



WHITE PAPER ON WIFI **LIBERALISATION**

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Executive Summary

One of the greatest marvels of our times, undoubtedly, is the digital revolution. It has pushed through human limitations to unleash an 'e'-era of cutting-edge innovations. 'Broadband Highways' is the first pillar for the vision of Digital India and it is interconnected to all the rest of the pillars. Without Broadband, the vision of Digital India is shady. India is very behind in broadband penetration compared to other countries. We need more towers and more fibers, complemented by Wifi connectivity to reach the last mile. There are countries like China where proliferation of Broadband is primarily due to wifi connectivity. Similarly India has to deploy the same framework to connect to the unconnected. One of the best practices as followed in many countries is through Liberalisation of Wifi. This is highly complemented by TRAI in its recommendation and the authority has rightly bought out ways to implement it through aggregators such as PDOAs.

This paper broadly takes you through the various benefits of Public Wifi and what are the hurdles currently that are being faced by the stakeholders in order to deploy it. It also takes you through the economic implications of Wifi and how wifi is the key enabler for achieving the goals of Digital India. India lags behind many countries in terms of Broadband penetration which is the outcome of low connectivity of Public Wifi. This paper also talks about the benefits of liberalisation of Public Wifi and how it can play a major role in getting business to all the players including the telecom service providers.



Introduction

Digital India is an important & high powered initiative of the Govt. which shall transform the lives of all citizens. Broadband for all will be very crucial for achieving this. As we are aware that Broadband is the central pillar of Digital India and despite being one of the nine pillars, it effectively is the backbone for all the rest of the pillars. In India BB penetration is quite low. Inadequate availability of Wifi in a cost effective manner is one of the stumbling blocks. It has been seen in other countries how availability of Wifi has helped accelerate Broadband penetration. China shot into prominence in 2006 when they took a liberalised approach to Wifi.

