National Public Wi-Fi Broadband Service & accessibility Policy-2016

POLICY BRIEF

1. Preamble

Ubiquitous access to the net connectivity and its impact on the national GDP growth are widely recognized at all level. There has been an increasing demand by individuals and organizations that the high speed uninterrupted data services ('Always On') should be made available at all the time at an affordable & cheaper rate. Presently, due to the rapidly increased mobile data overload fulfillment of users' demands are often compromised at the cost of unwanted network latency leading to declining the satisfaction level of the consumers. It has been a research proven outcome that an wide spread network of **Public Wi-Fi service** can greatly improve this scenario as a complementary service in such a way that mobile data can be dynamically offloaded / shared to get rid of unwanted break in packet transmission. It has been a constant endeavor of the Government to take remedial steps for improving the telecom grade of service (GoS) in accordance with the technological evolution and its consumption for emerging national growth.

2.

	SUMMARY OF FINDINGS/RECOMMENDATIONS		

The principles on which Public Wi-Fi service & accessibility need to be based include the following:

	Recommendations / Findings	Brief Descriptions	Outcome Indicators
1.	**I**nteroperability, compatibility, open standards, scalability, quality of service & flexibility on user portability	Wi-Fi devices & equipments must be interoperable, compatible, quality assured and should follow open international standards to future upgradation.	Ease of adaptability.
2.	**A**ffordability & **S**ecured payment structure & encryption of accounting transaction data	Connectivity should be non-discriminatory, affordable & uniform by nature across the country (Tariff control). A National level integrated & secured platform of Payment Interface supporting multiple ISPs.	Common for all. Secure & Robust payment system
3.	**S**tandardizing **U**ser authentication, secured login & protection of user privacy	-User authentication during registration process should be standardized, seamless & independent of any device, ISP and application.. -Secured login as per DoT instruction dated 23.02.2009. -Protection of user's privacy in terms of information contents and identity should be protected at any cost.	-Aadhaar for domestic users ,or, Passport for foreign users, or,any other method suggested by Ministry of External Affairs (MEA) -Central authentication mechanism, ID/ Password in Mobile No./ OTP -Proper encryption algorithm.
5.	**U**niform Institutional framework for bringing professionalism at all levels.	Clear cut Administrative & Organization Reforms at State / District/ Panchayat level.	Defined Roles & Responsibilities with accountability at all stakeholder levels.
6.	**P**rovision of Data load sharing between prevailing mobile technologies and incumbent Wi-Fi technology through **S**tandardized SLAs between ISPs	Automatic switching between different technologies in case of data overload or absence of either of the services.	"Always Connected"
7.	**R**ight of the way (ROW) for ISPs & **S**ustainable business model.	Civic Body/Local Body to ensure ROW for faster deployment. Viable & guaranteed revenue sharing business models for ensuring sustainability to both last mile village level entrepreneurs /other capable kiosk operators and ISPs/National CSC content & application provider (CSC SPV)/any other CAPs.	Win-Win situation

9.	**C**onformity to existing Legal framework	Conformity with the existing legal framework of Cyber Security (IT Acts) and Rules & users should be always traceable.	Lawful Interception
10.	**B**OOT based commercial model for deployment of Public Wi-Fi services	Good pricing mechanism (license, taxation). State Governments/UT Administrations need to take ownership of the model.	Own your network. Minimizing barriers to Entry for ISPs.
11.	**C**reation of special purpose vehicle (SPV)-perpetuity in nature.	For regular assessments on frequency & site planning, monitoring, providing supports at technical & financial capabilities etc. even after Government supports end.	National Program Management Unit for coordinatings entire implementation.
12.	**L**everaging existing Common Services Centre (CSC) ecosystem	-Unterrupted voluminous transactions on specialized services-e-Governance, financial & social inclusion. They can be entrusted to look after the maintenance of Wi-Fi access points and scaling up the distribution of Wi-Fi services. Rents can be compensated in various ways.	Lucrative Business model.

