

TV RAMACHANDRAN

INDIA'S WIFI GAP: THE MISSING LINK TO DIGITAL INDIA

India's public WiFi push must prioritise public good over vested interests to deliver on its promise of inclusive, affordable digital access by 2047.



As India marches toward its centenary of independence in 2047, the vision for a digitally empowered society is taking clearer shape. From semiconductor self-reliance to 5G rollouts and the pursuit of 6G, from data centres to AI ecosystems and content leadership, the digital landscape is buzzing with potential and ambition. Yet amid this great forward momentum, one crucial infrastructure element of digital inclusion remains sorely neglected: Public WiFi.

In a country where over 695 million people still remain unconnected or under-connected, and where affordability and accessibility continue to be challenges, public WiFi is not a luxury but a necessity. It represents

a low-cost, high-impact digital commons, especially for those living at the margin, students, small traders, gig workers, migrant labourers, and rural citizens. And yet, it continues to be treated, unfortunately, as an afterthought in mainstream digital infrastructure planning.

It is time for India to give public WiFi its rightful place in the 2047 digital roadmap, not merely as a stopgap, but as a strategic pillar for inclusion, productivity, and innovation.

While in many countries, public Wi-Fi is seen as part of essential infrastructure, just like roads and public lighting, India is significantly behind in this regard. The country's WiFi Deficit is a stark reality: 278,000 hotspots,

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IN BRIEF

- Public WiFi is critical to India's 2047 digital vision, but it continues to be overlooked in mainstream infrastructure plans.
- With just around 20 hotspots per 1,00,000 people, India lags far behind global peers like the UK, US, and Canada in public WiFi access.
- PM-WANI aimed to create a liberal, license-free model, but faces poor uptake due to high bandwidth costs and opposition from incumbents.
- Countries like Brazil and Indonesia show how integrating WiFi with social services leads to success in digital inclusion.
- Public WiFi is essential not just for access, but for job applications, digital education, e-governance, and last-mile service delivery.
- To succeed, India must open the 6 GHz spectrum, offer VGF subsidies, empower panchayats, and integrate WiFi into its DPI framework.

translating to a minuscule ~20 hotspots per 1,00,000 people, which pales in comparison with other countries. For example, China is reported to have several million public WiFi hotspots; the number may vary in different reports, but all reports indicate extremely high proportion, compared to India.

THE PUBLIC WIFI STATS

Country	Number of Public WiFi Hotspots	Hotspots Per 1,00,000 People
India	278,439	~20
United States	986,256	~298
United Kingdom	5,000,000	~7,400
European Union	90,000+ (WiFi4EU initiative)	Varies by country
Canada	123,499	~325
Russia	205,800	~141

So, what ails India? The story is not about technology, but the intent and integration at the ground level. Although the Prime Minister launched the PM WiFi Access Network Interface (PM-WANI) programme in December 2020 to introduce a liberalised, license-free approach to public WiFi, the uptake has so far been low due to multiple factors. The most significant of which is opposition from some incumbent players and very high bandwidth charges imposed on the micro-entrepreneurs—the Public Data Office (PDO)—hotspot providers.

The government had envisioned a hyperlocal ecosystem where small shopkeepers, cafes, NGOs, and citizen groups could become PDOs and deliver WiFi services without burdensome regulations or spectrum fees. However, the reality has turned out differently due to powerful incumbent pushback.

India can take cues from initiatives like the EU's Wifi4EU and Indonesia's Desa Digital that empower rural and island communities through village-run WiFi networks. These networks are not powered by telcos but by local councils, supported by national policy, which

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view WiFi as essential to education, governance, and e-commerce.

In Brazil, the WiFi Brasil program connects public health centres, schools, and transport hubs, especially in underserved areas. The secret lies in anchoring WiFi deployments within social service delivery systems, not treating them as standalone IT interventions. India has the talent, terrain, and technical stack; however, it lacks the political push to position public WiFi as a tool for empowerment.

THE PROMISE OF DIGITAL INCLUSION VIA PUBLIC WIFI

Public WiFi is more than a hotspot at a railway station or coffee shop. At scale, it is a democratising force, enabling millions to access education, e-governance, financial services, healthcare, and employment platforms, without the higher costs of mobile data.

India's mobile data rates are among the lowest in the world, but for the economically vulnerable, even these rates are not affordable enough. The bottom 20% of users often rely on low-cost prepaid data packs with daily limits, after which connectivity either slows to a crawl or stops altogether. A strategically located public WiFi hotspot, such as near a bus depot, college, railway station, mandi, or health centre, could bridge this gap.

Reports indicate that mobile data tariffs in India have increased by 40-50% or more in the last few years and are set to rise even further in the months ahead. However, with the normal Fixed Broadband + WiFi plans, the per GB data cost can be limited to just Re 1 or Rs 2, several fold lower than the existing rates.

Apart from democratising connectivity, Public WiFi is also vital for offloading traffic from mobile networks, especially in high-density areas. This not only enhances user experience but also reduces network congestion and infrastructure cost for telcos. In rural and semi-urban areas, where fibre penetration is still low and 5G deployment is patchy, WiFi hotspots can act as last-mile amplifiers, extending the reach of BharatNet and private backhaul investments.