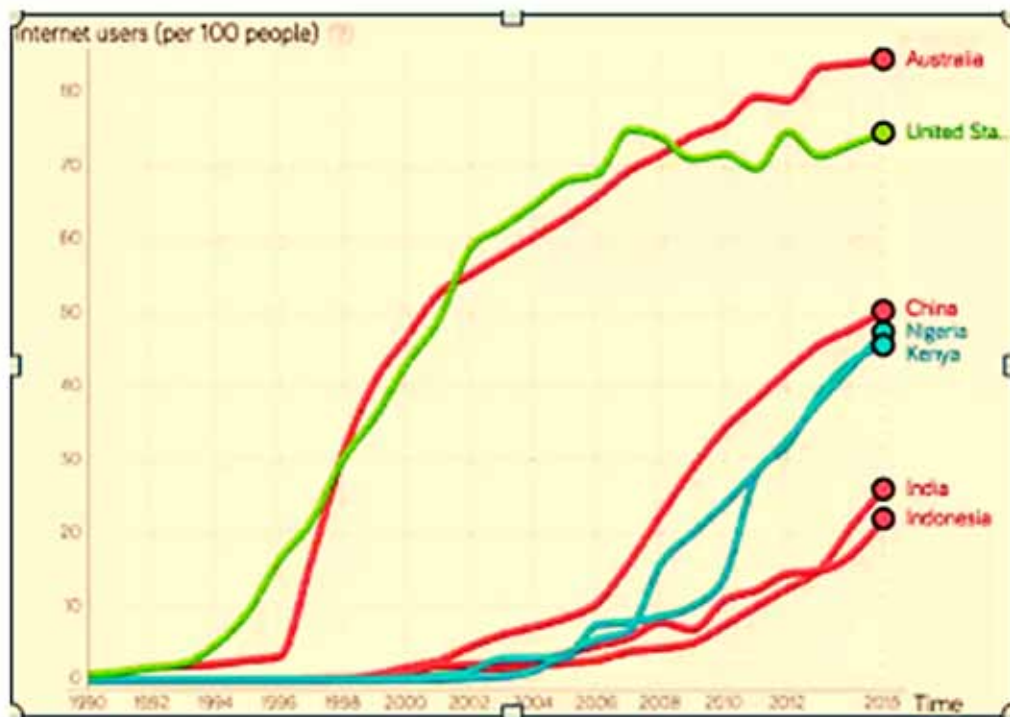


Figure 1:
Internet penetration growth in various countries

Wi-Fi networks offer affordable, scalable and versatile means to help facilitate the spread of Internet access in rural and urban areas alike. Moreover, it also enables telecommunication service providers to offload their cellular data through Wi-Fi networks to reduce the congestion on their incumbent networks. While doing so, operators are in a position to optimise utilisation of their congested networks and offer a better user experience to their customers.

The present scenario of Public Wifi

CURRENT POSITION

The Government announced the draft National Digital Communication Policy 2018 which has set some very ambitious targets for setting up of Public Wifi hotspots both in the cities/metros as well as in the rural areas. In the draft Policy, it has been highlighted, under section 1. Connect India: Creating a Robust Digital Communication Infrastructure, clause f) **“Enable deployment of public Wi-Fi Hotspots; to reach 5 million by 2020 and 10 million by 2022”** and under the strategies, clause 1.1 (a) iii). “NagarNet – Establishing 1 Million public Wi-Fi Hotspots in urban areas” and iv. **“JanWiFi – Establishing 2 Million Wi-Fi Hotspots in rural areas”**

The next step is the implementation part where the Government and the stakeholders have to come together and help implement these objectives. Currently, Government is gearing up for aggressive implementation of the second phase of BharatNet project. Notably, Bharat Net is a project initiated by the Central Government and funded by Universal Service Obligation Fund (USOF) with an aim to provide broadband connectivity to over two lakh fifty thousand (250,000) Gram Panchayats of India. The project aims to provide internet access using Optical Fibre Cable (OFC) and extending it to the Gram Panchayats (GPs). The project is intended to enable the Central Government to provide e-services and e-applications nationally, transforming India into a digitally empowered society and knowledge economy. It is the most critical and important action item for Digital India. The Bharat Net project is of national importance, with a highly scalable network infrastructure to provide on demand, easily affordable broadband internet connectivity of 20 Mbps to 100 Mbps to realize the vision of Digital India, in partnership with the states and the private sector, officials informed.

The government is providing Wi-Fi hotspots service, known as (Wifi Choupal) in 7,183 gram panchayats (GPs) under the BharatNet project in 12 states and Union Territories -- Bihar, Chandigarh, Chattisgarh, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Puducherry, Uttar Pradesh and Uttarakhand

The launch of Wi-Fi hotspots under the rural broadband project ‘BharatNet’ has seen 190 per cent jump in data usage to 95 terabyte in six months of the service. The benefit of Wi-Fi choupals is that if a person has registered in to one of the hotspots, say Bihar, then he can use the service or the plan across any of the Wi-Fi choupals in the country. DoT is working with telecom operators for similar utilisation models in other GPs in other states.

3.1

Why is Public Wifi needed/Importance of Public Wifi

The Internet is the single most self-empowering infrastructure available for a citizen in the 21st century. The World Bank observed that a 10% increase in internet penetration leads to a 1.4% increase in GDP. Public hotspots hold an important place in the last-mile delivery of broadband to users. WiFi is much easier to scale than adding new LTE towers. It bolsters connectivity inside buildings, airports, etc. where LTE penetration is inherently limited. It allows for offloading from telecom networks to ease congestion, and will be crucial when the next billion IoT devices come online. Yet, there are only 31,500 public WiFi hotspots in India, compared to 13 million in France, and 10 million in the United States of America, based on 2016 figures from iPass. Wi-Fi networks offer affordable, scalable and versatile technologies that can facilitate the spread of Internet access in rural and urban areas alike. Modern technology also makes it possible to integrate a server with high storage capacity with the Wi-Fi hotspot equipment. As the cost of such servers has come down significantly, along with the cost of storage, and the form factors of such devices are very small, it should be possible to cache or download content for easy browsing even when the backhaul connectivity is not available.

