



VIL Comments to the TRAI's Consultation Paper on "Proliferation of Public Wi-Fi Networks in India" dated 27.04.2026

At the outset, we are thankful to the Authority for giving us this opportunity to provide our comments to the TRAI's Consultation Paper on "Proliferation of Public Wi-Fi Networks in India" issued on 27.04.2026.

In this regard, we would like to submit our comments as follows, for Authority's kind consideration.

PREFACE

1. Public Wi-Fi a novel use-case

- a. TRAI's consultation reflects a genuine and praiseworthy institutional commitment to expanding digital access across India. VIL acknowledges the significance and the spirit with which the Authority made sustained efforts in the Public Wi-Fi direction for last more than a decade, including the 2017 consultation that eventually led to the PM-WANI framework, and then to the present exercise. This institutional continuity is itself a policy asset.
- b. VIL support potential utility of Public Wi-Fi as a complementary connectivity option let's say in high-footfall, indoor environments, airports, railway stations, shopping malls etc., as such complementary Wi-Fi access can enhance user experience however, VIL recommends that it needs to be seen from the prism of scale, timing, relevance and use-case in Indian market and thus, instruments of government involvement.
- c. The appropriate response to a novel and evolving connectivity option, one where the demand picture remains unclear, where competing technologies are performing strongly, and where the business model has struggled to achieve commercial viability, is perhaps to study and monitor, not intervention from Government in shape of policy measures.
- d. The Consultation Paper itself acknowledges key structural challenges confronting Public WiFi in India:
 - i. TRAI itself notes in its consultation paper that "competition from mobile service" and the "expectation of free Wi-Fi" are structural demand-side constraints that persistently undermine the commercial viability of Public Data Offices (PDOs).



- ii. Also, the paper mentions Indian users encounter multi-step friction from downloading apps, generating OTPs, purchasing micro-vouchers along with convenience issues as their mobile data already "works fast enough".
- iii. Besides in today's environment where consumers are much more prone to cyber-attacks and hacking, the public-wifi scores low on trust as well.
- e. These are not superficial teething problems, requiring a policy fix. They represent deep structural misalignments between the Public Wi-Fi model and the revealed preferences of Indian consumers. Before committing public expenditure or resource bandwidth for continuing such policy measures, for bringing such fix, the appropriate first step is to rigorously examine the very need of public-wifi basis Government policy support and at what social cost relative to benefit.
- f. The Consultation Paper draws extensively on international experience from South Korea, the European Union, the United Kingdom, the United States, and Hong Kong. While these comparisons are instructive, they require critical contextualisation for India. In many of these jurisdictions, mobile data is significantly expensive thereby, making Public Wi-Fi a cost-effective substitute. In India, where mobile data is one of the cheapest globally, averaging ₹7.87 cost per GB as of December 2025, the demand basis for Public Wi-Fi is structurally weaker.¹ Applying international Public Wi-Fi policy templates to India without accounting for this fundamental difference risks misallocating funds, resources toward a solution that seeks to solves a problem, which India does not have at the scale.

2. Why Replication of Global Models is Not Feasible in India

- a. A macroeconomic synthesis of these data parameters demonstrates that the financial, operational, and structural drivers behind public Wi-Fi networks in advanced economies are completely absent in the Indian context, making the direct replication of global frameworks entirely unfeasible.
- b. In countries like the United States, United Kingdom, South Korea, and Hong Kong, consumers possess extremely high purchasing power (reflected in high GDP per capita), yet face expensive cellular tariffs and rigid, volume-capped data offers from operators that command substantial ARPU margins; this economic configuration creates a sharp consumer incentive to offload data onto public Wi-Fi hotspots to

¹ Source: https://traai.gov.in/sites/default/files/2026-03/QPIR_03032026_0.pdf



conserve their cellular quotas and escape steep overage fees. Conversely, India features an entirely inverted market reality: despite its lower-middle-income paying capacity, consumers enjoy world-leading monthly consumption rates (24.01 GB) powered by ultra-low tariffs and extraordinarily generous daily data allotments pre-bundled with unlimited 5G access.

- c. Because Indian operators provision continuous, high-volume mobile data at near-zero incremental friction, the organic user demand required to sustain localized public hotspots simply does not exist. Furthermore, unlike state-backed frameworks in China or the European Union that utilize direct public grants or state-owned infrastructure to supplement slower cellular playbooks, India's telecom expansion relies strictly on heavily taxed private capital deployments; forcing thin-margin domestic operators to subsidize or build out parallel public Wi-Fi nodes would misallocate resources, disrupt basic market economics, and leave behind underutilized, stranded capital assets that fail to provide any incremental value over the pervasive, high-speed mobile networks already covering the nation.
- d. **International Precedents:** There are examples of certain countries mentioned in the consultation paper where Government led policy support led to deployment of public wifi. However, these examples may not be a fit case for applying same logic in India considering that the market factors are completely different in those countries' v/s India. The public wi-fi examples initiatives in the US and South Korea emerged under market conditions very different from India. Unlike those markets, India already has widespread low-cost mobile broadband coverage driven by strong private sector investment and intense competition among TSPs.
- e. **A Comparative Analysis of Global Public Wi-Fi Models vs. The Indian Ecosystem is given in table below:**

