Reliance Jio Infocomm Limited's comments on TRAI's Consultation Paper on the "Proliferation of Public Wi-Fi Networks in India"

Preface:

1. Reliance Jio Infocomm Limited (RJIL) thanks the Authority for giving us an opportunity to offer comments on the important Consultation Paper on the Proliferation of Public Wi-Fi Networks in India.

Public Wi-Fi-Utility and Monetisation

2. India has a unique connectivity scenario that cannot be compared with any of the global economic peers. We have near-universal mobile internet penetration but very few households are connected with home broadband. In addition, we have numerous locations of high footfalls like railway stations and bus terminals during festival and vacation times, cricket stadiums hosting matches that can overwhelm the regular connectivity arrangements at any time. Thus, Public Wi-Fi does have a role to play in the ensuring that all Indians are always adequately connected.

3. However, the structural gap of insufficient availability of Fixed Broadband in the country also affects the availability and role of Public Wi-Fi, as this service requires a robust and resilient backhaul that can only be provided by Fixed Broadband and any discussion to increase the penetration of the Public Wi-Fi needs to be preceded by the steps to deliver the availability of Fixed Networks be it Fiber or Fixed Wireless Access (FWA). We have discussed this issue in subsequent section.

4. In respect of the role of Public Wi-Fi, we submit that its role in India's connectivity mix is undeniable, but the question is more of optimum approach and monetization of Public Wi-Fi in India, while duly acknowledging that one fixed set of ideas cannot be force fitted everywhere.

5. PM-WANI, in that case, is not an isolated example and similarly there are other initiatives like RailTel's free railway Wi-Fi which, though widely used, has struggled with monetisation, leading to questions about long-term maintenance funding. Thus, clearly the answer lies beyond regulatory interventions. The first requirement is to understand the mindset of people, Wi-Fi's innate value is when it is free, but this interest drastically declines once one has to pay for such public Wi-Fi. However, we cannot blame Indian consumers for this, as the international examples shared in the consultation paper show that this is a global phenomenon, as demonstrated by growth numbers of free Wi-Fi vis-à-vis paid Wi-Fi in United States.

6. Other key reasons for lack of success of paid Public Wi-Fi are ubiquitous mobile data availability, affordable data costs, language, and digital literacy issues. For small time Wi-Fi operators like Kirana stores etc. the low dwell time of the potential user also contributes to lack of adoption.

7. We believe that the first and foremost step to address this issue is to remove the roadblocks from proliferation of fixed broadband that may even obviate the need of public Wi-Fi in many locations. Fixed Broadband besides supporting Public Wi-Fi, delivers assured speeds in home, connects with multiple stationary devices and enables connected homes. With shared use by all inhabitants in the house, it provides economic value at a location where maximum data consumption takes place.

8. Thereafter, once the Fixed Broadband is available, the Governments both state and central, need to step into introducing the rural public to internet and Wi-Fi by providing free access in panchayat offices, health centres, and schools. This can be done by partnering with TSPs to deliver connectivity wherever possible. In this case, while the TSP will be directly paid by the Government, the monetization for Government will come through increased digital literacy and economic impact of connecting the unconnected populations.

9. The Authority has already discussed all possible Monetisation Models for Public Wi-Fi in India and also recognized that the voucher model is successful only in locations like Airports that can have high mobile congestions and coverage hole issues.

10. Of all the monetization models under discussion, the Freemium or Tiered Access model is the most successful model even globally. This integrates the consumers with initial free basic access (like 30 minutes by RailTel) and then guides them to the paid upgrades for subsequent usage. However, this model on its own will also not be very successful in India.

11. As we can learn from the experience of streaming video and music apps, the customers would rather watch/hear ads than pay for the service, if that is an option. For instance, we understand that less than 0.5% YouTube[1] users in India have opted for paid premium membership, despite the freemium model of first 2 months free. Thus, in India the optimum monetization model for Public Wi-Fi with large dwell times can be a smart mix of freemium and ad-based model. The regional language content combined with same language advertisements can be a good monetization combination for Public Wi-Fi in India.

[1] https://medium.com/design-bootcamp/helping-youtube-premium-increase-subscriber-base-in-india-a-ux-case-study-cc20c15ca60d

Need for a Balanced Policy Framework

12. Further, we respectfully submit to the Authority that any policy framework for proliferating public Wi-Fi should be a part of the overall connectivity policy framework. The Authority is also requested to simultaneously examine and simplify the regulatory obligations for all connectivity providers in the country. In this context, attention is requested on the significant and disproportionate regulatory obligations that licensed Telecom Service Providers (TSPs) already bear, in the form of spectrum, license fee, network rollout, Quality of Service etc., in the pursuit of the same national objective of ubiquitous, affordable digital connectivity.

13. It is undeniable that the major connectivity objectives have been achieved by the TSPs on their own. However, and in stark contrast, the consultation paper proposes and examines various models wherein Wi-Fi access is sought to be made available through publicly subsidised or government-funded frameworks, including the use of Digital Bharat Nidhi funds for last-mile gaps, with little or no corresponding regulatory or financial obligation on the entities deploying such networks. This creates a structurally asymmetric competitive landscape where licensed TSPs, who contribute to the very corpus being proposed to be used to subsidise Wi-Fi, are simultaneously subjected to high regulatory costs while competing against subsidised access alternatives.