In January, 2016, Mumbai Central Railway station became the first rail station in the country to offer public Wi-Fi services pursuant to collaboration between Indian Railway's telecom arm, RailTel Corporation and Google. This service is currently extended to 400 railway stations with increasing penetration, thereby making it the largest public Wi-Fi project in India. In addition, public Wi-Fi hotspots have been launched at locations like metro stations, hotels, airports, cafes, markets, educational institutions, parks and



India's GDP could increase by over USD 20 billion cumulative between 2017 - 19 broadly by the impact of Public Wifi and will address 7 out of the 9 Digital India Pillars vision set by the Government of India . This is based on Analysis Mason Report on Public Wifi released in July 2018.



other public places at various locations in the country. India's GDP could increase by over USD 20 billion cumulative between 2017-19 broadly by the impact of Public Wifi and will address 7 out of the 9 Digital India Pillars vision set by the Government of India . This is based on Analysis Mason Report on Public Wifi released in July 2018.

3.2

WiFi IS COMPLEMENTARY AND NOT COMPETITION TO MOBILE BROADBAND

WiFi is a complementary, not competing technology to LTE. Public hotspots hold an important place in the last-mile delivery of broadband to users. WiFi is much easier to scale than adding new LTE towers. It bolsters connectivity inside buildings, airports, etc. where LTE penetration is inherently limited. It allows for offloading from telecom networks to ease congestion, and will be crucial when the next billion

IoT devices come online. Country like China has achieved last mile broadband penetration through public Wifi.

3.3

INDIA'S POSITION VIS-À-VIS GLOBAL COUNTERPARTS

Although India's MBB penetration has witnessed an impressive growth over the last couple of years, it is significantly lower than many of the developing markets as shown in figure 1 below. Affordability of handsets and data plans continue to be some of the key barriers preventing further adoption of MBB (and even of basic mobile Internet), especially in rural areas