The PM-WANI was expected to achieve this. Accordingly, TRAI designed its architecture, which was subsequently fine-tuned by the government, promising unlicensed, interoperable, and user- and entrepreneur-friendly services, inviting village-level entrepreneurs, small businesses, and ISPs to participate. It is essentially a government and regulatory innovation, based on the recognition that unlicensed spectrum and open standards could create a dynamic and inclusive digital access layer.

Ironically, while India has rightly been hailed as a pioneer in digital public infrastructure and credited with successes such as UPI, DigiLocker, Aadhaar, and CoWin, the uptake of PM WANI-based WiFi has been quite disappointing. The former have demonstrated how government and technology can collaborate for public benefit. However, while its backend systems dazzle, the last-mile success remains uneven and urban-centric. As of early 2025, fewer than three lakh public WiFi hotspots are active under PM-WANI, which is far less than the millions required to create a national impact.

FIXING THE WIFI DEFICIT IN INDIA'S DIGITAL PLAN

India's vision for 2047 positions the country as a developed economy with world-class digital infrastructure and inclusive growth. Achieving this ambition hinges on ensuring universal access to high-speed and affordable Internet, and public WiFi has a crucial role to play in this effort.

Public WiFi networks can significantly bridge the affordability gap by providing free or ultra-low-cost Internet access, particularly benefiting individuals who do not have regular data subscriptions. The PM-WANI framework supports local economic empowerment by enabling village-level entrepreneurs to function as PDOs, thereby generating sustainable income opportunities at the grassroots.

Furthermore, in a country where access to government services or medical care is often geographically constrained, public WiFi can serve as a digital conduit for e-governance and telemedicine, making essential services more accessible. It can also support education

Public WiFi can enable e-governance and telemedicine, and support education in underserved regions, providing students' access to online learning resources.

in underserved regions, where a lack of connectivity limits students' access to online learning resources. Strategically placed WiFi zones near schools, hostels, and community centres can help bridge this divide.

Additionally, public WiFi networks offer a resilient layer of communication during natural disasters or emergencies, especially when mobile networks are disrupted or congested.

A ROADMAP TO SCALE PUBLIC WIFI BY 2047

To realise the full potential of public WiFi by 2047, India needs a transformative strategy, not incremental tweaks.

#1

DELICENSE THE ENTIRE 6 GHZ BAND

Public WiFi growth is limited by spectrum availability. Countries such as the U.S., the UK, South Korea, and Brazil have opened up the entire 6 GHz band for WiFi, enabling next-generation speeds (WiFi 6e, WiFi 7). India must follow suit to allow affordable high-capacity backhaul and access networks.

#2

INCENTIVE: VIABILITY GAP FUNDING

WiFi hotspots in low-income or remote areas may not be immediately commercially viable. A targeted subsidy or VGF model can catalyse deployment, much like how solar microgrids or LPG connections were scaled under earlier government schemes.

#3

INTEGRATE WIFI WITH DPI

Public WiFi should be seen as an access layer to India's DPI stack linking to DigiLocker, telemedicine (eSanjeevani), UPI, and education portals. Single sign-on, frictionless authentication, and security protocols must be standardised.

#4

LOCAL GOVERNMENTS AND PANCHAYATS

States and local bodies should be empowered to lead public WiFi rollouts, especially in education and health contexts. Public libraries, gram panchayat offices, bus stands, and community halls are natural anchor points.

#5

DATA-DRIVEN POLICY, CITIZEN AWARENESS

Just like mobile tower deployment is mapped and monitored, WiFi deployment too must be tracked transparently. Citizens should know where hotspots are located, their reliability, and how to connect safely.

WIFI AS A COMMUNITY ENABLER AND CONNECTOR

What makes public WiFi unique is that it is hyperlocal, socially valuable, and economically empowering. Unlike private broadband subscriptions, which exclude those unable to pay, public WiFi, especially when designed for community participation, can be inclusive by design.

It is not just about Internet access; it is about dignity and opportunity. When a daily wage worker can apply for a job online, when a student can download a textbook without burning mobile data, when a farmer can watch an agri-training video for free, public WiFi ceases to be a utility and becomes a catalyst for empowerment.

FROM PATCHY PILOTS TO A NATIONAL WIFI MISSION

India cannot afford to keep public WiFi in pilot mode indefinitely. It deserves institutional seriousness, technological support, and budgetary commitment. If over Rs 50,000 crore can be spent on mobile and fixed networks for connectivity through USOF/DBN, and the country is truly serious about digital inclusion by 2047, then public WiFi must be equally or more financially supported as essential public infrastructure, not an optional add-on.

A bold public WiFi vision can uplift millions, unlocking productivity, enabling social mobility, and building digital trust from the ground up. India cannot afford to wait another two decades to realise its power. 🌟

The author is an Hon. FIET (London) and the President of the Broadband India Forum.

Views are personal.

Research inputs by Neha Hathiari.

feedbackvnd@cybermedia.co.in