14. Therefore, while framing its recommendations, the Authority is requested to ensure that the policy of proliferating public Wi-Fi should not inadvertently undermine the commercial viability and investment appetite of licensed TSPs, who remain the backbone of India's broadband ecosystem. Any support or subsidy extended to Wi-Fi infrastructure must be accompanied by a commensurate rationalisation of the regulatory and financial obligations on TSPs, so as to ensure a level playing field, sustained private investment, and the long-term health of India's digital infrastructure landscape.

15. Additionally, it is necessary to revisit the scrutiny of the underlying premise that proliferation of public Wi-Fi, including through government subsidy and public funding, serves as a public good and an effective instrument for bridging the digital divide, particularly for economically weaker sections of society.

16. Public Wi-Fi, by its very nature, is an access technology that requires the end-user possessing a Wi-Fi-enabled device, in most practical scenarios, a smartphone or a tablet. Unlike a mobile network where even a basic feature phone user can access

voice services and, increasingly, low-bandwidth data, a public Wi-Fi hotspot is rendered entirely inaccessible to a person who does not own a smartphone or a compatible device.

17. In this context, subsidising public Wi-Fi infrastructure from public funds, including from the Digital Bharat Nidhi corpus to which TSPs are statutorily required to contribute, does not necessarily translate into connectivity for the poor or the underserved. Rather it is more likely to benefit those who already own smartphones and are therefore already capable of accessing affordable mobile broadband through TSPs networks. Subsidised Wi-Fi, in such circumstances, is less a tool of digital equity and more an augmentation of convenience for the already connected.

18. Therefore the Authority is requested to carefully evaluate whether the deployment of subsidised public Wi-Fi infrastructure genuinely addresses the public good or last-mile digital divide, or whether the same public resources, if channelled instead toward rationalisation of levies of TSPs including for expansion in underserved areas, would deliver far superior outcomes in terms of genuine digital inclusion, reaching the truly unconnected through the mobile network, which remains the only technology platform capable of serving users irrespective of device sophistication, geographic location, or socio-economic status.

Relevance of PM-WANI

19. We reiterate our previous submission that an honest, unbiassed assessment of the success of PM-WANI scheme would indicate that the PDO/PDOA structure was not optimum and was not in line with the times. The whole premise of PDOs was built on the concept replicating the success of Public Call Offices (PCOs) that were successful in 1990s. No doubt this was a home-grown successful model that could have been useful for broadband proliferation in case all other parameters were similar, however, this was not the case.

20. The success of PCOs was a result of multiple factors like limited telecom penetration, long waits in getting a telecom connection, no or limited mobile services, high tariffs. Further, the PCOs were extension of TSPs as they were working on a franchisee model and all lead to PCOs becoming an important tool for connectivity. **However, we should also bear in mind that the omnipresent PCOs disappeared once mobile teledensity increased and tariffs became much lower. Same was the case with cyber cafes, which had mushroomed in early days of internet in India, however, slowly disappeared as the market dynamics changed and data services started to be more easily available across the country.**

21. Similarly, the PDOs could have been useful in 2G-3G era of mobile services, when the mobile penetration was increasing but mobile data was priced at around Rs. 250 per GB and you needed to search for a Wi-Fi access point for basic data needs. However, it was implemented in 2020s when 4G data was ubiquitous, data costs were around Rs. 10 per GB.

22. However, the low-cost mobile data availability has led to the failure to take off of the model. Now with the proliferation of 5G services all across the country, the utility of PDOs is further shrinking.

No need for any additional regulatory measures for PM-WANI

23. We reiterate our previous submissions that PM-WANI architecture is the most facilitative and pro-user regulatory framework for any telecom service in the country without any licensing or financial obligations. DoT had further increased the scope of PDOs/PDOAs in PM-WANI Framework vide amendment dated 16th September 2024. This amendment has enhanced the scope of service of PDOs extensively, besides removing the requirement of commercial agreement with TSP/ISP for connectivity. DoT has also added new avenues for monetization like MDO and advertising. Further, the PDOs have been empowered to connect over 100 access points over single connectivity, which would multiply the area coverage of a PDO 100 times which can now run into 100s of Sq. meters. As this deployment will be in dense public places like malls, the target customer base will be in thousands.

24. This has been supplemented by the Authority by mandating a ceiling on input costs of wireline connectivity to PDOs by linking the price with retail tariffs vide 71st amendment to TTO.

25. Evidently, when all these regulatory interventions have not succeeded in making PM-WANI framework success, the solution for public Wi-Fi adoption may lie beyond regulatory interventions. It is submitted that there can be more than one way of doing a thing correctly and the Authority should explore the possibilities beyond the narrow limitation of current structure and tariff interventions, as explained in following sections.

Delivering affordable home broadband services

26. We submit that key input for public Wi-Fi is availability of fixed broadband. However, the growth of **Fixed Broadband and fiberization is not keeping pace due to Right of Way (ROW) approvals and charges related issues.** The delays caused by ROW in fiberization have been impacting the fulfillment of national goals under **"National**

Digital Communications Policy, 2018 (NDCP-2018)", "National Broadband Mission" and programs like **"Digital India"** and has the potential to impact all the Digital Inclusion goals.