THE RESEARCH

3. Need for the Policy

National Public Wi-Fi Broadband Service & accessibility Policy aims to provide an enabling provision and unified platform for providing a reliable and open access to the high speed data connectivity for bringing in greater impact on GDP.

4. Issues to be addressed:

Regulatory:

i. Appropriate regulatory measures for allocative efficiency to address scarcity of unlicensed spectrum and frequency management for ISPs.

ii. Meet criteria of Interoperability, Compatibility, Open standards, Scalability, Quality assurance and flexibility.

iii. Address packet transmission interruption by mandating automatic handover from mobile to public Wi-Fi.

iv. Controlling Tariff uniformly.

v. Conduct periodical audit on Wi-Fi operation of various ISPs by TRAI.

vi. Monitoring EMF Compliance and other standard benchmarks of radio access network.

Licensing:

i. Limitations of usage of unlicensed spectrum for Wi-Fi in four different bands.

ii. There are several other frequency bands which can supply high capacity backhaul. For instance, E-Band (80 GHz) and V-Band (40-75 GHz) for short distance applications, clear Line of Sight (LOS) & low-rain areas. Other internationally harmonized bands in 6-42 GHz range viz. 26 GHz, 28 GHz, 32 GHz, 38 GHz and 42 GHz.

iii. To workout to release larger quantities of unlicensed spectrum for better quality of service and reducing the loads on existing networks, for instance TV White Space (470-690 MHz UHF).

iv. Allocating spectrum for Public Wi-Fi, government need to reserve some unlicensed spectrum for public utilities kind of services e.g. e-Governance services (for CSCs) etc.

v. Appropriate pricing mechanism of license fee allocative efficiency for standard business &

commercial models ensuring the sustainability through the way of partnership.

vi. States which complete work before scheduled timeline to be incentivized in funding pattern of BharatNet.

5. Deployment of commercial models

Regulatory/licensing and policy measures are required to encourage the deployment of commercial models for ubiquitous city-wide Wi-Fi networks as well as expansion of Wi-Fi networks in remote or rural areas.

For this, Government needs to consider the following proposed recommendations:

- Liberty to ISPs on taxation part.
- Viability gap funding & transparent bidding process for selection of competent ISPs for deployment of Wi-Fi network through PPP mode.
- Finalizing realistic approach of MSAs / SLAs for Win-Win situation. Institutional Framework::clear cut Administrative & Organization Reforms at State / District/Block/ Panchayat level, as it should be a Mission Mode Programme (MMP).
- Direct involvement of Panchayats as one of the stakeholders for Commercial model as well as revenue sharing Business model. Public-Private-Panchayat Partnership-PPPP for Commercial model & Public-Private-Panchayat-People Partnership-PPPP for Business model. Here, people mean the small local entrepreneurs like CSC VLEs.
- Need to develop centralized switching grid & billing Hub(s) for subscribers' mobility management (for data) and aggregated payment platform (secured & robust). Proposed SPV may look after O&M of this Hub(s). To avoid variation in charging & billing, Uniform data plans need to be devised for the subscribed users intended to get the facility of both technological platforms (mobile & Wi-Fi). For this, the most viable case may appear when existing TSPs offering mobile services shall participate as Wi-Fi service enablers.
- Requires most competitive but uniform pricing for both the consumers & other stakeholders. Equitable revenue sharing. Proposing 80/20 revenue sharing on

the commission earned between local entrepreneurs & other stakeholders, in case, pre-defined targets are met.

- Creating a Special Purpose Vehicle (like BBNL, CSC SPV) for regular assessments on implementation, monitoring, providing supports at technical & financial capabilities etc. even after Government supports end. Need to review the roles of existing SPVs for incorporating these new activities.

- Constituting State/UT level Apex body comprising members from all the associated organizations / civic bodies for handholding & directing ISPs for smooth implementation and to take ownership of the model after it becomes fully functional.

- For this, a demand side analysis for absorptive capacity of present & potential institutional users need to be assessed through research under the implementation framework of public Wi-Fi Policy.

