



## **COAI Response to the TRAI Consultation Paper on “Rating of Buildings or Areas for Digital Connectivity”**

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We thank the Authority for providing us the opportunity to provide the comments on the TRAI Consultation Paper on “Rating of Buildings or Areas for Digital Connectivity”. We believe that this is an important area which requires attention as there is a need to enhance connectivity in the buildings and facilitate roll-out of networks by making it easier for TSPs to have access to buildings and adjacent areas for laying of network.

Further, we submit that it is equally important to consider that this concept of DCI is being discussed in India for the first time, and, given the potential vastness of its scope with inter-sectoral interactions (real estate being other sector), there should be thorough deliberations to propose / recommend a workable framework, that promotes DCI in a non-discriminatory manner, and does not become an additional burden on the Telecom ecosystem players.

**A summary of our submission** is as follows:

1. We submit that the **property manager should be the owner of the digital infrastructure (DCI)** of the building with the responsibility of ensuring availability of required infrastructure as part of IBS for service providers to roll out the required connectivity in the building. The property manager should ensure availability of DCI for a building in a manner similar to that in place for other essential services like gas, water and electricity.
2. **Like the case of utilities such as gas, water and electricity facilities which are mandatory for a building, good telecom digital connectivity infrastructure should also be a mandatory requisite.**
3. Property manager should ensure that there is proper telecom/digital connectivity in the building. **Certificate of completion<sup>1</sup> should not be issued to the property manager by the concerned authority till the provision of infrastructure for digital connectivity is provided in the building.**
4. As telecom services are essential services, the property manager should maintain transparency and provide access to TSPs/ISPs in a non-discriminatory manner. The Property Manager shall not enter into any exclusive tie-up or tie-ups with differential commercials, with any telecom service provider or any IP-I.
5. The role of TSP emanates from the telecom license and would continue to be the same. There should not be any CAPEX obligation on the TSP as the cost of setting up the DCI will anyhow involve multiple fields like electricity, power, fiber, cellular connectivity, etc. which will be passed to the user.
6. Roles and Responsibilities of the property manager should be clearly defined, and this should be followed by defining the roles of DCI Designers, DCI Engineers, and DCI Evaluators. TRAI should coordinate and work closely with other relevant Authorities and Ministries to develop required regulations/policies on development of DCI as part of IBS for applicability on property managers.
7. We submit that **rating for building will encourage property managers to act in the direction of improving quality inside buildings** and add value to their properties. A good awareness campaign may **push property managers of existing buildings to get their buildings rated.**

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<sup>1</sup> This relates to any under construction/new buildings.



8. The Property Manager should ensure that the building / area should have good quality of DCI for availability of network of all the TSPs who are present in that geographical location. This should be one of the most important criterion and should be taken into consideration while rating. However, in case there is a situation where any lesser number of TSPs are present due to any circumstances, the same needs to be factored while rating i.e. the Rating of a building where assessment of availability of network of all (or higher numbers of) TSPs should always be (incrementally) higher than the Rating of a building having lesser numbers of TSPs networks available. An additional point may be given in rating for each higher number of TSP network available in the building.
9. DoT/ TRAI may play a role in developing a methodology for rating of buildings. Further, DoT/ TRAI should play an active role in getting the changes in the laws/ guidelines to facilitate the new ecosystem.
10. Regarding rating of towns, villages, and states, we submit that a phase-wise approach should be adopted. In the first phase the rating of the buildings should be done. Once this process is tested and established, then in the second phase, the ratings of towns, villages, and states may be carried out.
11. For buildings and areas with high footfalls, such as airports, ports, railway stations, public transport stations, bus station, major rail routes and highways, large shopping complexes, industrial estates, government buildings, **it may be good to make the rating mandatory. This will facilitate roll-out of network and help TSPs in getting the necessary approvals.**
12. There should be a need to designate a nodal official for building(s) falling under the mandatory category to comply with the rating related requirements. **A single point of contact will help in coordination efforts.**
13. **The process of rating should be led by DoT and TRAI, and they can consult various stakeholders from government, industry and technical experts, including experts from Real Estate sector, and should lay down the norms and guiding principles.** Further DoT and TRAI can use the measurement done by DCI evaluators for issuing the **Rating Certificates**. Although we suggest that the DCI Evaluators should be reviewed at regular intervals to confirm their adherence to standards for measurement of connectivity values.
14. There is no need for appellate mechanism as the Property Manager itself is hiring the DCI Evaluator and the certificate is issued on the basis of rating provided by DCI Evaluator. If required, the Property Manager can be provided some limited opportunities to request for re-evaluation through a different DCI Evaluator. Furthermore, a DCI evaluator may be allowed to represent to DoT and TRAI with certain necessary information, if a particular rating to the property manager is not agreeable on certain merits.
15. Validity of **ratings should be for a 5-year period**. Having shorter validity may lead to too much of work and rework on ratings. The same will also go against the principles of Ease of Business. The process of renewal of rating should be incremental.
16. **Last but not the least, we submit that TRAI must carry out the Regulatory Impact Assessment (RIA) before coming out with any Recommendation.**
17. **Given that this is a very complex and forward looking paper which has implications on other sectors such as real estate, It is extremely important the draft Recommendation should be shared with the industry for comments and inputs prior to finalizing the same.**