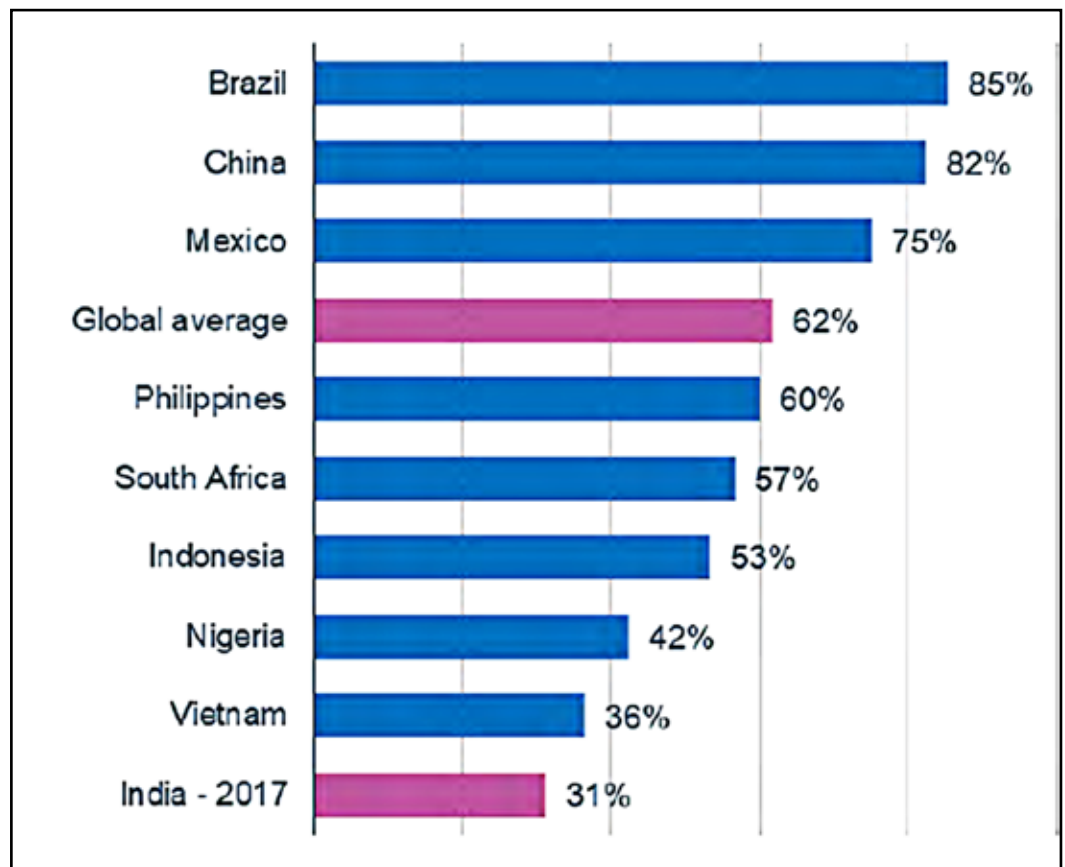


Figure 1:
India eMBB penetration by country December 2017 (Source: GSMA, Analysis Mason, 2018)

The total Public WiFi hotspots have surpassed 50 million globally, as per iPass, a commercial Wi-Fi network operator. It also projected the number of WiFi hotspots as currently 1 Wi-Fi hotspot for every 150 people. Based on Global Average of 1 hotspot for every 150 persons; India should have approximately 8 Million hotspots.

According to iPass's Wi-Fi Growth Map, India currently has just ~36 000 commercial hotspots, compared to emerging markets such as China (more than 6.1 million), Indonesia (more than 165 000) and Mexico (more than 165 000), reflecting a significant scope for further deployment of Wi-Fi access points across the

country. Recent years have not only seen a significant expansion in the build out of public hotspots but also addition of new capabilities to previous/existing public Wi-Fi generations. The next phase of public Wi-Fi is characterized by a huge expansion of services and revenue streams, and of the variety of service providers. The key technical and market developments in various advanced nations have enabled new business models for existing and new service provider.

Wi-Fi service uses unlicensed spectrum in 2.4 GHz and 5GHz bands. Other than these traditional bands, many countries use TV white space for Wi-Fi, aka white-fi which operates under 802.11af standard. Consumers rely on Wi-Fi these days utilizing it seamlessly while they are outside or on the go. Furthermore, unlicensed spectrum will play an important role in proliferation of IoT and smart cities. Seoul, the Korean Capital has almost universal Wi-Fi which is twice the speed of Wi-Fi in the US, whereas, in India, Wi-Fi technology is a highly underused asset. The opportunity cost to use unlicensed spectrum as a gap-filler is being felt in India.

3.4

OPPORTUNITIES AND CHALLENGES

The growth of WiFi hotspots will lead to increase in data downloads, which is not happening currently, and the data traffic generated from the usage has to be covered by the TSPs which will lead to incremental business to them.



The report by Analysys Mason on Public Wifi projected that “by 2019, over 100m users will spend an extra ~USD3 billion annually on MBB and handsets because of their experience of high-speed public Wi-Fi.

Some of the broader impacts of Public Wifi on Economy, Productivity and Governments are as below:

- ❖ *Increased Productivity– Evolved use cases of internet usage (e.g. video)*
- ❖ *Higher Gross Domestic Product: India’s GDP could increase by over USD20 billion cumulatively between 2017-19.*
- ❖ *7 of 9 Digital India pillars are directly addressed*

CHALLENGES

The following sections discuss some of the key issues that need to be addressed in order to ensure better proliferation of public Wi-Fi services in India.

a) Right of Way (RoW) issues

The Right of Way challenge has been a contentious issue for the Indian telecoms sector impediments and delays as a result of variable and complex procedures across states, non-uniformity in levies, and obtaining approvals from the Forest Department, Railways and National Highway Authority has greatly impacted planning and roll outs of towers and fibre across the country.