Country	Operator Revenue Base (ARPU)	Consumer Paying Capacity (GDP per Capita PPP)	Standard Cellular Data Offers & Allotment	Average Monthly Consumer Consumption	Average Cellular Tariff (per 1GB in USD) ²
US	High (~\$48.50/mo)	~\$80,000+	Costly volume-capped limits; steep out-of-package data overages	~16.5 GB	\$4.59

² Source: <https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD>



Country	Operator Revenue Base (ARPU)	Consumer Paying Capacity (GDP per Capita PPP)	Standard Cellular Data Offers & Allotment	Average Monthly Consumer Consumption	Average Cellular Tariff (per 1GB in USD) ²
UK	Moderate (~\$18.20/mo)	~\$55,000+	Rigid monthly contract buckets (e.g., 5GB–20GB caps)	~12.2 GB	\$0.62
South Korea	High (~\$28.40/mo)	~\$50,000+	Tiered premium packages with strict speed/volume hard caps	~19.0 GB	\$5.01
China	Lower (~\$6.80/mo)	~\$23,000+	Fixed-volume plans integrated into localized smart-city systems	~17.2 GB	\$0.38
European Union	Moderate (~\$20.00/mo)	~\$54,000+	Rigid regional data caps with high historical out-of-bundle risks	~15.0 GB	\$2.08
Hong Kong	Moderate (~\$22.00/mo)	\$75,196	High-tier subscriptions built for compact high-frequency ranges	~18.5 GB	\$0.82
India	Ultra-Low (~\$2.25/mo)	\$11,160	Generous daily allotments (1.5GB–3GB/day) + unlimited 5G	24.01 GB	Ultra-Low (~\$0.16)

- f. Instead of relying on localized public Wi-Fi, India’s telecom landscape has independently evolved into a global leader in mobile connectivity through private investment. Telecom Service Providers (TSPs) have undertaken capital expenditures worth lakhs of crores of rupees to upgrade national infrastructure, to support higher data speeds through next gen technologies (5G/4G).
- g. In view of the above, we strongly urge the Authority to not recommend any policy measures/support for pushing broadband through public-wifi, while comparing with international use-cases.
- h. In case the Authority decides to further push broadband adoption then, we strongly urge the Authority that the incentives and policy measures seeking to expand broadband access, should be technology/platform agnostic and should give support to all including wireless broadband.



3. The Economics of Government Intervention in Network Industries

- a. Across economics and comparative policy experience, government intervention in infrastructure sectors is justified where one or more of the following market failures are identified: **natural monopoly characteristics, high entry costs relative to addressable demand, significant positive externalities not captured by private investors, and equity or inclusion considerations that private markets will not address.**³
- b. Conversely, government intervention is **contraindicated**, and may in fact be **harmful** where competitive private markets are efficiently delivering outcomes, **where entry barriers are low, where technological progress is rapid, and where subsidies risk distorting investment incentives/cycles or creating moral hazard.**
- c. **Sectors Where Private Markets Delivered Without State Subsidy:** By contrast, in sectors characterised by competitive intensity, rapid technological innovation, and strong private investment returns, government subsidy has proven unnecessary and sometimes harmful:
 - i. **Mobile Voice (India, 2000s):** India's mobile voice market expanded dramatically through private competition following liberalisation and spectrum auctions, without requiring government intervention. The market delivered affordable voice services to hundreds of millions of consumers through competitive pricing.
 - ii. **4G Mobile Data (India, 2016–2022):** 4G services from one TSP in 2016 along with aggressive 4G responses from other TSPs, drove data prices down by over 97% and increased data consumption by approximately 400 times⁴. This transformation was entirely market-led. Government's role was facilitative (spectrum auctions, regulatory reforms).
 - iii. **Smartphones (Global):** The dramatic decline in smartphone prices globally enabling digital access for lower-income populations was driven by competitive private markets, not government subsidy programs.

³ Source: <https://itif.org/publications/2019/09/03/policymakers-guide-broadband-competition/>

⁴ Source: <https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2206477>



- d. Therefore, the right question from a policy perspective is not whether to expand digital access through public wi-fi but, whether Public Wi-Fi is the right instrument for mass scale broadband access, given the facts and context available in 2026.

4. India's Mobile Revolution: Evidence of a self-sustaining Ecosystem

a. Broadband in India:

- i. India's broadband sector exhibits the characteristics of a competitive, efficiently functioning market, not a market failure requiring intervention or correction.
- ii. Industry capital expenditure has grown from ₹38,900 crore in FY2019-20 to ₹59,300 crore in FY2024-25, excluding ₹1.71 lakh crore spent on spectrum in 2022 and 2024.⁵ Over 5.30 lakh 5G BTSs deployed by March 2026, covering 99.6% of districts.⁶
- iii. India leads the world in mobile data consumption per subscriber and has the world's lowest mobile data rates.
- iv. Rural mobile broadband penetration is rising rapidly: the Modular Survey on Telecom 2025 (MoSPI) found that 92.7% of persons aged 15-29 in rural areas used the internet in the preceding three months.⁷
- v. The evidence strongly suggests it is not the primary instrument needed for any mass scale adoption through Government led policy measures.

a. The wireless broadband transformation

- i. Data costs fell from ₹269 per GB in December 2014 to ₹8.31 per GB by June 2024, a reduction of approximately 97% in a decade.⁸ By December 2025, the average revenue realisation per GB of wireless data had further declined to ₹7.87.⁹
- ii. Internet subscribers grew from 25.15 crore in March 2014 to over 100 crores by 2025, a near-four-fold increase.¹⁰