Our detailed question wise response is as follows

New ecosystem to create DCI

**Q.1. How can an ecosystem be created to design, deploy and evaluate DCI with good connectivity in a cohesive and timely manner? What would be the typical role and responsibilities of actors of the ecosystem? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. There is a need for an ecosystem to emerge so that robust Digital Infrastructure can be created to provide good connectivity. Also, platforms and processes would need to be developed so that entities, can easily implement digital connectivity solutions. Such an ecosystem may consist of the following
  - a. **Property Managers should be the owners of the Digital infrastructure inside the building premises and create the required DCI, by availing services from below mentioned DCI professional, for roll-out of digital connectivity in the building by the TSP/ISP. He should be responsible for the lifecycle management and upgradation of the DCI network for the properties under his authority.**
  - b. DCI Designers who have competence and qualifications to design networks for in-building solutions. They **shall be responsible for gathering the user requirements from property manager and network requirements from TSPs operating in the area to design and meet the requirements of the users of the property.**
  - c. DCI Engineers who have competence and qualifications to implement the solutions designed for in-buildings **should work in close interaction with DCI designers to effectively implement the designed solution.**
  - d. DCI Evaluators to measure and evaluate quality of Digital infrastructure inside buildings. **and be responsible to provide readings required for the DCI ratings and certification to the building/infra structure projects. However, the DCI Evaluator shall not assess the network performance of the TSPs as QoS is already regulated by TRAI; rather they should only assess DCI availability and quality as managed by a property manager.**
  - e. Telecom Service providers will play a key role in this entire ecosystem. **Their role emanates from the telecom license and would continue to be the same.**
  - f. **Authority providing eligibility: The existing authority i.e. Council of Architecture should provide the eligibility for DCI Designers, DCI Engineers and DCI Evaluators. TSPs and IP-1s can also act as DCI Engineers without any additional eligibility from Council of Architecture. Further, field units of Government (like LSA Units of DoT) can also be additionally allowed to act as DCI Evaluators which should be based on guidance from telecom authorities like DoT/TRAI/TEC.**
  - g. **Authority deploying Common portal and Norms/Guiding principles for Rating: The common portal and norms/guiding principles for rating should be issued by telecom body i.e. DoT or TRAI, in consultation with other sectoral authorities.**
2. Property managers should make a provision for all telecom/ digital connectivity inside the building and in the complex surrounding the building/ residential apartments/ malls etc.



**Certificate of completion should not be issued to the property manager by the concerned authority till the provision for digital connectivity infrastructure is provided in the building. Like the case of utilities like gas, water and electricity facilities which are mandatory for a building, good digital connectivity should also be mandatory. There should be set timelines or targets which should be decided for the property managers to ensure DCI in a timely manner. This may be achieved through the legal framework/new policies and regulations.**

**Q.2. How would the ecosystem proposed in response to Question no.1 ensure that created infrastructure does not get monopolized? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. In new ecosystem, property managers with onus of ensuring good quality digital connectivity infrastructure inside the building or area, can get best possible solutions for their buildings and prevent monopolization of infrastructure. DCI professionals market is likely to highly fragmented market. we believe that creating a platform of such professionals, which allows the property manager to select the suitable DCI professional, will ensure that there is no monopolization in service provider market.
2. As telecom services are essential services, the property manager should maintain transparency to provide access to TSPs in a non-discriminatory manner. No exclusive tie-ups should be entered into by a property manager in giving access to DCI to TSPs/ISPs.
3. Roles and Responsibilities of the property manager should be clearly defined, and this should be followed by defining the roles of DCI Designers, DCI Engineers, and DCI Evaluators. Both RERA and TRAI should work in coordination with each other on the regulations/policies on DCI Furthermore, both Regulatory Authorities should also coordinate & consult with the respective ministries on any such issue relevant to DCI.

**Q.3. How would the ecosystem proposed in response to Question no.1 enable DCI Designers to factor in the digital connectivity requirements of the existing and/or prospective users of the network? How can such requirements be gathered at the stage of construction of a new building or at the time of upgradation or expansion in case of pre-existing DCI? Please justify your response with rationale and suitable examples, if any.**

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**Q.4. How would the ecosystem proposed in response to Question no.1 enable DCI Evaluators to get requisite information to evaluate and ensure that the designed or deployed network would meet the requirements of end users? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. Digitization of building plans is the first step towards ensuring a robust Digital Connectivity Infrastructure, i.e. a structured and phased approach of converting all 2D building Plans into 3D digital drawings. It should be mandatory for the DCI Designers to upload the final DCI design on a government portal with their registered id. Additionally, use of digital tools and platforms can play an important role in designing and predictive evaluation of network coverage for the buildings.