27. The Government is cognizant of this issue and has taken many key steps to address this situation. DoT had issued the Right of Way Rules 2024, backed by the Telecommunication Act 2023, effective from 1st January 2025. However, even now a couple of states have not issued administrative order for implementing the Rules. While many others have complied with rules only on paper with negligible on ground implementation.

28. Many local governing bodies - Municipal Corporation, Nagar Nigams etc. still continue to charge exorbitant levies, either directly or on the property on which the telecom infra has been deployed. Similarly, for granting permission for deployment of underground telecom infra, additional charges like annual rent, supervision charges, wayleave charges, track rent charges etc., are being levied. Furthermore, permission granted prior to 1st January 2025, continue to be governed by charges fixed at the time of granting permission which includes annual rental charges, contrary to the RoW Rules 2024.

29. Other key ROW related issues are the non-alignment of Pole leasing charges by DISCOMs and other street furniture asset owning agencies, like PWD, local Municipal Corporations etc.

30. Dense public spaces like Airports, Metro railway premises etc. continue to suffer from inadequate connectivity, owing to restrictive permissions by the property owing agencies which charge high amounts as per their own norms.

31. It is imperative that effective steps are taken to streamline the ROW approvals and to fiberize the country to deliver true dividend of broadband to all citizens. We seek Authority's intervention by using its considerable influence to guide the state Governments to uniformly and universally implement the ROW Rules 2024 on immediate basis and do away with the menace of exorbitant charges, delays in permissions, removal of any additional charges (direct or indirect), no compensation charges and cost based restoration charges, where restoration is not done by the service provider.

32. In addition, the Government can look at the subsidy plans for targeted subscriber groups, in line with FCC's - Affordable Connectivity Program, that provides a discount of up to $30 per month toward internet service for eligible households and up to $75 per month for households on qualifying tribal lands.

33. The Authority in its Recommendations on "Delivering Broadband Quickly: What do we need to do", released on 17.04.2015 has recommended inter-alia "To promote fixed line BB, the license fee on the revenues earned on fixed line BB should be exempted for at least 5 years." This recommendation has been often repeated by the Authority. Further, the Authority, basis DOT reference, again on 31.08.2021 recommended LF exemption on fixed line broadband revenue, with eligibility criteria linked to 15% yearly subscriber growth comprising of min 20% rural connections. No time period for exemption was specified. We submit that this is an important measure and was once again reiterated by the Authority in 2023 and once implemented, this policy change will bring in quick deployment of the optical fibre for broadband services in the country.

34. **Conclusions**

1. **There is no need for any structural changes to support proliferation of Public Wi-Fi.**
2. **The focus should be on increasing broadband penetration irrespective of the medium used.**
3. **There is no need for any more regulatory intervention for PM-Wani.**
4. **The regulatory levies and obligations of the TSPs should also be examined and simplified to enable more broadband penetration.**
5. **Paid Wi-Fi is not a successful model globally, so we should adopt Freemium and ad-based models.**
6. **The Government funded connectivity can be provided in rural areas in collaboration with TSPs.**
7. **The Authority should focus on removing the roadblocks from proliferation of fixed line broadband.**
8. **The proposals for incentivizing fixed line broadband should be implemented post haste.**

Issue wise response.

A. Status Assessment and specific strategies for the proliferation of Public Wi-Fi
Q1. What are the key supply-side constraints affecting Public Wi-Fi proliferation in India? What targeted policy or regulatory measures may be required to address these supply-side constraints? Please provide your response in detail with justification.

RJIL Response:

1. We submit that the Authority and the Government have been progressively working towards ensuring that the offering of public Wi-Fi services, is the least regulated telecommunication service. The PM-WANI framework, the ease of onboarding through a portal, no license fee, and the input pricing controls implemented by the TRAI through Telecommunication Tariff Orders has ensured that there are no supply side constraints that remain unaddressed or regulated but for the last mile availability of Fiber connectivity. In any case, the roll-out of fixed Wi-Fi access points itself depends on a deep penetration of fixed-line connections to act as backhaul. With fixed-line penetration in India remaining extremely low, the cost of rolling out Wi-Fi is correspondingly high and makes little economic sense for the consumer.

2. The Authority has rightly noted that the success of Public Wi-Fi deployment depends on the availability of reliable last-mile connectivity. Evidently, the BharatNet connectivity is not sufficient, otherwise this consultation was not required, thus the reliable and resilient connectivity that is needed in the Indian context can only be provided by licensed TSPs.

3. However, the private investments in Fiber deployment are enormously restricted by the Right of Way approvals and charges. We reiterate that despite the efforts of Central Government, the ROW Rules 2024 are yet to be completely implemented by the state Governments.

4. This is no longer the policy issue, as policy is already in place but pertains more to intent for implementation issue. We request Authority to intervene in this issue to resolve this forever bottleneck and ensure that ROW for Fiber is provided in expeditious manner at reasonable costs, so that the backhaul for public Wi-Fi can be provided. Further the Fixed broadband incentivization measures proposed by TRAI previously should be implemented.

Q2. What are the major demand-side constraints limiting the uptake of Public Wi-Fi services in the country? What targeted policy or regulatory measures may be required to address these demand-side constraints? Please provide your response in detail with justification.