The Right of Way rules, are yet to bring benefit to the Indian telecom sector due to lack of clarity and implementation hurdles.

The RoW rules are considered as a key enabler for expediting the deployment of underground (optical fibre) and over ground (mobile towers) infrastructure in India. The rules aim to rationalise administrative expenses across the country to a maximum of Rs 1000 per km for fibre, and a maximum of Rs 10 000 per application for overhead towers. † is worth noting that in India, less than 25% of telecom towers carry fibre optics against the average in the US, China and Korea where it is as high as 65-80%. Interestingly, total cumulative fibre deployed to population ratio today in the US is 1.4x, China 0.9x but only 0.1x in India, according to EY data.

b) Limitations on Spectrum Availability

The use of unlicensed spectrum has been one of the key enabling factors in the growth and widespread adoption of the Wi-Fi standard.

Accordingly, in an effort to provide maximum flexibility for innovation and lower entry costs for ubiquitous wireless devices including those that utilize the Wi-Fi standards, many countries have set aside certain bands (such as the 2.4 GHz and 5 GHz bands) besides the V band (60Ghz) exclusively for unlicensed users. However, apart from the unlicensed frequencies typically utilised under the Wi-Fi standard, there are several other frequency bands which can be utilized for wireless provision of Internet access.



E & V BAND

Deployment of wireless fibre technologies in the E & V band and possible delicensing of V band could expedite the process of affordable broadband penetration in India. Proposed by the Telecom Regulatory Authority of India as one of the potential bands for use for Wifi purposes, 60 GHz or the V band is considered suitable for providing short haul wireless links for backhaul in urban and dense urban areas as well as for providing Wifi like multigigabit wireless access everywhere. E&V bands also act as a “fiber extension” to extend broadband connectivity from existing points of presence (“POPs”) to nearby locations for a number of applications in urban, semi-urban, and rural areas.

Concept of liberalisation of Public Wifi: How it is a win-win situation for all

There is a concern in certain quarters that Govt's decision to liberalise Wifi would lead to an imbalance in the level playing field between TSPs and the new entities viz. PDOAs .

Table Below clearly spells out the Roles & Rights of a Licensed TSP/ISP vis-a vis that of a PDOA as envisaged to sell Internet services using Public Wifi .

SN	ATTRIBUTE	LICENSED TSP/ISP	PDOA
1	Rights	<ul style="list-style-type: none"> - Interconnection - Numbering Plan - Licensed Spectrum - RoW - Protection from Interference 	NIL
2	Indian Telegraph Act (U/s 4)	Unified Licensee	Registration is another form of Licensing "Licensing is a permission"
3	Permissions to sell Voice & other Services	YES (as UL Licensees)	NO-Exclusively to sell Internet services through Public Wifi
4	Have protection for interference for allocated spectrum	YES	NO-No protection from interference. Hence SLA offerings would be a challenge
5	Resell Bandwidth without any tie-up with other ISP	YES-they are a carrier. They have unlimited rights to resell bandwidth to anyone	NO-must tie up with a MVNO/TSP. Can only sell to the retail PDOs
6	Statutory Obligations	YES-All as applicable	YES-All data records, Ekyc, Authentication, Quality of Service, Billing, records must be provided. Consumer's Data Privacy & Data protection also to be ensured

From the above table, the following can be surmised viz.