2. Augmenting these building plans with Census Data will provide a robust database to all TSPs / DCI consultants for designing the standardized templates / guidelines for ensuring a seamless wireless and wireline network to serve end customers. In addition, relevant Authority can issue standards/guidelines, in consultation with ecosystem stakeholders, for different type of buildings. Basis the estimated data usage and total number of approved license providers the DCI professional can form the guidelines for the minimum DCI requirements to serve end customers across given type of building.

**Q.5. How would the ecosystem proposed in response to Question no.1 ensure that upgrades and expansion of the DCI are done from time to time and continue to meet rising demands? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. To promote regular upgrades and expansion of DCI to meet rising demands, an incentive-based method should be adopted to encourage the Property Managers for the same. Ratings of the buildings can play a significant role in the same. We suggest that Authority should also explore possibilities of financial incentives for building in form of tax concessions incase such buildings acquire a minimum of specified rating, ex: 5 star rated buildings can be eligible for proposed tax concession (rating scale from 1 to 5).
2. Additionally, the Authority should also publish regular updates on standards and technology for DCI requirements for IBS, for the benefit of the Property Mangers.
3. We suggest that both TRAI and RERA may devise a framework (only the norms and guiding principles) for collection of requisite information for creation and evaluation of DCI by property manager and DCI evaluator respectively. The above framework may be created and/or decided with due consultation with the relevant stakeholders of their sectors.

**Q.6. How would the ecosystem proposed in response to Question no.1 ensure that the TSPs' networks are planned, designed, deployed, and upgraded to serve the DCI requirements in a timely manner? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. We submit that the TSPs will be aware of upcoming data requirements for a building owing to any changes in technology or services. Hence, they will be ready with the backhaul infrastructure and availability of required hardware/equipment for updated technology to meet the data demand of the end-consumer in the buildings, as the same is in their commercial interest.
2. TSPs, who are driven by market forces, will be willing to install the required hardware for technology upgradation till the time it is not commercially detrimental for them owing to unfair and non-transparent methods adopted by Project Managers.

#### **Capacity Building of skilled Professionals**

**Q.7. How can an ecosystem be created to build capacity requirements of skilled professionals such as DCI Designers, DCI Engineers, DCI Evaluators? What would be the typical role and responsibilities of actors of the ecosystem? Please justify your response with rationale and suitable examples, if any.**



## COAI Response

1. We submit that along the lines of Architect Act, 1972 a register of qualified DCI Designers should be maintained, and minimum standards should be laid down for DCI education for IBS in the country.

DCI professionals do not warrant separate full-fledged course. There are several DCI training and certification courses offered by various bodies as identified in the Consultation Paper. Authority should develop specialized courses for DCI professionals in consultation with such bodies using the training infrastructure already available in the telecom sector.

2. The role & responsibilities of the relevant actors of the DCI ecosystem, may be jointly decided by the TRAI and RERA along with their stakeholders.

**Q.8. How would the ecosystem proposed in response to Question no.7 ensure that relevant training courses are available in the country? Please justify your response with rationale and suitable examples, if any.**

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**Q.9. Whether the training courses proposed in response to Question no. 8 are already being offered by any organization or institution that can be recognized for the purpose? If yes, please provide a list of organizations offering such courses. If not, how specialized courses can be designed to meet the requirements? Please justify your response with rationale and suitable examples, if any.**

## COAI Response

1. In telecom domain, there are already training and certification courses are available to plan, design and deploy DCI. List of some of such courses are offered by various organizations
  - a. Certified IP Telecom Network Specialist (CIPTS) offered by Telecommunications Certification Organization (TCO)
  - b. International Association for Radio, Telecommunications, and Electromagnetics (iNARTE) offers certification program includes the Telecommunications Technician and Telecommunications Engineer credentials
  - c. Master Technician Certification offered by NCTI
  - d. The Registered Communications Distribution Designer (RCDD) certification offered by Building Industry Consulting Service International (BICSI)
  - e. The WIRED certification offered by Wired Score.
  - f. Certified Network Infrastructure Technician (CNIT) offered by CNET<sup>2</sup>
  - g. There should be a specific Certification course and not a degree program. Certification course should be voluntary and not mandatory.

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<sup>2</sup> <https://www.cnet-training.com/programs/certified-network-infrastructure-technician-cnit/>



2. We believe that this role can be entrusted to the respective sectoral skill councils i.e. Telecom Sector Skill Council (TSSC) and Construction Skill Development Council of India (CSDC) to cross collaborate and design appropriate modules to train workforce in such areas. In-fact, the ITIs (Industrial Training Institutes) can also be roped in to collaborate in such areas, and who can be given certification courses and trainings in such requirements.

