

TRAI Consultation Paper On the Proliferation of Public Wi-Fi Networks in India
Issues for Consultation

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.

Ans- Lack of FTTH broadband penetration and reach of FTTH to remotest areas are the major issues affecting Wi-Fi hot spots proliferation. People are depending mobile broadband for internet access and it is not cheap for the rural masses. The limited data usage, speed constraints and lack of proper coverage are the major roadblocks. In order to access multiple activities with speed and reliability we need maximum penetration of FTTH broadband both in urban and rural areas. Our FTTH broadband penetration is only 3% out of 1 billion internet subscribers in India. The major hindrance for FTTH penetration is the high capex on network development, high cost of fiber and bandwidth, high cost of OLT and MODEM in the field level. Government is charging 8% for AGR from FTTH providers adding fuel to the fire. Though FTTH broadband is the driver for GDP growth and economic development, Government is not supporting the actual beneficiaries -cable operators. Bharat net scheme is not achieved their objectives as the fund is routing only through BSNL who is the competitor of all other ISPs in India.

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.

Ans- Generating demand for Wi-Fi hotspot is very critical. Wi-Fi hotspots should be the most popular mode to access high speed connectivity by rural masses to do all their activities cost effectively. We should utilize the support of MSOs and ISPs who have long term rapport with last mile customers to propagate the message of Wi-Fi hotspots using their platform channels and last mile operator strength. This will create awareness and demand for Wi-Fi access. The failure of PM Wani is mainly because of the lack of rural awareness and consequent lack of demand led to

unviable operation at grassroots level. ISPs had to invest heavily on equipment and other infrastructure with less demand for the service. We should adopt a two-pronged strategy-One is focusing on propagating the uses of this scheme with the support of local MSOs, ISPs, operators and local bodies. Another is to support ISPs to run the service cost effectively by providing fiber, bandwidth, hardware's cost effectively and removing unwanted burden like AGR and GST.

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.

Ans-Failure to popularize PM Wani scheme among public led to low demand in the market. And high cost of bandwidth and connectivity charged by Telcos and ISPs made it difficult operate PDOs profitably. The availability of low-cost mobile data also affected the demand for PM Wani Wi-Fi services. Moreover, the cost of installing PM Wani hotspot is very high and ISPs are reluctant to promote this initiative in the ground level and the service has no much demand from customers.

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.

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.

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.

Ans: Authentication and authorization friction remains one of the largest barriers to Public Wi-Fi adoption because the current OTP-heavy model creates unnecessary complexity and poor user experience. So, the Authenticate Once, Connect Everywhere model, which can support seamless onboarding, roaming-enabled identity, and secure persistent authentication. The authentication model can consider Pass

point/Open Roaming, device token and persistent device login. The OTP is only a fallback.

- Q7.** In the Indian context, which of the following models would be more appropriate for the proliferation of Public Wi-Fi?
- A model where the Government actively ensures hotspot deployment through direct funding and implementation support, including backhaul provision; or
 - 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.

Ans-First proposition is best. If Government provides Bharat net funds to those ISPs who have performed in FTTH penetration using their own funds successfully and those ISPs who are ready to achieve targeted penetration we can ensure their participation to make this project a success. But the transfer of incentives and fiber/bandwidth support should be direct based on performance and not through a third agency like BSNL.

- 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.

Ans- In urban areas the usage pattern of customers will be different from that of rural areas. The areas potential for Wi-Fi hotspot will be more in urban areas as there are more crowded bus stands, malls, parks, shopping streets, education hubs etc. But in rural areas it is focused mainly on markets, temples, local festival areas etc. where density will be less. There should be two pricing strategies for rural and urban areas as the purchasing power of people will be different and even demand for usage will be different. The positioning of services in rural and urban areas must also be different.

- 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.

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.

Ans- The funding mechanism can be different in urban and rural areas. Majority service providers have reasonable network presence and customer base in urban areas where the potential of business will also be high. A funding mechanism can be formulated on the basis of targeted volume of usage in urban areas while funding for rural areas to be on the basis of achieving network access and establishing number of hot spots in untapped areas. The funding should be more on rural penetration than urban connectivity.

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.

Ans- Explained

C. Role of Government- Backhaul provisioning and funding

Q12. 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.

Ans- The main bottlenecks for achieving reliable last -mile connectivity is the high cost of network materials, ROW charges, cost of fiber and no consideration from authorities to reduce GST and removal of AGR in FTTH broadband. ISPs and operators have to invest heavily on upgrading their network both core and last mile along with increase in data usage. Instead of providing any direct support to ISPs and operators Government is funding BSNL for the purpose which is not reaching to the

actual beneficiaries. The Government should give direct incentives to those ISPs based on their last mile connectivity and target based achievement

Q13. 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.

D. Facilitative role- States and local bodies

Q14. 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.