⁵ Source:<https://www.outlookbusiness.com/corporate/jio-airtel-spend-billions-on-5g-rollout-now-they-want-users-to-pay-for-it>

⁶ Source:https://traf.gov.in/sites/default/files/2026-04/CP_27042026.pdf

⁷ Source:<https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2206477>

⁸ Source:<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2098487®=3&lang=2>

⁹ Source:<https://www.traf.gov.in/release-publication/reports/performance-indicators-reports>

¹⁰ Source:<https://www.iasgyan.in/daily-current-affairs/10-years-of-digital-india>



- iii. Average monthly wireless data usage per subscriber increased by 399 times from 61.66 MB in March 2014 to 24.01 GB by 2025.¹¹
 - iv. India became the world leader in mobile data consumption per subscriber, averaging 21.2 GB per month as of September 2024, while maintaining the lowest data rates globally.¹²
 - v. Average monthly wireless data usage per subscriber increased by 399 times from 61.66 MB in March 2014 to 24.01 GB by 2025.¹³
 - vi. India became the world leader in mobile data consumption per subscriber, averaging 21.2 GB per month as of September 2024, while maintaining the lowest data rates globally.¹⁴
 - vii. More than 95% of India's broadband subscribers access the internet through wireless mobile networks — not through fixed broadband or Public Wi-Fi.¹⁵
 - viii. Active 5G devices doubled year-on-year to 271 million in 2024, with 5G data traffic tripling in the same period and projected to surpass 4G traffic by Q1 2026.¹⁶
 - ix. In metro areas, 5G accounted for 43% of mobile broadband data in 2024, up from 20% in 2023.
 - x. These outcomes were achieved primarily through private investment and competitive market dynamics, not through government-funded parallel infrastructure. The policy lesson is clear: when the right enabling conditions exist, private markets in telecommunications deliver transformative outcomes at scale.
- b. Rural connectivity:** A common argument for Public Wi-Fi investment is rural inclusion. The data suggest, however, that mobile broadband is already addressing this gap effectively:

¹¹ Source: <https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2206477>

¹² Source: <https://www.nokia.com/sites/default/files/2025-03/mbit-2025.pdf>

¹³ Source: <https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2206477®=3&lang=2>

¹⁴ Source: <https://www.ibef.org/news/indian-5g-users-to-grow-to-770-million-by-2028-average-data-use-at-40-gigabytes-gb-nokia>

¹⁵ Source: <https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2206477>

¹⁶ <https://www.insightsonindia.com/2025/03/21/annual-mobile-broadband-index-mbit-report/>



- i. Rural tele-density stood at 58.48% as of September 2024, with 528 million rural wireless subscribers.¹⁷
- ii. The MoSPI Modular Survey -Telecom 2025 found that 92.7% of persons aged 15–29 in rural areas used the internet in the preceding three months barely below the urban figure of 95.7%.¹⁸.
- iii. The same survey found that 79.2% of rural males and 75.6% of rural females aged 15+ who own a mobile phone own a smartphone, approaching urban rates of 89.4% and 86.2% respectively.
- iv. Rural India now accounts for 57% of active internet users, according to IAMAI's Internet in India 2025 report.¹⁹
- v. UPI transactions — requiring mobile internet connectivity have scaled to over 550 million daily, reaching small merchants, kirana stores, and street vendors in rural and Tier-2/3 markets without dependence on Public Wi-Fi.²⁰
- vi. These figures demonstrate that mobile broadband has substantially bridged the rural-urban digital divide, and continues to do so at pace. The argument that Public Wi-Fi is required for rural inclusion is weakened considerably by this evidence.

c. Spectrum Efficiency and Consumer Access

- i. India's mobile networks operate on licensed, managed spectrum providing consistent Quality of Service (QoS), SLA-backed performance commitments, and continuous network investment driven by competitive pressure. As 5G deployments deepen, spectrum efficiency improvements will further enhance the capacity and quality of mobile broadband delivery.
- ii. In contrast, Wi-Fi operates on unlicensed, shared spectrum, which creates inherent limitations on QoS consistency, especially in dense urban environments and high-footfall public location, precisely the settings where Public Wi-Fi deployment is most frequently proposed.

¹⁷Source: <http://www.tra.gov.in/release-publication/reports/performance-indicators-reports>

¹⁸ Source: https://www.mospi.gov.in/sites/default/files/publication_reports/CMST_report_m.pdf

¹⁹ Source: <https://www.thehindu.com/sci-tech/technology/india-now-has-958-million-active-internet-users-57-of-these-are-from-rural-areas/article70566646.ece>