**Q.10. Is there a need to establish a council on the lines of “Council of Architecture” (CoA) to regulate minimum qualifications, additional specialized courses and practice of DCI profession in the country? Please justify your response with rationale and suitable examples, if any.**

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**Q.11. Whether the requirements of additional specialized courses and practices of profession would vary depending upon the size of work or kind of work involved in a particular DCI project? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. We believe that there is no need to establish a council on the lines of “Council of Architecture” (CoA) to regulate minimum qualifications, additional specialized courses etc. as there are various organization like TSSC and real estate skill councils who may jointly develop such certification and modules. However, the present framework may be modified/overseen by the sectoral regulators TRAI and RERA jointly.
2. Further, there should not be separate degree for DCI professionals. The DCI as a subject may be recommended to be a part of the existing degree courses.

**Q.12. Whether creation of a digital platform to hire services of professionals would help Property Managers in creation of DCI? Should there be a feedback mechanism to assess quality of services delivered by professionals? Please justify your response with rationale and suitable examples, if any.**

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**Q.13. Whether creation of a digital platform for procurement of certified products would help Property Managers in creation of DCI? How would the certified products for the purpose of DCI be identified and updated on the platform? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. Yes, such platforms are desirable however the creation of such platforms may be left to the market forces. These platforms may also be used to gather feedback about the quality of the work carried out by the professionals. This will enable better hiring solutions for property managers.

Further, Certification for products related to in-building solutions is also desirable to make sure property managers build solutions with standard products and the same should be voluntary.

2. Availability of certified products in the public domain will enable network designers to consider them when designing solutions and procuring such products. Hence this should be encouraged.



3. However, there shall be clear bifurcation between Property Manager and the TSP regarding the list of equipment which can be deployed for in-building solution and who can bear its cost. In case, the equipment can only be sourced and deployed by the TSP, then the cost of such radiating equipment shall be paid/reimbursed to the TSP through a commercial arrangement between the TSP and interested party. No CAPEX shall be incurred by the TSP as the cost of setting up the DCI will anyhow involve multiple fields like electricity, power, fiber, cellular connectivity, etc. which will be passed to the user.

### **DCI ownership and upkeep models**

**Q.14. What may be the possible models of DCI ownership and its upkeep? Whether co-ownership models would help in aligning incentives in realizing connectivity that would meet expectations of the end users from time to time? Should there be a need to specify terms and conditions for entities owning and responsible for upkeep of DCI to function in a fair, transparent and non-discriminatory manner? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. Property manager should be responsible for ensuring DCI in a building. TSPs should be responsible for Antenna, Tower, Fiber, etc. deployment and O&M. Obligation should be on the Property manager to provide space, duct, and power so that TSP have easy access to deploy their equipment for Tower, small cell, or IBS. This should be a mandatory requirement to be fulfilled by the property manager on non-discriminatory basis.
2. The ownership model that would help in aligning incentives in realizing connectivity to meet expectations of the end users from time to time shall be in line with ease of doing business and shall not turn out to be a compliance burden for the TSPs.
3. Co-ownership model for DCI is a new concept in the entire digital ecosystem, which is yet to be seen and tested in the market, therefore it may be left to the mutual negotiations among the stakeholders. Any mandatory addition of any new layer for co-ownership will increase the complexity for the end consumer and hence same should be avoided. It should be left to voluntary discretion of the property managers.

### **Enabling new Ecosystem by Technical requirement specifications for DCI in Building Codes (NBC)**

**Q.15. As one solution might not be suitable for all types of buildings, whether current requirements stipulated in the National Building Code of India, 2016 would be required to be evolved and prescribed ab initio to make it more appropriate for DCI requirements? Please justify your response with rationale and suitable examples, if any.**

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**Q.16. Whether NBC needs to prescribe a separate classification of buildings for the purpose of DCI? If yes, which factors should be considered to make such a classification? If not, how to accommodate DCI specific requirements in the existing classification of buildings by the NBC? Please justify your response with rationale and suitable examples, if any.**



## COAI Response

1. Yes, there may be a need for a separate classification of buildings for the purpose of DCI. Digital connectivity infrastructure should be classified separately on the line of classification of buildings for “Fire and Safety”. **Buildings can be specifically classified for digital connectivity infrastructure on the basis of various factors like area, height, density, type of construction, occupancy and type of use.**
2. NBC may be required to come up with more detailed guidelines on digital connectivity infrastructure that employs wireline and wireless systems that can meet the desired coverage and capacity. This will require referring to the specific standards for telecom and ICT as well as Best Current Practices (BCPs). The above guideline may be formulated with due consultation with TRAI, RERA and TSPs.
3. Standards for DCI should be open and ready to accommodate futuristic standards evolving from time to time. Such standards will be required to be made applicable to special areas and organizations like Railways, Defence estates, Cantonment areas etc.
4. Thus, there is requirement of incorporating necessary provisions in NBC for creating a system for defining qualifications of professionals for provision of digital connectivity infrastructure and their registration processes etc. NBC can assign some specialized agency for this purpose. NBC provisions can be further incorporated in various Building Bye Laws and Guidelines published by Ministry of Housing and Urban Affairs and/or State/UT Governments.