RJIL Response:

1. The demand for data cannot be automatically interpreted as demand for Public Wi-Fi. We submit that the demand for data is generally being fulfilled by the mobile and fixed broadband. Moreover, with practically unlimited mobile data now available, the mobile network adequately meets consumption on the mobile

screen, and consequently the need for Wi-Fi within the mobile covered zones is not much felt.

2. We submit that public Wi-Fi, in India, as across the globe, is identified with free Wi-Fi and consumers are averse to paying for Wi-Fi connectivity, especially when they have already paid for mobile data, as majority of Indian smartphone users are on unlimited data plans. India, in fact, has among the lowest mobile data tariffs in the world, in the range of about Rs. 8 per GB, and the majority of customers are on fixed monthly plans, so a shift of consumption to Wi-Fi yields no cost saving for them. Thus, the unwillingness of the consumer to pay for public Wi-Fi is the biggest constraint. However, this is not unique to India, but is a global issue as noted by TRAI in the consultation paper, as is evident from below extract.

   Surveys conducted by Statista in 2022 indicated that over 72% of U.S. users prefer free Wi-Fi access over mobile data when available. Cisco's Annual Internet Report shows a clear shift towards open-access models: between 2018 and 2023, free Public Wi-Fi hotspots in the U.S. grew at an average of 19.6% per year, compared to just 3.4% annual growth for paid hotspots—indicating strong user preference for free connectivity.

3. Evidently, the aversion to pay for Wi-Fi is also prevalent in one of the most fiberized and high paying capacity country like USA. We submit in India, wherever even the TSPs seek to leverage public Wi-Fi for data offload in crowded locations, the Wi-Fi access is expected to be given free of charge.

4. As highlighted by the TRAI in the consultation paper, the Wi-Fi data tariffs are already very low and in some cases even lower than mobile data and if the public is still not receptive to the services, then probably, it is time to appreciate that the paid service is not wanted and instead the institutional energy should be diverted to increasing the fixed broadband penetration. In any event, making Wi-Fi tariffs sustainably cheaper than mobile data is extremely difficult, which further reduces the attractiveness of paid Wi-Fi for the consumer.

5. The global and Indian examples cited by the Authority also clearly point out to the fact that Public Wi-Fi has adoption when its free or when its is provided at congested and high footfall areas like Airports, Railway stations etc.

Q3. Despite the PM WANI initiative, scaling the number of public hotspots across diverse geographies, especially in remote and underserved regions, remains uneven. What are the key challenges in expanding both the density and geographic spread of hotspots, and what strategies could help accelerate more

balanced, nationwide coverage? Please provide your response in detail with justification.

RJIL Response:

1. We reiterate our submissions that there is not much demand of commercial or paid public Wi-Fi across the country. The only ports of call can be the areas where mobile services are not available or restricted due to some reason. However, generally, in such areas the free Wi-Fi service is made available by the property managers.

2. The PM Wani as a concept is driven from the success of public call offices (PCOs) which flourished when the telecom connections were rare and mobile communication was either not available or very expensive, but these have also disappeared with the advent of affordable mobile services. Similarly, the Public data offices (PDOs) might have succeeded when mobile data was at Rs. 250/GB by offering a much lower tariff but these have a scant chance in a 4G/5G rich environment where people get 2 GB data per day at around Rs. 300 per month. Thus, the concept has been implemented much post its natural expiry date and there is little chance of its success.

3. As mentioned before, the free Wi-Fi at Public Wi-Fi spots may still find some traction, if sufficient trust is available, otherwise in the current scenario where every trusted entity be it Government, Banks or service providers are warning customers of using only trusted data sources, it will continue facing challenges.

Q4. What changes, if any, are required in the existing PM-WANI framework to improve revenue certainty and long-term sustainability for PDOs/PDOAs? Please provide your response in detail with justification.
And
Q5. Are there any other challenges currently faced by PDOAs/PDOs? If yes, what changes can enhance the participation of entrepreneurs under the PM-WANI framework? Please provide your response in detail with justification.

RJIL Response:

1. We reiterate our submissions that all possible policy level support has already been extended to PDOAs/PDOs, starting with relaxed licensing, no financial or security obligations, controlled input costing and legal support to create big Wi-Fi networks, but any positive impact is still not visible. The Authority is aware of the

reasons, as has been succinctly explained in the consultation, the only successful model of public Wi-Fi, even globally is the Free Wi-Fi model.

2. Indian consumer is extremely price sensitive and once he/she has paid for the mobile data, they would rather walk a little, adjust their location or wait for better signal rather than making a secondary payment. Of course, if the Wi-Fi is free, they will not take much time to connect with the same. We submit that policy proposals cannot change this behavioural pattern.

3. Consequently, there is no scope for any further change in PM-WANI framework to improve revenue certainty and long-term sustainability for PDOs/PDOAs, as the issue is not of framework but of demand, which is not there and is difficult to generate due to issues stated above. Therefore, we submit that instead the energy should be spent on mobile and fixed broadband proliferation.

Q6. Are there improvements needed in the Authentication, Authorization, Roaming, and Payment architecture of the PM-WANI Framework? Please share suggestions, if any. Please provide your response in detail with justification.