²⁰ Source: <https://www.dataforindia.com/retail-payments/>



5. Case of Efficiencies Mobile Broadband Networks v/s Public WiFi

- a. India's licensed telecom operators have built, over the past two decades, an infrastructure network of extraordinary scale and reach: over 7.2 lakh mobile towers, approximately 5.30 lakh 5G BTSs, an expanding fiber backhaul network, and a core network capable of handling over 1 billion subscribers. This infrastructure represents cumulative private investment of several lakh crore rupees.
- b. Building a parallel Public Wi-Fi infrastructure requiring new access points, backhaul connections, authentication systems, operations and maintenance regimes, and revenue models would, in most deployments, duplicate capabilities that already exist in the mobile network. The efficiency case for investing in existing infrastructure and incentivising for further adoption is far more compelling rather than creating new parallel infrastructure.
- c. **Economies of Scale**
 - i. Mobile broadband networks benefit from substantial economies of scale, which currently itself stands at > 1 bn mobile users. This scale enables the provision of mobile data at among the world's lowest per-GB rates while sustaining investment in network quality.
 - ii. Public Wi-Fi hotspot models, by contrast, are inherently localised. Each hotspot serves a limited geographic area and user base. The economics of individual hotspots particularly in the PDO-based are fragile: PDOs face substantial backhaul costs, low user volumes, thin margins, and competition from the mobile data that users already carry considering the high speeds over next gen technologies including 5G as well as ubiquitous 4G.
- d. **Operational Sustainability**
 - i. A key criterion for any connectivity infrastructure receiving policy support must be long-term operational sustainability. The Government policy support led Public Wi-Fi raises significant concerns on this dimension:
 - ii. Some of the localised State level schemes couldn't create much impact and had operational/sustainability concerns e.g 'Aaple Sarkar Mumbai Wi-Fi' programme, 'Namma Wi-Fi' initiative in Bengaluru, Wi-Fi Choupal scheme under MeitY. Infact, on the private public wi-fi initiative in India, launched across railway stations, also witnessed scale-back over time.



- iii. These patterns are not coincidental. They reflect structural features of the Public Wi-Fi model: diffuse ownership, multiple intermediaries, fragile revenue models, and maintenance responsibilities that do not align with strong commercial incentives. Mobile networks, by contrast, are maintained by operators with strong commercial interests in network quality — and are subject to regulatory quality-of-service benchmarks.

e. Consumer Adoption Behaviour and Choice:

- i. Consumer behaviour is a legitimate and often, under-weighted input to connectivity policy. India's digital consumers have demonstrated a clear and consistent preference for mobile broadband.
- ii. More than 95% of broadband subscribers in India access the internet through wireless mobile networks.²¹
- iii. TRAI's own Consultation Paper acknowledges that users in India choose mobile data because it provides a "seamless, always-on experience" without the friction of hotspot discovery, authentication, app download, and micro-voucher purchase required by Public Wi-Fi. As the Consultation Paper notes, "even in areas where Public Wi-Fi is deployed, actual usage remains low because the 'switching cost' in terms of time and effort outweighs the marginal financial savings."
- iv. Policy measures that seeks to support a service that works against revealed consumer preferences — requires a compelling case for market failure or externality. That case has not been made in the present consultation.

f. Quality of Service

- i. Licensed mobile broadband networks operate under TRAI's QoS regulations, which set minimum performance benchmarks for speed, latency, packet drop, and service availability. These benchmarks create accountability mechanisms and competitive pressure to maintain service quality and thus, increases the quality of experience for the consumers.
- ii. Public Wi-Fi hotspots — particularly under the distributed PDO model — operate without equivalent quality guarantees. The heterogeneity in service quality across thousands of small, independently operated PDOs is a structural feature

²¹ Source: https://www.trai.gov.in/sites/default/files/2026-03/QPIR_03032026_0.pdf



of the model, not a correctable flaw. Users accessing government services, digital financial platforms, or telemedicine applications over Public Wi-Fi networks may encounter service quality significantly below what mobile broadband delivers.

g. Security and Authentication Concerns

- i. Public Wi-Fi networks present inherent security vulnerabilities that mobile networks do not. TRAI's own Consultation Paper acknowledges that "security, privacy, and trust deficits pose a significant barrier to the widespread adoption of Public Wi-Fi networks" and that users prefer the "perceived safety of their mobile data networks."²²
- ii. Furthermore, the need for Public Wi-Fi is significantly diminished by inherent security vulnerabilities, specifically, even the Indian Computer Emergency Response Team (CERT-In) regularly cautions users against undertaking financial transactions, sharing sensitive personal information, or even performing routine tasks like accessing work emails over unsecured public networks.
- iii. For a population increasingly conducting sensitive digital transactions — banking, government services, healthcare through smartphones, the security advantages of mobile broadband represent a significant policy consideration that favours strengthening the mobile ecosystem by incentivising for more adoption, over building Public Wi-Fi networks.

h. COMPARATIVE ANALYSIS: Indian Public Wi-fi Ecosystem Vs. Mobile Broadband

Parameter	Public Wi-Fi Ecosystem (India)	Mobile Broadband (4G/5G)
Coverage	Highly localised (typically covers a small radius (typically 30–100 m).	Each BTS serves 1–5 km radius in urban areas, significantly more in rural terrain.
Deployment Costs	High (the cumulative cost of backhaul, operations, and maintenance of dispersed hotspots is high)	Highly competitive (Economies of scale).
Operational Sustainability	Consistently fragile.	High
User Choice and Adoption	Low	Overwhelmingly dominant.

²² Source: TRAI, Consultation Paper No. 07/2026, Para 2.90.