**Q.17. Whether there is a need to include DCI Professionals as Persons on Record as typically done in building bye laws or development regulations? Or registration with the Council proposed in Question no. 10 would suffice to practice profession across the country as followed in the case of Architects? Please justify your response with rationale and suitable examples, if any.**

## COAI Response

1. Yes, DCI professionals should be included as Persons on Record to ensure their accountability for DCI. However, there should be an easy process for becoming Persons on Record. For a good DCI within the building or area, **it is important to engage qualified professionals for the entire period of the DCI project for an integrated approach.**
2. Inclusion as PoR will ensure delineate the responsibilities of the DCI professionals and hold them accountable for accomplishment of DCI as part of IBS. Registration with the council nominated should suffice to practice profession across the country.
3. We note that at present architects, engineers, structural engineers, and fire protection consultant are required to be ‘on record’ with clearly demarcated responsibilities and accountability. We submit that same approach may be adopted for DCI professionals.

**Q.18. How can the clearances or approvals required for DCI at various stages of construction of building may be incorporated in building bye laws? In typical building bye laws, there are provisions for getting clearances from central government e.g., in case of civil aviation, defense and telecom being a central subject, what role can be played by the central government in giving such clearances or granting such approvals? Please justify your response with rationale and suitable examples, if any.**



## COAI Response

1. Amendments will be required in the state and central laws and related regulations. RERA, TRAI and DoT should play an active role in getting incorporated in building bye laws, the clearances or approvals required for DCI at various stages of construction of building.
2. TRAI should play an active role in getting clearances from central government e.g., in case of civil aviation, defense and telecom being a central subject etc.

## Need to introduce a special class of Infrastructure Providers

**Q.19. Is there a need to introduce a special class of Infrastructure Providers to create, operate and maintain DCI for a building or cluster of buildings in ownership models suggested in response to Question No. 14? What should be the terms and conditions for such special Infrastructure Providers? Should such terms and conditions vary depending upon type, size and usage of buildings? Please justify your response with rationale and suitable examples, if any.**

## COAI Response

1. No, there is no need to introduce special class of Infrastructure providers to create and maintain DCI. Property Manager should be responsible and to have complete ownership of the building.

## Introduce rating of building from a DCI perspective- Voluntary scheme

**Q.20. What are the initiatives or practices being taken in other jurisdictions outside India with regard to rating of buildings from a DCI perspective? Please share details and suggest how similar processes can be created in India?**

## COAI Response

1. **We are not aware that any Telecom Regulator or Telecom ministry has come out with any specifications with respect to rating of building for DCI, however, there may be market driven initiatives/practices in some of the developed economies like USA, Canada etc.**

**Some of the examples are as under:**

- a. **WiredScore certification-** It is a global organization that provides digital connectivity certification basis the rating of quality and resilience of digital infrastructure in the buildings. It is operating in multiple countries and regions including USA, Canada, Australia, UK, and Europe.
- b. In the USA, Underwriters Laboratory (UL) and the Telecommunications Industry Association (TIA) recently announced that they would provide a joint program for assessing smart buildings.
- c. **SPIRE Smart Building Program-** It offer both self-certification programs as well as Verified Assessment Ratings completed jointly by Underwriters Laboratory (UL) and Telecommunications Industry Association (TIA) that measures the effectiveness and security of smart buildings based on six primary criteria of life and property safety, health and well-being, connectivity, power and energy, cyber security and sustainability.



- d. **US Green Building Council's LEED Certification:** Leadership in Energy and Environmental Design (LEED) provides a framework for healthy, efficient, carbon and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership.

**Q.21. Is there a need to introduce Rating of buildings from the perspective of DCI that may help in nudging the Property Managers to strive for collaboration with other stakeholders to meet the digital connectivity expectations of the users of the building? Please justify your response with rationale and suitable examples, if any.**

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**Q.22. In case, rating is introduced as a voluntary scheme, is there a need to monitor the progress? If progress is not satisfactory, would there be a need to launch campaigns and awareness drive to encourage Property Managers to come forward for rating? Please justify your response with rationale and suitable examples, if any.**