RJIL Response:

We submit that the Authentication, Authorization, Roaming, and Payment architecture of the PM-WANI Framework is already pretty simple. The authentication is primarily OTP based, the roaming is dependent on the mutual arrangements in PDO/PDOAs and from consumer perspective the mode of payment is also primarily UPI. Thus, we do not see any possibility of any more improvements or simplifications in the Authentication, Authorization, Roaming, and Payment architecture of the PM-WANI Framework that will increase the adoption of service.

Q7. In the Indian context, which of the following models would be more appropriate for the proliferation of Public Wi-Fi?
a. A model where the Government actively ensures hotspot deployment through direct funding and implementation support, including backhaul provision; or
b. A model where the Government primarily ensures availability of robust backhaul infrastructure and intervenes in hotspot deployment only in cases of market failure.
Please provide your response in detail with justification.

RJIL Response:

1. We reiterate our submissions that the goal is to provide connectivity and the focus should remain on that only irrespective of the mode and model. Statements like market failure in public Wi-Fi deployment are erroneous, as Public Wi-Fi is only a complementary service and will in any case play a small part in overall connectivity map. The primary driver for connectivity in India will remain mobile and fixed broadband only. Thus, the policy focus should be on taking effective steps to ensure the proliferation of these services. The Public Wi-Fi will anyways be a corollary to Fixed broadband connectivity.

2. Further, any policy framework for proliferating public Wi-Fi must be examined in the context of the significant and disproportionate regulatory obligations that licensed Telecom Service Providers already bear, in the form of spectrum, license fee, network rollout, Quality of Service etc., in the pursuit of the same national objective of ubiquitous, affordable digital connectivity.

3. In stark contrast, the consultation paper proposes and examines various models wherein Wi-Fi access is sought to be made available through publicly subsidised or government-funded frameworks, including the use of Digital Bharat Nidhi funds for last-mile gaps, with little or no corresponding regulatory or financial obligation on the entities deploying such networks. This creates a structurally asymmetric competitive landscape where licensed TSPs, who contribute to the very corpus being used to subsidise Wi-Fi, are simultaneously subjected to high regulatory costs while competing against subsidised access alternatives.

4. Therefore, while framing its recommendations, the Authority needs to ensure that the policy of proliferating public Wi-Fi does not inadvertently undermine the commercial viability and investment appetite of licensed TSPs, who remain the backbone of India's broadband ecosystem. Any support or subsidy extended to Wi-Fi infrastructure must be accompanied by a commensurate rationalisation of the regulatory and financial obligations on TSPs, so as to ensure a level playing field, sustained private investment, and the long-term health of India's digital infrastructure landscape.

5. Additionally, it is necessary to revisit the scrutiny of the underlying premise that proliferation of public Wi-Fi, including through government subsidy and public funding, serves as a public good and an effective instrument for bridging the digital divide, particularly for economically weaker sections of society.

6. Public Wi-Fi, by its very nature, is an access technology that requires the end-user possessing a Wi-Fi-enabled device, in most practical scenarios, a smartphone or a tablet. Unlike a mobile network where even a basic feature phone user can

access voice services and, increasingly, low-bandwidth data, a public Wi-Fi hotspot is rendered entirely inaccessible to a person who does not own a smartphone or a compatible device.

7. In this context, subsidising public Wi-Fi infrastructure from public funds, including from the Digital Bharat Nidhi corpus to which TSPs are statutorily required to contribute, does not necessarily translate into connectivity for the poor or the underserved. Rather it is more likely to benefit those who already own smartphones and are therefore already capable of accessing affordable mobile broadband through TSPs networks. Subsidised Wi-Fi, in such circumstances, is less a tool of digital equity and more an augmentation of convenience for the already connected.

8. Therefore the Authority is urged to carefully evaluate whether the deployment of subsidised public Wi-Fi infrastructure genuinely addresses the public good or last-mile digital divide, or whether the same public resources, if channelled instead toward rationalisation of levies of TSPs including for expansion in underserved areas, would deliver far superior outcomes in terms of genuine digital inclusion, reaching the truly unconnected through the mobile network, which remains the only technology platform capable of serving users irrespective of device sophistication, geographic location, or socio-economic status.

9. Notwithstanding the same, we submit that model where Government actively ensures hotspot deployment through direct funding and implementation support, including backhaul provision is already present to a large extent through the village Public Wi-Fi scheme of BharatNet. Similarly, RailTel, a Navratna PSU, is also providing a large number of free Wi-Fi access points at railway stations. The Government can continue taking similar steps wherever felt necessary.

10. Additionally, as noted by the Authority, several State Governments and urban local bodies have undertaken independent Public Wi-Fi initiatives within their jurisdictions to support digital inclusion and improve access in public spaces. The examples of multiple states like Kerala- Kerala Free Internet (KFi) complemented by the Kerala Fibre Optic Network (KFON) ;Telangana's "Hy-Fi" project under the Digital Telangana programme; Delhi's plan for a city-wide free Public Wi-Fi hotspots across public areas; Maharashtra's Wi-Fi initiatives in cities such as Mumbai and Pune, including the "Aaple Sarkar Mumbai Wi-Fi" ; Tamil Nadu's Public Wi-Fi through initiatives such as "Amma Wi-Fi" ; Bihar's free Wi-Fi corridor, a 20 km stretch between National Institute of Technology (NIT) Patna and Danapur; Karnataka's free Public Wi-Fi, through initiatives like "Namma Wi-Fi" ; Uttar Pradesh plans for free Wi-Fi; Goa's free Wi-Fi hotspots; Gujarat's structured

State-led model indicate that the state Governments are actively involved in provisioning free Wi-Fi. Similarly, city or municipality level initiatives like in Malappuram Municipality, Surat Municipal Corporation, South Delhi Municipal Corporation Greater Visakhapatnam Municipal Corporation (GVMC), Vijayawada Municipal Corporation the Bruhat Bengaluru Mahanagara Palike the New Town Kolkata Development Authority, Hyderabad etc noted by the Authority that this model is also actively working.