Parameter	Public Wi-Fi Ecosystem (India)	Mobile Broadband (4G/5G)
Spectrum Efficiency	Operates on unlicensed, shared spectrum (2.4 GHz, 5 GHz, 6 GHz) with less throughput in dense environments. No guaranteed spectrum rights.	Operates on licensed, dedicated spectrum with guaranteed rights and managed interference. Continued improvement through 5G-Advanced.
Security	Inherent vulnerabilities. Perceived risks.	End-to-end encryption as default. SIM-based authentication eliminates rogue network risks.
Maintenance	Fragmented. Each PDO is independently responsible for hardware, backhaul, and uptime.	Consolidated with large players. (Sophisticated network operations centres, field engineering teams, and strong commercial incentives for uptime)
Private Investment Incentives	Weak (PDOs operate on thin margins, face high backhaul costs, and compete with free or near-free mobile data)	Strong. (Industry capex grew from ₹38,900 crore (FY20) to ₹59,300 crore (FY25). Spectrum auction commitments exceed ₹1.71 lakh crore)
Rural Viability	Low (Hotspot economics require a minimum density of paying users, which is difficult to sustain in rural settings)	High and Improving rapidly.
Policy Burden	High. (Requires coordinated action across Central Government, State Governments, local bodies, PDOs, PDOAs, App Providers, and Central Registry)	Low
Quality of Service	Heterogeneous and unregulated across PDOs. No uniform QoS guarantee. Service quality depends on individual PDO's backhaul quality, equipment, and maintenance standards. High variability in user experience.	Regulated by TRAI QoS benchmarks covering speed, latency, packet drop, and service availability. Competitive pressure enforces continuous quality improvement.
Mobility	Location-bound. Users must be within the hotspot coverage area.	Continuous mobility across geography. Seamless handoff between cell sites without user intervention.
Long-term Technological Relevance	Uncertain. Wi-Fi technology continues to evolve (Wi-Fi 6E, Wi-Fi 7, future Wi-Fi 8), but as mobile broadband improves in speed and cost, the demand-side case for Public Wi-Fi as a substitute access layer weakens further.	Strong. While 5G is expanding, 6G R&D is underway with India targeting 6G launch by 2030. Each generation increases speeds, reduces latency, and improves spectrum efficiency.



QUESTION-WISE COMMENTS

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.

VIL Comments to Q. No.1

1. At the very outset, there is no structural relevance or market justification for supporting a public policy aimed at the artificial proliferation of public Wi-Fi in India. Instead, TRAI should recommend to the Government to conduct a detailed study evaluating whether expanding public Wi-Fi hotspots has any macroeconomic relevance in today's scenario, given that the licensed Telecom Service Provider (TSP) industry is already serving the market exceptionally well.
2. The primary "supply-side constraint" is actually influenced basis structural lack of demand, creating a classic economic cycle of diminishing returns. Because consumer interest in public Wi-Fi is rapidly evaporating, infrastructure providers face a negative loop: low user traction leads to poor monetization, which in turn stifles the capital required to maintain and deploy more hotspots.
3. TSPs have already invested lakhs of crores of rupees in expanding broadband access and consumption through next generation technologies (5G/4G), thereby creating an substitutable infrastructure layer that ensures extreme affordability and continuous technology upgrades.
4. Forcing regulatory engineering or supply-side subsidies to address this, would not be beneficial in both short term and long term, as it would require sustaining inherently inefficient deployment models and heavily distorting natural market economics.
5. Since there is no structural relevance or market justification for supporting a public policy aimed at the artificial proliferation of public Wi-Fi in India, **hence there is no relevance of citing the key supply-side constraints affecting Public Wi-Fi proliferation.**
6. **Operational Sustainability**
 - a. A key criterion for any connectivity infrastructure receiving policy support must be long-term operational sustainability. The Government policy support led Public Wi-Fi raises significant concerns on this dimension:



- b. Some of the localised State level schemes couldn't create much impact and had operational/sustainability concerns e.g 'Aaple Sarkar Mumbai Wi-Fi' programme, 'Namma Wi-Fi' initiative in Bengaluru, Wi-Fi Choupal scheme under MeitY. Infact, on the private public wi-fi initiative in India, launched across railway stations, also witnessed scale-back over time.
- c. These patterns are not coincidental. They reflect structural features of the Public Wi-Fi model: diffuse ownership, multiple intermediaries, fragile revenue models, and maintenance responsibilities that do not align with strong commercial incentives. Mobile networks, by contrast, are maintained by operators with strong commercial interests in network quality — and are subject to regulatory quality-of-service benchmarks.
- d. Basis operational sustainability matrix, the Public wifi model is inherently inefficient and thus, brings in lot of constraints for it to be viable and successful.

7. The Economics of Government Intervention in Network Industries

- a. Across economics and comparative policy experience, government intervention in infrastructure sectors is justified where one or more of the following market failures are identified: **natural monopoly characteristics, high entry costs relative to addressable demand, significant positive externalities not captured by private investors, and equity or inclusion considerations that private markets will not address.**²³
- b. Conversely, government intervention is **contraindicated**, and may in fact be **harmful** where competitive private markets are efficiently delivering outcomes, **where entry barriers are low, where technological progress is rapid, and where subsidies risk distorting investment incentives/cycles or creating moral hazard.**
- c. **Sectors Where Private Markets Delivered Without State Subsidy:** By contrast, in sectors characterised by competitive intensity, rapid technological innovation, and strong private investment returns, government subsidy has proven unnecessary and sometimes harmful:
 - iv. **Mobile Voice (India, 2000s):** India's mobile voice market expanded dramatically through private competition following liberalisation and spectrum auctions, without requiring government intervention. The market delivered affordable voice services to hundreds of millions of consumers through competitive pricing.