The new liberalised approach is only applicable only for the Wifi part of the TSP services. In fact, the carrier has several other elements in his bouquet of services. We at BIF are of the view that the TSPs should be given the same terms as the new entities viz. PDOAs for providing Wifi services. This will ensure a level playing field for all. It is of course a given that Wifi offloading would only help a TSP decongest its network. Also the extra capacity that Wifi provides helps the customer in downloading large data files which brings in additional source of revenues for the TSPs besides improving customer satisfaction and QoS.



Long term public welfare over short term revenue maximization

Proliferation of public Wi-Fi can provide a significant boost to the government's Digital Ambition – ubiquitous connectivity, digital inclusion and enabling infrastructure. In addition, productivity improvements from high speed Wi-Fi for the overall economy can also translate into tangible benefits to GDP. By 2019, a successful public Wi-Fi market in India could see over 600 million people experiencing a public Wi-Fi service. For this to become a reality, over 3 million access points must be rolled out throughout the country, including in tier 3 cities and villages. Most of them will need to be connected through high-speed fibre optic links to ensure a high quality of service, comparable with what Google and Railtel already offer today.

Providing access to Wi-Fi could be an economical and rapid way of connecting the unconnected throughout the country, especially given the unfeasible business case of rolling out expensive traditional cellular infrastructure in rural areas, plagued with a lower willingness to pay and revenue potential.

Globally, Wi-Fi has been one of the preferred modes of Internet access for over two decades. Wi-Fi deployment has received a proactive push from multiple stakeholders including Internet users, governments, regulators, venue owners and Telcos. Venue owners, in particular, have explored various business models for effective deployment of public Wi-Fi.



TRAI Recommendations: The New decentralised structure involving PDOA/PDOs to deliver Public Wifi

TRAI in its Consultation Paper released in July 2016 & in its recommendation released in March 2017 on Public Wifi has emphasised the benefits of introducing PDOAs for deployment of Public Wifi. The Public Data Office Aggregator (PDOA) may multi-home Internet bandwidth from multiple ISPs and sell them to customers at a retail level. Service providers may charge differential "commercial" tariffs from PDOAs. The Authority is well aware of the fact that introduction of PDO along with an aggregator (PDOA) would entail resale of data services as is already allowed in case of cyber café model. A PDOA will be an aggregator which will ensure that subscribers have a seamless experience when it comes to authentication and payments. Such PDOA will be responsible for maintaining electronic (authentication and payment) records of all users that end up using the Wi-Fi service provided by a PDO linked with such PDOA. PDOA may set up and invest in their own authentication and payment systems or even outsource these functions to a third party.

As the number of PDOs in the country increases, their greater visibility will make the people aware of their advantages thereby enhancing the demand for public Wi-Fi. Further, the PDOs will ensure that users can buy the data amount based on their needs. The availability of data services for small token values will stimulate the demand for public Wi-Fi services.

- ❖ PDOAs will allow smaller players to provide Wi-Fi services without having to incur heavy costs. This will lead to an exponential increase in the number of Wifi hotspots in the country. With increasing reach in urban and especially rural areas, more and more people will be able to access Wi-Fi networks. Increased penetration will steadily address the problem of awareness that has been highlighted earlier as a demand side issue. Any home user can also be converted into the PDO through logical partitions by the PDOA in which one part of bandwidth may be allocated to the home user for its own use and other part can be used as public Wi-Fi Hotspot. This can make ubiquitous presence of public Wi-Fi in the area.
- ❖ Introduction of PDOA for public Wi-Fi provision can develop Wi-Fi hotspots like a small scale industry quite akin to the case of PCOs. This will enable small shop owners viz. kirana stores and micro-entrepreneurs, like chai wallas, pan shops etc who will be able to provide an additional revenue stream to their existing businesses by additionally providing internet access. . Setting up of a PDO will require a small infrastructure cost and it can be run along with other businesses. For example, small retail outlets like tea-shop owners can set up their own PDOs which can operate alongside their main businesses.
- ❖ PDOs can help achieve this step by facilitating last mile connectivity. There is a strong case for better utilization of the capacity provided by the existing infrastructure through public Wi-Fi.