6. Deployment of Business models

For adopting viable business models for public Wi-Fi network proliferation, following features need to be followed:

- Identifying the local entrepreneurs (say CSC VLEs) well capable in delivering various eServices through ICT enabled kiosks. They can be entrusted to look after the maintenance of Wi-Fi access points and scaling up the distribution of Wi-Fi services to different categories of users (domestic / commercial / educational / industrial) as per tariff plans. Rents for the Wi-Fi hot spots can be compensated in various ways.

- Access points O&M cost should be appropriately compensated by provisioning free Wi-Fi access to those VLEs for running his/her kiosk operations in delivering various services like G2C, B2C, e-Banking, Telemedicine, digital literacy mission etc. Based on the categories of eServices & their volumes of transactions, suitable revenue sharing business models can also be derived at GP level.

- As current model of CSC scheme at GP level (now renamed as Digital Seva Kendra) under Digital India is based on 80/20 revenue sharing mechanism on the commission earned, the concerned State Government must take the calls at Apex level for deciding a balanced methodology of revenue sharing linked to utilization of connectivity on various eServices. Such Business models can also be designed based on the various popular models used for the provision of Internet access through public Wi-Fi networks such as Paid Model, Freemium model, Advertisement-based model, Aggregators model etc. This policy document suggests to deploy these models as per the geographic nature of the places as well as consumers' behaviours & needs.

- Advertisement based model may be the most useful model in village areas, as the Government and many non-government organizations are conducting various awareness creation programme in rural India through advertisements for bringing them into the mainstream of human development by education, skills & self-employments etc.

- Paid Model or Freemium model are generally applicable for urban areas.

- For availing the Wi-Fi facility anywhere in the country especially by those citizens who need to move around on regular basis, Aggregators model would be the most appropriate one. Normally, it is applicable for business oriented people in the City areas.

- Currently, the CSC platform is managed by CSC Special Purpose Vehicle (CSC SPV) which is basically a national level service aggregator and content & application provider. On the other hand, it has already taken an active initiative towards developing a **Rural Wi-Fi infrastructure** & hoist of suitable applications enabling and empowering it towards a "Smart village". In this pursuit, CSC SPV has got Unified License (CAT A) for ISP and for instance, it has recently extended the bandwidth of BharatNet up to the last mile through Wi-Fi solutions at 67 villages in Faridabad district, Haryana. **So, the instant Policy recommends to develop similar solution across the nation that is believed to be taken very quickly to the villages and implemented.** The design Goal should be to achieve the lowest cost for the Communications infrastructure whilst fulfilling the requirements of the applications in terms of performance. **A Proof of Concept (PoC) should be worked out to arrive upon a standard set of equipments & lesser deployment cost that can then be replicated across all the villages activated under the NOFN/BharatNet project**. Digital Seva Kendras (CSCs) should be made capable to maintain Outdoor Wi-Fi Access Points (OPAPs) and facilitate distribution of Wi-Fi connectivity to the customer near their place of residence. This will lead to a true digital empowerment of the rural populace including the young and aspiring youth of emergent India.

- To make such initiative more robust in the broader spectrum, Government needs to develop a National level integrated structure of Wi-Fi network with various technological aspects including provision of sharing the same by multiple ISPs. Such unified aggregated platform needs to be featured with secured Payment Interface approved by RBI with options of registration open for all ISPs. CSC SPV being a national level aggregator of eServices has already obtained in principal approval from Reserve Bank of India (RBI) for functioning as Bharat Bill Payment Operating Unit (BBPOU). BBPOU system to be integrated with National Payment Corporation of India (NPCI) is a bill payment system in India with a single point providing 'anytime anywhere payment system' to customer. BBPOU shall help CSCs become ubiquitous service points for all consumers & make them accountable too. Bharat Bill Payment Services (BBPS) activity has to facilitate the collection of repetitive payment of everyday utility services such as Wi-Fi bills-"pay-as-you-go basis or post-paid basis & many others.

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