11. Thus, the major need of the hour and the critical role that only Government can fulfil is to remove the roadblocks in provision of Fixed broadband connectivity. This will include the implementation of ROW Rules 2024, further simplification and rationalization of ROW costs, providing free of cost access to national backhaul facilities to service providers and enabling and incentivizing the investments in building robust backhaul infrastructure in the country.

Q8. Is there a need to adopt separate strategies for Public Wi-Fi proliferation in rural and urban areas? If yes, suggestions may be provided. Please provide your response in detail with justification.
And
Q9. What measures can be taken to improve the deployment and uptake of Public Wi-Fi networks in high-footfall areas for both outdoor (such as bus stops, roadside transit points, open public parks, markets, tourist sites), and indoor (such as airports, railway stations, malls, public institutions)? Please provide your response in detail with justification, separately for outdoor and indoor scenarios.

RJIL Response:

The price sensitivity for Wi-Fi access and the preference for Free Wi-Fi is not going to change as we move from urban to rural areas or to high footfall areas. Thus, no separate strategies would be required. Instead, as mentioned previously, more focus should be given to enabling and incentivizing the fixed broadband roll-out in rural areas. This will also permeate into demand for public Wi-Fi, if any.

B. Role of Government- Funding deployments
Q10. If the Government decides to provide financial support for the proliferation of Public Wi-Fi, which funding mechanisms would be most suitable for India? Should a uniform funding mechanism be adopted nationwide, or should differentiated funding mechanisms be used for rural, urban, and high-footfall areas? Please provide your response in detail with justification.
And

Q11. What criteria should govern the allocation and disbursement of funds across rural, urban, and high-footfall areas, respectively? Please provide your response in detail with justification.

RJIL Response:

1. We submit that there is no case for Government to directly provide any funding for proliferation of Public Wi-Fi. As mentioned in the response to previous questions, the Government and PSUs are already providing free Wi-Fi, wherever they feel that there is a coverage gap. In addition to this, if required the Government can collaborate with the service providers in the rural areas to provide free Wi-Fi.

2. The primary focus of the Government should be to incentive fixed broadband proliferation in the uncovered areas and remove the barriers that create such coverage gap like ROW charges, access related issues, unfair and excessive monetization efforts of high footfall areas by property managers, illogical and inordinately high IBS charges.

3. We reiterate our submissions that the Authority and the Government should not divert from the fact that the goal is to provide connectivity and public Wi-Fi is just one of the means to do that. Despite of all the noise, it remains a complementary service and will in any case play a small part in overall connectivity map. It is reiterated that the primary driver for connectivity in India will remain mobile and fixed broadband only. Thus, the policy focus should be on taking effective steps to ensure the proliferation of these services.

C. Role of Government- Backhaul provisioning and funding.

Q.12 Is the lack of adequate and reliable last-mile connectivity a critical constraint for the proliferation of Public Wi-Fi in the country? If yes, what specific measures may be considered by the Central Government, State Governments, and local bodies to address the last-mile constraints? Please provide your response in detail with justification.

And

Q 13. Is there a need for the Government to provide funding for provisioning of last-mile connectivity in the uncovered or underserved areas for Public Wi-Fi networks? If yes, which funding option is best suited in the Indian context, and what should be the criteria for rural, urban, and high footfall areas, respectively? Please provide your response in detail with justification.

RJIL Response:

1. We submit that the lack of adequate and reliable last-mile connectivity is a critical constraint for the proliferation of Broadband in the country including but not limited to Public Wi-Fi. We also agree that the international experience clearly and unequivocally demonstrates that the availability of strong and robust backhaul infrastructure is a key for robust connectivity. As noted by the Authority, Government has a critical role to play in enabling fiber connectivity at all levels.

   > *In most countries with well-established Public Wi-Fi networks, Governments play a prominent role in ensuring backhaul availability, often extending fibre connectivity to street level.*

2. This is no different in India, the Government has a foremost role is ensuring and enabling the fiber connectivity at all levels in India, which should not be restricted for Public Wi-Fi only.

3. Further, when we talk of international experience of global developed economies, we should not skip the part that these are highly fiberized countries, where the cable connectivity and fiberization has already connected the users to broadband, and focus could be put on public Wi-Fi availability. For instance, in the US alone, Fiber has reached over 60% of households and is set to replace cable as broadband delivery leader, where the comparative numbers in India are miniscule.

4. Thus, the Government funding in India should be primarily for supporting connectivity in the uncovered areas instead of focussing on a particular technology.