²³ Source: <https://itif.org/publications/2019/09/03/policymakers-guide-broadband-competition/>



- v. **4G Mobile Data (India, 2016–2022):** 4G services from one TSP in 2016 along with aggressive 4G responses from other TSPs, drove data prices down by over 97% and increased data consumption by approximately 400 times²⁴. This transformation was entirely market-led. Government's role was facilitative (spectrum auctions, regulatory reforms).
- vi. **Smartphones (Global):** The dramatic decline in smartphone prices globally enabling digital access for lower-income populations was driven by competitive private markets, not government subsidy programs.
- e. **Therefore, the right question from a policy perspective is not about supply side constraints but, whether Public Wi-Fi is the right instrument for mass scale broadband access, given the facts and context available in 2026.**

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.

VIL Comments to Q. No.2

1. The major demand-side constraints are driven by the exceptional performance, reach, and affordability of the licensed mobile broadband ecosystem, which makes public Wi-Fi a far less appealing choice for consumers.
2. This lack of demand feeds directly back into the supply side, sealing the cycle of diminishing returns: since consumers choose not to connect, operators cannot generate revenue to improve supply. India possesses some of the cheapest mobile data rates globally, with average monthly data consumption exploding by 399 times to 24.01 GB per subscriber as of 2025.
3. Because high-speed, low-cost mobile data plans are already universally available from TSPs, the demand for public Wi-Fi will never grow at the scale originally envisioned by the Government.

²⁴ Source: <https://www.news365times.com/indias-mobile-data-costs-drop-97-since-2014-even-as-voice-tariffs-surge/>



4. Consumers prefer the seamless, always-on experience of their mobile networks over the multi-step friction of discovering public hotspots, downloading apps, and waiting for manual OTPs.
5. **Economies of Scale:** Public Wi-Fi hotspot models are inherently localised. Each hotspot serves a limited geographic area and user base. The economics of individual hotspots particularly in the PDO-based are fragile: PDOs face substantial backhaul costs, low user volumes, thin margins, and competition from the mobile data that users already carry considering the high speeds over next gen technologies including 5G as well as ubiquitous 4G.
6. **Consumer Adoption Behaviour and Choice:**
 - a. Consumer behaviour is a legitimate and often under-weighted input to connectivity policy. India's digital consumers have demonstrated a clear and consistent preference for mobile broadband.
 - b. More than 95% of broadband subscribers in India access the internet through wireless mobile networks. TRAI's own Consultation Paper acknowledges that users in India choose mobile data because it provides a "seamless, always-on experience" without the friction of hotspot discovery, authentication, app download, and micro-voucher purchase required by Public Wi-Fi. As the Consultation Paper notes, "even in areas where Public Wi-Fi is deployed, actual usage remains low because the 'switching cost' in terms of time and effort outweighs the marginal financial savings."
 - c. Policy measures that seeks to support a service that works against revealed consumer preferences — requires a compelling case for market failure or externality. That case has not been made in the present consultation.
7. **Quality of Service**
 - a. Licensed mobile broadband networks operate under TRAI's QoS regulations, which set minimum performance benchmarks for speed, latency, packet drop, and service availability. These benchmarks create accountability mechanisms and competitive pressure to maintain service quality and thus, increases the quality of experience for the consumers.
 - b. Public Wi-Fi hotspots — particularly under the distributed PDO model — operate without equivalent quality guarantees. The heterogeneity in service quality across thousands of small, independently operated PDOs is a structural feature of the model, not a correctable flaw. Users accessing government services, digital financial



platforms, or telemedicine applications over Public Wi-Fi networks may encounter service quality significantly below what mobile broadband delivers.

8. Security and Authentication Concerns

- a. Public Wi-Fi networks present inherent security vulnerabilities that mobile networks do not. TRAI's own Consultation Paper acknowledges that "security, privacy, and trust deficits pose a significant barrier to the widespread adoption of Public Wi-Fi networks" and that users prefer the "perceived safety of their mobile data networks."
- b. Furthermore, the need for Public Wi-Fi is significantly diminished by inherent security vulnerabilities, specifically, even the Indian Computer Emergency Response Team (CERT-In) regularly cautions users against undertaking financial transactions, sharing sensitive personal information, or even performing routine tasks like accessing work emails over unsecured public networks.
- c. For a population increasingly conducting sensitive digital transactions — banking, government services, healthcare through smartphones, the security advantages of mobile broadband represent a significant policy consideration that favours strengthening the mobile ecosystem by incentivising for more adoption, over building Public Wi-Fi networks.

9. Therefore, there is no justification for targeted policy interventions to stimulate artificial demand for an unviable access layer.

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.

VIL Comments to Q. No.3

1. Kindly refer to our detailed comments mentioned in the Preface and comments to question no 1 and 2 above, which should be read as part of our comments to this question.
2. Scaling public hotspots extensively across rural and remote geographies is unsustainable, unviable and technically unfeasible. Instead, wireless cellular connectivity is vastly superior and better suited for rural environments.