### **COAI Response**

1. Rating in general would nudge property managers to get their buildings evaluated on quality of DCI available in the building. Rating may push property managers to act in the direction of improving quality inside buildings and add values to their properties.
2. Rating would provide information in a transparent manner about quality of DCI in the buildings. In case of new buildings where infrastructure is to be built and property managers can clearly see business model of providing good connectivity, they would be willing to invest in DCI to improve ratings.
3. Even property managers of existing buildings and areas used for business related activities such as enterprise workplaces, shopping malls, industrial estates, restaurants, cafeterias etc., would be willing to invest and build good connectivity. Even in case of existing residential buildings, residents may push to get better rating when they will realize that they are empowered to influence the property managers.
4. However, verification of the networks of all the TSPs operating in the area shall be one of the major criteria in the evaluation process of the DCI. The Property Manager should ensure that the building / area should have good quality of DCI for availability of network of all the TSPs who are present in that geographical location. This should be one of the most important criterion and should be taken into consideration while rating. However, in case there is a situation where any lesser number of TSPs are present due to any circumstances, the same needs to be factored while rating i.e. the Rating of a building where assessment of availability of network of all (or higher numbers of) TSPs should always be (incrementally) higher than the Rating of a building having lesser numbers of TSPs networks available. An additional point may be given in rating for each higher number of TSP network available in the building. The same will facilitate curbing of the TSPs' monopoly to install infrastructure through exclusive contracts with the owners/builders. Also, this criteria will include all the subscribers irrespective of their TSP, ruling out any bias/disadvantage to them.
5. Also, the ratings shall be made available on the digital platform on the basis of scientific calculations done by the DCI Evaluator, based on the norms and principles laid out. **A good awareness campaign will push property managers of existing buildings to get their buildings rated.**



6. There are various **benefits that can be foreseen by introducing the rating system**:
- a. **Benefits to Property Managers**: Good connectivity would most likely result in increasing the value of the property including rental value as it increases productivity, improves satisfaction, and boosts commercial activity making the property more attractive.
  - b. **Benefits to the end-users**: Real estate buyers and tenants looking for high quality digital infrastructure would be able to make informed choices and thereby put pressure on builders and property managers to build and maintain good quality digital infrastructure.
  - c. **Benefits to TSPs**: In order to get good ratings, property managers would offer support to TSPs to put infrastructure or get it deployed to ensure good quality digital connectivity and make the property attractive.

**Q.23. Should the voluntary scheme of rating be extended to cover cities, towns and villages and even states? Would such a scheme help in encouraging local and state authorities to facilitate TSPs in creation or in improving outdoor as well as indoor DCI? Please justify your response with rationale and suitable examples, if any.**

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**Q.24. If in response to the Question No. 23 answer is yes then what framework should be introduced to rate cities, towns, villages and states, and how weightages can be assigned to different aspects of indoor and outdoor connectivity? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. We submit that if concept of rating of building is extended to rate cities, towns and even villages, then it may push local government authorities to mobilize local resources to create awareness about rating. The local authorities and states may also take steps to improve rating of their cities, towns, villages **which may include facilitating RoW for TSPs to enable expansion of network.**
2. However, with regard to rating of towns, villages, and states, we submit that a phase wise approach should be adopted. In the first phase the rating of the buildings should be done. **Once this process of rating of buildings is tested and established, then in the second phase, the ratings of towns, villages, and states may be carried out.**

#### **Rating as a mandatory requirement for specific classes of buildings**

**Q.25. Is there a need to make rating a mandatory requirement for specific classes of buildings such as public transport hubs, government buildings or any building of public importance etc.? If yes, which type of buildings should be covered under this category? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. For buildings and areas such as airports, ports, railway stations, public transport stations, bus station, major rail routes and highways, large shopping complexes, industrial estates, government buildings, **it may be good to make the rating mandatory.** This will **facilitate roll-out of network and help TSPs in getting the necessary approvals.**



**Q.26. What should be the time plan to rate buildings falling under the mandatory category and is there a need to prioritize some buildings within the mandatory category to make it more effective? Whether existing buildings falling under such classes are required to be dealt differently? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. First the methodology of rating buildings/ places needs to be defined.
2. Within the mandatory category, **places like airports, metro, bus stations and railway stations, where the foot fall is very high could be rated first on a priority basis.** The rating methodology should be kept the same as having different ratings may increase complexity.
3. With regard to the typical process and methodology for rating the buildings, the illustrative list of parameters to be used in the same, members will respond individually.

**Q.27. Is there a need to designate a nodal official for building(s) falling under the mandatory category to comply with the rating related requirements? What actions are proposed to be taken in case of non- compliance? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. Yes, there will be a need to designate a nodal official for building(s) falling under the mandatory category to comply with the rating related requirements. A single point of contact will help in coordination efforts.
2. In case of non-compliance, the governing authority shall define the penal clauses for the Property Managers. However, the authority shall assess such action considering that the ecosystem has got developed and there are reasonable number of DCI Designers, Engineers, Evaluators, etc. available in the marketplace.

**Changes required in laws dealing with the development of areas or construction of buildings**

**Q.28. Is there a need to amend legal provisions under various laws, bye laws dealing with development of land and buildings or areas including forest areas, cantonment areas, port areas, panchayat areas, municipal areas etc. to facilitate creation of DCI and ratings of the buildings or areas? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. Yes, there is a need to amend legal provisions under various laws, bye laws dealing with development of land and buildings or areas including forest areas, cantonment areas, port areas, panchayat areas, municipal areas etc. to facilitate creation of DCI and ratings of the buildings or areas.