D. Facilitative role- States and local bodies

Q.14 Are there any RoW challenges faced by service providers in accessing public places or street furniture to install Public Wi-Fi hotspots? If yes, details may be provided along with suggestions for improvements. Please provide your response in detail with justification.

RJIL Response:

1. We submit that the Authority is aware of the ROW challenges as the ROW Rules 2024 are yet to be implemented in totality across all the states and local bodies, therefore, we are not repeating the persistent and unaddressed issues pertaining to ROW approvals and charges for the sake of brevity.

2. As far as street furniture is concerned, the RoW Rules 2024, have mandated a fixed charge for using a piece of street furniture viz. ₹100 per street furniture unit per year for installation of a telecom line. However, besides the universal adoption of ROW Rules, the permission related issues still remain. Further the involvement of multiple agencies leads to delays and denial of approvals.

3. We submit there is a need for centralized and coordinated approval process. All the street furniture that is structurally stable for additional weight of telecom equipment should be available through an online portal maintained by the state government and or local body. The permission and payments should be a single point process. Further, the power company should also be included in approval process so that subsequent issue of power connectivity can be avoided.

4. Furthermore, the service providers should be enabled to strengthen, reinforce or replace street furniture wherever necessary to install telecom infrastructure including but not limited to public Wi-Fi hotspots. We request the Authority to also take into account our submissions in response to the Consultation paper on "Use of street furniture for small cell and aerial fiber deployment" dated 23rd March 2022.

Q 15. What facilitative roles can State Governments play in accelerating Public Wi-Fi deployment across rural, urban, and high-footfall areas, respectively? Should States consider deploying Public Wi-Fi networks at the municipal and gram panchayat level? Please provide your response in detail with justification.
And
Q 16. Should the State Government need to take initiatives to improve the availability of last-mile connectivity for Public Wi-Fi networks? If yes, what measures can incentivise States /municipalities to undertake city- and town-level fiberisation to ensure Public Wi-Fi network proliferation? Please provide your response in detail with justification.

RJIL Response:

1. We submit that each and every Government body that controls access and approvals for ROW has a role to play in broadband proliferation. Thus, yes, the state Governments have a major role to play. The first step will be to implement the ROW Rules 2024 in letter and spirit in their respective states and to ensure that all local bodies in the state also comply with these Rules.

2. While we do not think that the states should be involved in deploying free public Wi-Fi in their areas, however, the examples shared by TRAI in the consultation

paper clearly demonstrate that many states are actively involved in the same and as free Wi-Fi is part of many election manifestos, this activity has a life of its own and would continue without any encouragement or otherwise.

3. Nevertheless, the primary duty of the state Governments is to ensure that the there are no roadblocks in provisioning of backhaul in their respective areas, be it ROW or any other issue, the states should proactively resolve the same and facilitate mobile and fixed broadband which will also propel public Wi-Fi.

4. The economy, societal and healthcare related impact of broadband proliferation is an incentive enough for the States /municipalities to undertake city and town-level fiberisation. Further, an effective fiber infrastructure can be monetized by offering it to service providers on a non-discriminatory manner as this will enable them to bypass the ROW related issues.

Q 17. What facilitative roles can local bodies play in accelerating the deployment and sustainable operation of Public Wi-Fi networks in rural and urban areas? Please provide your response in detail with justification.

RJIL Response:

We submit that the local bodies primarily control the approvals for last mile connectivity for fixed broadband that alone can facilitate Public Wi-Fi deployment, thus they have massive role to play. The local bodies can play their part in easing and streamlining the RoW permissions for fixed broadband. The local bodies can also provide equitable and free of cost access to the municipal infrastructure such as streetlights, bus shelters, public buildings, parks, and other street furniture to enable deployment of fixed, FWA and mobile broadband access points that can propel the backhaul availability for public Wi-Fi.

E. Incentivising Service Providers

Q18. What regulatory or policy incentives, schemes or programs are required to promote active participation of TSPs and ISPs in Public Wi-Fi deployment? Please provide your response in detail with justification.
And
Q. 19 What regulatory or fiscal incentives, schemes or programs may be required in the provisioning of bandwidth and backhaul for Public Wi-Fi networks? Please provide your response in detail with justification.

RJIL Response:

1. The Authority has correctly identified that one of the key areas of focus is the need to incentivize the fiber connectivity in the country, which in turn works as backhaul for the public Wi-Fi networks. As mentioned in the previous submissions, this will require complete and unconditional implementation of ROW Rules 2024.

2. Further, the TRAI needs to again take up with the DoT to act on its various recommendations on the need for fiscal incentives to service providers for proliferation of fixed broadband services, including Fixed Wireless Access (FWA) based fixed services.

3. We further submit that FWA based services have the capacity to bypass the ROW bottlenecks and constraints in deploying last mile fiber and can reach the customer directly. The Authority should encourage and incentivize this service.

4. Further, the TRAI should recommend for increasing the outdoor power limit to 36 dBm EIRP for Point-to-Multipoint (P2MP) and 53 dBm EIRP for Point-to-Point (P2P) deployments for recently delicensed 6 GHz band, in line with global best practices. The USA has permitted 36 dBm outdoor Wi-Fi in the 6 GHz band for over five years without any reported harmful interference, despite a far higher density of teleport and broadcast links than India. Countries including Canada, Brazil, Colombia, and Japan have adopted or are considering similar norms. This will give necessary impetus to FWA services and ensure sufficient backhaul for Public Wi-Fi services.