3. Public Wi-Fi hotspots are highly location-specific, have a limited range, and serve a tiny, stationary user base. In contrast, licensed wireless mobile networks provide wide geographic coverage, continuous connectivity during high-speed mobility, and a highly regulated, superior Quality of Service (QoS) across open terrains.
4. Widespread digital access in rural and semi-urban areas has already been successfully achieved through massive investments by TSPs in wireless mobile infrastructure and affordable smartphones. In fact, more than 95% of broadband subscribers in India access the internet via mobile networks rather than public Wi-Fi.
5. Essential national digital platforms—including Aadhaar, DigiLocker, CoWIN, and PM-Kisan—have successfully scaled nationwide entirely via mobile connectivity, proving that licensed wireless networks are fully supporting digital inclusion across all terrains.
6. **Therefore, policy must prioritize strengthening and incentivizing sustainable mobile broadband infrastructure rather than pursuing unfeasible rural Wi-Fi targets. The regulatory and financial support should prioritize licensed mobile broadband networks that are better equipped to deliver reliable, scalable and inclusive digital connectivity nationwide.**

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.

VIL Comments to Q. No. 4 and 5

1. VIL's analysis of the challenges facing PDOs and PDOAs confirms that they are systemic expressions of the structural unviability of the PM-WANI business model, not correctable administrative or regulatory inefficiencies. They include:
 - a. **Unsustainable unit economics:** The gap between backhaul costs (40–80x retail broadband) and achievable revenue (capped by mobile data alternatives) creates a fundamental margin deficit that cannot be corrected by regulatory simplification.



- b. **Fragmented ecosystem:** With thousands of independent PDOs, no single entity bears accountability for network quality, security, or maintenance. PDOAs lack the commercial leverage to enforce operational standards.
- c. **Consumer switching friction:** Even where PDOs operate, consumers face app download, OTP, and micro-voucher steps that create a worse experience than simply using mobile data. This structural friction cannot be eliminated within the PM-WANI authentication architecture without compromising regulatory compliance requirements.
- d. **Low brand recognition:** Unlike mobile operators — whose brands, service levels, and pricing are nationally recognised — the PDO/PDOA ecosystem is fragmented and opaque to consumers, depressing adoption.
- e. **Competitive intensity of mobile substitute:** Three national mobile operators competing aggressively on price, coverage, and quality create a permanent competitive pressure against which PDOs cannot differentiate on any dimension other than price — and cannot win on price given their structural cost disadvantage.
- f. **In view of the above, the challenges being faced by PDOs and PDOAs appear to stem from inherent structural and commercial limitations within the PM-WANI framework itself, rather than from isolated procedural or regulatory gaps. Accordingly, incremental administrative changes alone may not be sufficient to ensure long-term sustainability or scalable nationwide deployment.**

2. Why Entrepreneur Participation Cannot Be Enhanced:

- e. The Entrepreneurial participation in any sector depends on the prospect of a sustainable return on invested capital or if there is any innovative model which may yield results in future. In the envisaged Public wifi ecosystem, that prospect does not currently exist at scale. The following structural factors make enhanced participation unlikely regardless of regulatory facilitation:
 - i. **No network effect advantage:** Unlike mobile operators, PDOs gain no competitive advantage from scale. A larger PDO network does not increase individual PDO revenue.
 - ii. **Technology substitution risk:** As 5G deployment deepens and mobile data costs potentially decline further, the addressable market for Wi-Fi session-based revenue will continue to contract, not expand.



- iii. Hence, the challenge is not merely participation of entrepreneurs under the PM-WANI framework, but the absence of a sustainable commercial proposition within this framework that can drive long-term entrepreneurial investment at scale.

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.

VIL Comments to Q. No.6

1. While there are improvements required for authentication, authorization, roaming, and payment (AARP) architecture however, in our view, such improvements and efficiencies should be market driven and not through regulatory interventions.
2. Any such regulatory intervention would build upon static norms based on present understanding of the ecosystem and would not lead to market-led dynamic and evolving improvements.
3. Therefore, there is no regulatory intervention or improvements required in the Authentication, Authorization, Roaming, and Payment architecture of the PM-WANI Framework.

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.**

VIL Comments to Question No. 7

1. We strongly recommend that there should not be any regulatory intervention or Government support for a technology, which is inefficient for mass scale roll-outs.



2. Also, the Government support should not be specific to a typical technology/platform and instead should focus on technology/platform agnostic policy measures, as long as the policy objectives are met.
3. We strongly recommend that there should be no such measure for deployment of public wi-fi hotspot but, in case Authority still decides, it should consider for recommending support for technology/platform agnostic support i.e. the policy measure should also support and incentivize broadband delivery through mobile broadband network.

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.

And

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.

VIL Comments to Q. No. 8, 9 and 10

1. Our comments given to question no. 1 to 3 should be read as part of comments to these questions as well. We recommend against any regulatory intervention or Government support for Public Wifi.
2. **Broadband through Mobile Networks:**
 - a. Licensed telecom networks already provide adequate mobile broadband penetration. Affordable smartphones, low data tariffs, and continuous infrastructure investments