Ans- Now majority of states have adopted revised Central ROW rules of 2024 which was helpful to ISPs and operators. But in some states Electricity authorities have challenged central ROW rules in court and awaiting for final orders. But in Kerala High court has stayed KSEB order and allowed operators to pay pole rental as per ROW rules.

But Government may issue necessary special orders to all Government authorities to speed up clearance of ROW permissions for Wi-Fi hot spot implementation in all areas including rural and urban with special focus on tribal and hilly areas where it would be difficult to ensure fiber reach.

Q15. 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.

Q16. 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.

Ans- Large ISPs having maximum rural and urban connectivity may not require this support in all areas and they can utilize their last mile network effectively to establish Wi-Fi hotspots. But small ISPs may require this support and Government need to provide fiber access cost effectively to small ISPs to achieve this objective. Even large ISPs can be provided with fiber and bandwidth support cost effectively and directly it will help to achieve maximum Wi-Fi hotspot proliferation. Now most of the ISPs are not getting any benefits and support from government to achieve maximum network connectivity in their area of operation.

Q17. 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.

Ans- Local bodies have a major role to play in accelerating and to ensure sustainable operation of public Wi-Fi networks in rural areas. They can support ISPs to identify proper locations and to clear all administrative process regarding license and related matters. Local bodies can support ISPs to propagate the message of Wi-Fi hotspot to the public using their local contact and political mileage. Since local bodies are Government channels who are committed to achieve Government's development objectives they can be utilized for achieving maximum Wi-Fi hotspot penetration in both urban and rural areas with the support of ISPs. Actually local bodies have to work hand in hand with ISPs and operators to achieve maximum Wi-Fi hot spot penetration.

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.

Q19. 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.

Ans-As far as large ISPs providing FTTH connections like KVBL, direct support from

Central Government and DOT will be beneficial rather than routing through other ISPs like BSNL. In order to promote rural broadband in India Government of India entrusted BSNL to provide incentives of Bharat net scheme. But the second largest rural FTTH broadband provider in India (KVBL) did not get a single paise as incentive for its effort. The operators of KVBL invested heavily for achieving rural broadband penetration in Kerala without availing any Government subsidy.

Hence to promote Public Wi-Fi networks Government should support the operators in last mile by removing AGR exclusively for rural broadband and public Wi-Fi hotspots and it should be a direct benefit rather than routing through BSNL. Government can also provide fiber support and bandwidth support directly to ISPs on the basis of targeted number of public Wi-Fi hotspot promoted by them so as to achieve the Government objectives.

Cable operator promoted MSOs and ISPs can contribute much to achieve broadband penetration in both rural and urban areas as they have much local knowledge and rapport with last mile customers. Any initiative to support them will ensure good result even in Wi-Fi hotspot promotion also.

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.

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.

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.

Ans: Authentication and authorization friction remains one of the largest barriers to Public Wi-Fi adoption because the current OTP-heavy model creates unnecessary complexity and poor user experience. So, the Authenticate Once, Connect Everywhere model, which can support seamless onboarding, roaming-enabled identity, and secure persistent authentication. The authentication model can consider Pass point/Open Roaming, device token and persistent device login. The OTP is only a fallback.

Q23. Is there a need for a centralised 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.

Ans: A centralized interoperability layer for authentication and payments is essential because a fragmented user experience is currently one of the biggest barriers to Public Wi-Fi adoption. A Federated Centralised Public Wi-Fi Platform can enable single sign-on authentication, seamless roaming, persistent user identity and roam everywhere. However, PDOs, PDOAs, hotspot ownership, bandwidth provision, monetization models, and pricing should be decentralized. The policy must ensure the Authenticate Once – Pay Anywhere – Connect Everywhere framework.

Q24. 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.

Ans: A neutral NPCI-style super-aggregator (National Public Wi-Fi Exchange) should be established to facilitate authentication federation, roaming, settlement, and interoperability. It must ensure WiFi AP controller interoperability and BSS & OSS integration. So, the users can authenticate once, roam seamlessly, pay interoperable, and access Wi-Fi across operators.

H. Monetisation and Sustainability

Q25. 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.

Ans: No single monetisation model can sustainably support Public Wi-Fi across all regions. A sustainable monetisation model tailored to local demand, geography, and economic characteristics needs to be created with an approach of a Geography-Specific Hybrid Monetisation framework. Eg: For Rural: Freemium + sponsorship, for Urban: Freemium + ads and High-density: Ad-supported free Wi-Fi.

Q26. 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.

Ans: The suggested approach is to transition from fragmented hotspot deployments to a seamless national connectivity experience. It should be supported by interoperable authentication, open roaming, sustainable monetization, institutional coordination, and strong QoS standards. Because Public Wi-Fi can become a transformative component of India's digital connectivity strategy, especially for rural inclusion, digital public services, and affordable broadband access.