5. We agree with the Authority that additionally, introducing unified and streamlined approval processes would accelerate fiber backhaul deployment and reinforce the ease-of-doing-business objectives envisioned by central policies.

F. Incentivising Private entities

Q20. What measures can be adopted to incentivise private enterprises, commercial establishments, shop owners, community institutions etc. to install public Wi-Fi hotspots? Please provide your response in detail with justification.

RJIL Response:

1. We submit that global as well Indian experience shows that the only feasible model for Public Wi-Fi is free Wi-Fi provided to promote other services. On a concept level the idea of shops, cafés, offices, residential welfare associations,

and small businesses supporting neighbourhood-level Wi-Fi availability seems feasible, but the critical missing link is the intent to pay for this Wi-Fi. The Cafes and offices generally provide free Wi-Fi to their users. The likelihood of any resident paying for Wi-Fi in common areas to RWA also seems impractical, as the usage will only happen if there is no mobile connectivity and that too for a small time only and will have to be absorbed in the overall maintenance charges.

2. We agree that high-footfall locations, larger private establishments such as malls, theatres, auditoriums, hospitals, educational institutions, hotels, and tourist sites can enable Wi-Fi access at scale, however the intent to pay will still be missing and demand, if any, will only be seen in case the mobile coverage is restricted or the Wi-Fi is free.

3. On the other hand, the rural use case of local enterprises such as kirana stores, Common Service Centre (CSC) operators, cooperatives, and village-level entrepreneurs functioning as Wi-Fi venues by extending connectivity from Gram Panchayat or BharatNet nodes to habitations and community locations seems more plausible, if the broadband connectivity is not available otherwise. However, in this case the availability of consumption devices will also be a major issue. Thus, incentives will also be required to upgrade the mobile devices of the customers in these areas.

Q21. Is there a need to strengthen the role of public or private entities as system integrators for the deployment of Public Wi-Fi networks? If yes, what policy or institutional support may be required? Please provide your response in detail with justification.

RJIL Response:

We submit that the role of public or private entities as system integrators for the deployment of Public Wi-Fi networks is well defined and no changes are required.

G. Technical Architecture, Authentication, and Interoperability

Q22. Are users facing challenges in the authorization and authentication procedures for accessing Public Wi-Fi Networks? If yes, how can authorization and authentication processes be simplified while ensuring security and compliance? Please provide your response in detail with justification.

RJIL Response:

1. The authorization and authentication procedures for accessing Public Wi-Fi Networks in India, primarily involve downloading a suitable application and the OTP authentication, which is quite simple at a basic level. However, when we include multiple applications, as might be required, the situation becomes more complicated. We submit that in decentralized model where the intent is to enable small kirana and other shops to become the Public Wi-Fi service providers, this is as simple as this can get. Only other option would be extreme centralization that will defeat the purpose.

2. We further submit that the OTP based authentication is in place to ensure the traceability of Wi-Fi user as a part of national security objectives. However, in case the same can be ensured in Passpoint based authentication solution, then the same can be recommended for approval of DoT for modification of its 2009 instructions.

3. However, it needs to be considered that even this solution faces real-world friction in the form or provisioning burden, which may not be feasible in a decentralized model as the profiles must be pushed to every device. Further the cost of HS2.0 certified APs and RADIUS/AAA backend integration will also be a factor.

Q 23. Is there a need for a centralized platform for authentication and payment systems in the Public Wi-Fi ecosystem? If yes, which entity is best suited for its implementation and management? Please provide your response in detail with justification.

RJIL Response:

Public Wi-Fi implementation is inherently a decentralized activity, thus there is no need of a centralized platform for authentication and payment systems in a decentralized model. Leveraging the UPIs reach to link the payments with authentication to the Public Wi-Fi ecosystem may become counterproductive for UPI as well.

Q 24. What steps are required to achieve interoperability and seamless roaming among Public Wi-Fi networks? Should inter-hotspot roaming be made mandatory, and if yes, should a "super-aggregator" need to be introduced to facilitate it? Please provide your response in detail with justification.

RJIL Response:

Roaming arrangements are generally governed by commercial considerations between the parties and the key technical requirement for roaming is the interoperability. The PM WANI based Wi-Fi networks are already inter-operable and inter-hotspot roaming should be left to the mutual agreement without any policy mandate.

H. Monetisation and Sustainability

Q 25. What monetisation models are most appropriate for rural, urban, and high-footfall locations, respectively? Please also suggest any additional monetisation models that may be suitable in the Indian context. Please provide your response in detail with justification.

RJIL Response:

1. The mix of Freemium model and advertisements-based model is more suitable for urban areas with high footfalls. The Wi-Fi provider can offer free connectivity (with ads) for initial defined period like 30 mins by RailTel, followed by the paid subscription.

2. In the rural areas, due to low paying capacity of the customers, it will be more suitable to offer only advertisement supported model.

Q 26. Please provide any additional comments, observations, or suggestions related to the proliferation of Public Wi-Fi in the country, including any potential issues or considerations that may not have been covered in the sections above. Please provide your response in detail with justification.

RJIL Response: None