- by Telecom Service Providers (TSPs) have ensured widespread digital access, even in remote areas.
- b. Given the extensive reach, affordability, and continuous technological upgrades of licensed telecom networks, the demand for Public Wi-Fi is unlikely to grow at the scale originally anticipated.
 - c. Government digital platforms—such as Aadhaar, DigiLocker, CoWIN, PM-Kisan, and online education services—have successfully scaled nationwide primarily through mobile connectivity. This demonstrates that licensed wireless networks effectively support digital inclusion across rural, semi-urban, and urban areas.
 - d. Wireless mobile networks remain the primary mode of broadband internet connectivity for Indian consumers. Therefore, public policy and financial support should focus on strengthening the infrastructure that citizens predominantly rely on.
 - e. Government funding should maximize reach and efficiency. Investments in mobile infrastructure—such as mobile towers, fiber backhaul, spectrum utilization, and rural network expansion—provide Wider geographic coverage, Continuous connectivity, Better Quality of Service (QoS), Long-term scalable infrastructure.
3. In contrast, Public Wi-Fi hotspots are highly location-specific and serve a comparatively limited user base. Large-scale Government support for Public Wi-Fi could unintentionally create parallel, subsidized access models, undermining the substantial private investments already made by TSPs in nationwide mobile infrastructure. Public funds would be more efficiently utilized to support underserved mobile coverage areas rather than duplicating existing access mechanisms.
 4. Because India's digital adoption is overwhelmingly mobile-led, the Government should primarily focus on strengthening TSP infrastructure and rural mobile connectivity. Public Wi-Fi should operate strictly as a complementary, targeted solution for specific high-footfall or severely underserved locations.
 5. Accordingly, to ensure the provision of sustainable internet services, **the Authority should recommend to the Government for incentivizing licensed telecom networks to expand mobile broadband penetration and strengthen existing telecom infrastructure.** Conversely, subsidizing the proliferation of one technology/platform i.e. Public Wi-Fi, would distort market economics by sustaining inefficient deployment models.



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.

and

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.

And

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.

VIL Comments to Q. No. 11, 12 and 13

1. The lack of adequate last-mile connectivity is a genuine constraint in the Indian telecom sector. However, VIL submits that this constraint primarily affects the deployment of mobile broadband networks, through Right of Way (RoW) barriers, administrative delays, inadequate infrastructure-sharing frameworks as well as less responsibility being assumed by the Property Managers.
2. Resolving last-mile connectivity constraints through the lens of Public Wi-Fi backhaul is a fundamental category error. It addresses the symptom (insufficient hotspot backhaul) rather than the root cause (insufficient mobile infrastructure coverage driven by RoW challenges). The modern telecom market is overwhelmingly driven by advanced wireless connectivity (4G, 5G). Policy and financial support must align with this dominant, future-ready technology instead localized, legacy Wi-Fi networks.
3. If public funds, subsidies, or administrative facilitation (such as RoW waivers) are to be deployed to solve the last-mile challenge, they should be technology agnostic and should also cover mobile broadband as well. Advanced wireless connectivity is the new paradigm. Consumers and enterprises demand ubiquitous, high-speed, secure, and seamless mobility—attributes that 5G/4G networks inherently provide, and which static, fragmented Public Wi-Fi hotspots structurally cannot.



4. Directing government subsidies toward Public Wi-Fi represents a regressive allocation of public capital toward an inefficient public access model. Conversely, subsidizing the densification of wireless mobile networks, particularly in deep rural or geographically challenging areas ensures that infrastructure investments are future-proofed.
5. Therefore, we again recommend that there is no need left for giving policy support and financial incentives to the Public wifi deployments. However, in case the Authority decides in favour of policy support and financial incentives, it should be technology/platform agnostic and cover mobile broadband as well.

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.

VIL Comments to Q. No.14

1. Our above comments to question no. 11 to 13, may kindly be read as part of comments to this question no. 14 as well.
2. Resolving the RoW challenges through the lens of Public Wi-Fi backhaul is a fundamental category error. It addresses the symptom (insufficient hotspot backhaul) rather than the root cause (insufficient mobile infrastructure coverage driven by RoW challenges).

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.

And

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.

And



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.

VIL Comments to Q. No. 15, 16 and 17

1. Our above comments to question no. 4 and 10, may kindly be read as part of comments to this question no. 15 to 17 as well.
2. Given the extensive reach, extreme affordability, and continuous technological upgradation of licensed telecom networks, the consumer demand for public Wi-Fi is unlikely to grow at the scale originally envisaged. Because ubiquitous mobile data already meets the connectivity needs of the public, building parallel public Wi-Fi networks would result in a redundant and economically inefficient model.
3. Accordingly, state policy interventions should prioritize strengthening the existing mobile broadband infrastructure rather than diverting resources to support standalone Wi-Fi setups.

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

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.

And

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.

And

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.



VIL Comments to Question No. 18, 19, 20 and 21

1. Please refer above VIL comments to Question no. 8 to 10.
2. To ensure the provision of sustainable broadband services, the Authority should recommend to the Government for incentivizing mobile broadband networks to expand wireless broadband penetration and strengthen existing telecom infrastructure, for expansion of broadband access and usage. Conversely, subsidizing the proliferation of one technology/platform i.e. Public Wi-Fi would distort market economics by sustaining inefficient deployment models.

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.

Q23. 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.

And

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.

VIL Comments to Q. No. 22, 23, 24

1. While there are improvements required for authorization, authentication, interoperability procedures however, in our view, such improvements and efficiencies should be market driven and not through regulatory interventions.
2. Any such regulatory intervention would build upon static norms based on present understanding of the ecosystem and would not lead to market-led dynamic and evolving improvements.
3. We strongly urge that no regulatory intervention or simplifications should be recommended, which are specific to broadband through Public Wifi.



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.

VIL Comments to Q. No.25

1. Please refer VIL comments given above. The monetisation model should be market forces driven and not prescriptive through regulatory intervention.
2. We do not recommend any regulatory intervention for broadband access through Public-Wifi.

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.

VIL Comments to Q. No.26

No comments.

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