**Role of Regulator in New ecosystem**

**Q.29. In case a voluntary scheme for rating is to be introduced or rating is notified as mandatory for specific classes of buildings then what should be the role of TRAI or DoT? Please justify your response with rationale and suitable examples, if any.**

### COAI Response

1. Role of relevant Authority becomes critical in providing legal backing for development of DCI for buildings and subsequent rating of the DCI. DoT/ TRAI to play an active role in coordination with RERA/MoUHD in getting the changes in the laws/ guidelines.

**Q.30. Whether creation of “Regulatory Sandbox” to carry out experiments or demonstrate capabilities of innovative solutions to improve digital connectivity would be helpful to make changes in existing policies, laws or regulations? What should be the terms and conditions to establish a regulatory sandbox? Please justify your response with rationale and suitable examples, if any.**

### COAI Response

1. As such, in our view, “Regulatory Sandbox” may not be required for the same and market demand will trigger the innovations in the solutions offering to improve the digital connectivity and also encourage new entities or player in the field to provide the required solutions.

### Operationalization of rating framework

**Q.31. Is there a need to establish a Certificate Issuing Authority to award ratings to buildings from DCI perspective? If yes, what should be the structure of such an authority? If not, who can be assigned the role to perform this function? Please justify your response with rationale and suitable examples, if any.**

### COAI Response

1. For DCI rating and certification, a committee empowered to issue certificate may be formed under Department of Telecommunication (‘DoT’) and TRAI. Such empowered committee should be assigned the responsibility of developing the norms and guiding principles.
2. We suggest such committee should be a multi stakeholder one with varied representation from prominent stakeholders in the DCI ecosystem, viz. Government departments, TSPs, builder representation, DCI Designing experts, DCI Engineering and Evaluation experts, among others.

**Q.32. Whether the authority suggested in response to Question no. 31 may use reports from DCI evaluators to award ratings? To ensure reliability of reports from DCI Evaluators, should Certificate Issuing Authority need to conduct periodic audits of DCI evaluators? Please justify your response with rationale and suitable examples, if any.**

### COAI Response

1. We submit that DCI Evaluators will be ideally suited for providing feedback reports to the rating certificate issuing authority. However, DCI Evaluator’s report alone may not be adequate and site-specific survey by the authority may be necessary especially where building developers or Property Managers are able to influence the decisions of the DCI Evaluators. Based on DCI Evaluator Assessment, the committee led by DoT and TRAI should issue rating certificate. It is pertinent to mention that no separate approval should be required from DoT and TRAI or any other body for issuing a rating certificate.



**Terms and conditions for using awarded ratings including provisions for its renewal, revocation & penal provisions in case of misuse**

**Q.33. What should be the terms and conditions for using ratings awarded to a building(s) from a DCI perspective? What should be the validity period of awarded ratings? Do you envisage any situations under which an awardee of ratings might be required to get the ratings renewed before the validity period? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. We suggest the key terms while issuing of rating certificate by the authority can be as follows:
  - a. Validity of the rating Certificate
  - b. Maintaining consistent performance and Quality of Service after award of certificate
  - c. Design of DCI deployed while obtaining rating certificate should not be altered significantly
  - d. Conditions/situations where the PM may use/leverage such rating certificate
2. The **validity of ratings may be for 5 years, and ratings can be renewed 2 months prior to expiry.**

**Q.34. Whether in the initial stages of introduction of the rating system, validity should be for a shorter time period, and later it may be increased as evaluation system matures? Should the validity period be dependent on the type of buildings? Please justify your response with rationale and suitable examples, if any.**

**&**

**Q.35. Whether the process of renewal of rating should be the same as the process defined to get rated first time or it may be incremental? Or renewal process may be dependent upon the grounds on which it is being renewed e.g. expiry of validity period, introduction of new technology, introduction of new spectrum band(s), introduction of new services(s) etc.? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. Validity should be for a 5-year period. Having shorter validity may lead to too much of work and rework on ratings. The same will also go against the principles of Ease of Business.
2. The process of renewal of rating should be incremental. This will reduce the cost and compliance burden for the PMs while applying for renewal of rating and encourage them to seek the same before the end of the validity period if the need be.

**Q.36. Whether the provisions to make an appeal should be introduced to give an opportunity to the applicant to make representation against the decisions of the Certificate Issuing Authority? What should be the time frame for preferring the appeal in case of disagreement with the rating assigned and its disposal? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. There is no need for appellate mechanism as the Property Manager itself is hiring the DCI Evaluator and the certificate is issued on the basis of rating provided by DCI Evaluator. If



required, the Property Manager can be provided some limited opportunities to request for re-evaluation through a different DCI Evaluator. Furthermore, the property manager may be allowed to represent to DoT and TRAI committee in case necessary to approach higher level.

