G-based Industry 4.0, autonomous vehicles, or LEO-satellite Internet. We recommend formal pilots (with government incentives) for new use-cases (e.g. telemetry for smart grids, AR/VR classrooms) so rules (spectrum use, data rights) can be refined before large-scale launch. Likewise, continued alignment with global standards (like IMT-2030 for 6G) is crucial – India's NFAP-2025 already prepares spectrum for 6G.

Policies should similarly pave the way for non-terrestrial services: clarify licensing of Starlink or satellite Earth stations, and integrate them into national plans. Overall, we urge a **principles-based** regulation (competition, interoperability, neutrality) rather than hard-wiring specific technologies.

- **Global competitiveness:** The telecom sector underpins India's digital economy, so regulation must attract investment and innovation. Predictable, transparent rules will encourage operators and manufacturers to commit capital for 5G densification, fiber rollout and R&D. For instance, stable AGR/tax regimes, reasonable license fees and ease-of-doing-business measures (like spectrum payment moratoriums) improve confidence. Policies should also foster ecosystem growth: support telecom startups and labs (100+ 5G labs initiative, etc.) as the Chairman noted. Engagement with global partners (ITU, trade bodies) will help India stay on the leading edge. Finally, digital inclusion (affordable access for all) must balance with financial sustainability – regulators must ensure that subsidy or social obligations do not discourage investment, while still protecting vulnerable consumers.

Each of the above points identifies practical issues that often fall between the cracks of standard policy papers. By explicitly addressing spectrum equity, data safeguards, infrastructure bottlenecks, consumer trust, and the broader societal impacts (environment, security, inclusion), our comments aim to strengthen the Consultation Paper with actionable suggestions that reflect on-the-ground realities and future challenges. We urge TRAI to adopt these measures to build a resilient, inclusive and future-ready telecom ecosystem.

Thanks.



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