**Q.37. If somebody is found to be using ratings in an unauthorized manner, what legal actions are proposed to be taken against such entities? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. Using of ratings in an **unauthorized manner should be treated at par with fraud.**
2. The **Regulatory Authority may incorporate penal provisions in the Regulations/policies which** can be monetary in nature or other actions could also be considered like blacklisting the developer. This would discourage the property managers from any such malpractices.
3. Further, to avoid misuse or use of rating in unauthorized manner, we suggest rating assigned to buildings may be published on the online portal as mentioned in comments to Q.38

#### **Adoption of Digital Tools & Platforms, AI/ML Models to co-design and co-create DCI**

**Q.38. Whether creation of a digital platform that allows stakeholders to co-design and co-create DCI would be helpful to realize better, faster, and cheaper solutions? Whether technologies and tools such as AI, ML would be helpful in achieving this objective? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

1. Building a digital connectivity infrastructure requires collaborative partnerships, co-designing and co-creation being some of the broad elements of such partnerships. All relevant stakeholders should be involved in co-designing and co-creating DCI inside the buildings if the varied needs of various consumers are to be fulfilled in a satisfactory manner. Hence creation of a digital platform that allows stakeholders to co-design and co-create DCI will be helpful. A digital platform may be jointly developed by TRAI and RERA with due consultation with TSPs.
2. With the advancements in digital tools and availability of advanced techniques such as Artificial Intelligence (AI) and Machine Learning (ML), rating can be achieved in a more reliable and authentic manner.

#### **Typical processes involved in rating of a building**

**Q.39. What should be the typical process to rate a building? Whether terminologies and steps involved in the rating process need to be standardized? Please justify your response with rationale and suitable examples, if any.**

#### **COAI Response**

Members will respond individually.



**Q.40. Whether the process of rating would vary based on the types of buildings? If yes, then what factors or aspects of a building would matter or impact the outcome of rating? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. Assessment of quality, context in which digital connectivity would be used is very important. Context may significantly change from one type of building to another type of building. It would be important to classify buildings from the point of view of digital connectivity experience. As discussed earlier, National Building Code of India and Development Regulations may introduce classifications of the buildings from a digital connectivity perspective.
2. The information required for rating evaluation will be different for different type of buildings and so will be the weightages for various parameters. However, at the end, **it is the QoS and User experience which will be deciding factor for allocating rating.** The user experience will be with respect to user's expectation from the DCI which will differ based on Building Type. Accordingly, the building should be awarded a rating between one star to five star.

**Q.41. Which objective methods should be used to evaluate the DCI? How can various aspects of performance to evaluate the quality can be combined together? Please justify your response with rationale and suitable examples, if any. same as response to Q39**

**&**

**Q.42. Which subjective methods should be used to evaluate perceived quality of DCI? Whether survey techniques can be improved considering penetration of smartphones? Whether improved techniques can help in providing insights and actionable items to improve DCI? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. **We believe that the parameters suggested in our response to Q39, can work as a robust baseline to evaluate the quality of DCI.**
2. Penetration of smartphone can also help in conduct of these surveys as the reach of the surveys could be maximized by doing these online. A larger coverage could be achieved which could provide better insights.

**Q.43. Would combining the parametric values or results of objective and subjective methods be helpful in assessing digital connectivity that is closer to the perceived quality of experience? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. It appears this assessment may be helpful, however, given this concept has been discussed for the first time in India, therefore, it is too early to give a definitive answer /example in this regard. Furthermore, for overall assessment of quality, information obtained via objective methods needs to be compared with information provided via subjective methods. In fact, subjective methods may help in determining weightages applied in case of objective methods. For example, a survey might help better understand the needs of residents in apartment block. For rating purposes, information obtained via both methods may be required to be combined.



**Q.44. How advanced technologies such as Artificial Intelligence (AI), Machine Learning (ML) etc. might be useful to make the evaluation process more nuanced and suitable for the purpose? How can AI/ML models evolve from the inputs of measurement and evaluation being carried out in other parts of the city, state or Country? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. Since this concept of rating of building/DCI is new in India, therefore, we believe that the parameters suggested in Response to Q39, will help building a base for evaluation and rating purposes. Once the same is established over next few years, the advanced Technologies such as AI/ML may be looked at integrating better outcomes.

**Q.45. Any other issue which is relevant to this subject? Please justify your response with rationale and suitable examples, if any.**

**COAI Response**

1. We would like to emphasize here that DCI and its performance can be significantly impacted due to illegal/unauthorized boosters and repeaters, thereby deteriorating Quality of Experience and Service for the user, and network.
2. In this case we submit that illegal installation of boosters/ repeaters should be made a cognizable offence on an immediate basis. Also, targeted action needs to be taken to ensure removal of such existing installations of boosters/ repeaters. In this regard, we recommend that various enforcement Authorities like WPC/ DoT and Police and impacted operators individually or through industry associations like COAI form a special task force and they be empowered to take necessary action for survey/ removal of such installations and such reports be shared/ published on a monthly basis by the DoT and TRAI.
3. Also, for DCI to be truly successful, implementation of access rights (RoW) within building premises are fundamental for TSPs to deploy networks. Hence RoW within building premises should be provided free of cost, and mandatorily.

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