Global regulatory practices of Public Wifi

Internationally, the licensing and regulatory framework for Public Wi-Fi, is very light-handed and facilitating/enabling .. Some details of the global regulatory & licensing framework of Public WiF in other countries is given below:-

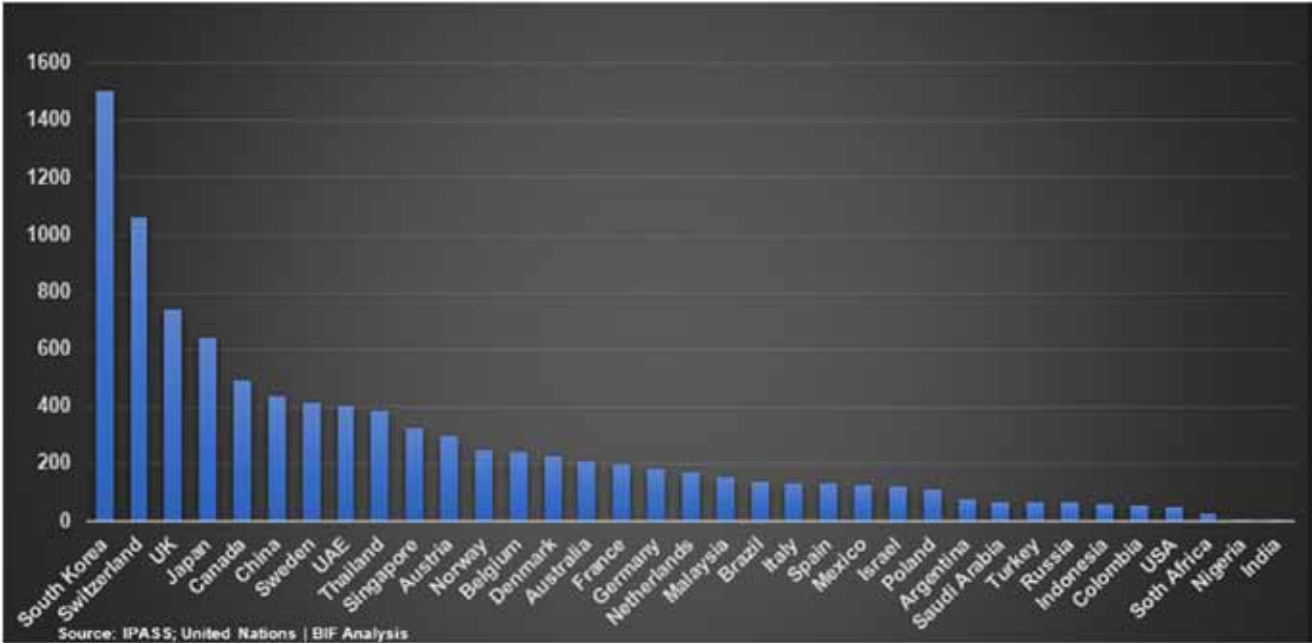
- ❖ United States (not subject to telecom law).
- ❖ Australia/New Zealand: No registration or license required.
- ❖ The European Union (with some countries imposing registration requirements)
- ❖ UK/Denmark – No filings required
- ❖ Rest of EU—Registration required, but light regulatory requirement.
- ❖ Switzerland/Norway—Non-EU countries, service subject only to registration.
- ❖ Japan (notification required, but light regulatory requirements)
- ❖ Canada (simple online registration)
- ❖ Cambodia (registration/notice filing)
- ❖ Cameroon (declaration/notice filing)
- ❖ Mozambique (registration/notice filing)
- ❖ Nigeria (registration/notice filing)
- ❖ Rwanda (notification/notice filing)
- ❖ South Africa (notification/notice filing)
- ❖ Indonesia (free service only)
- ❖ Bangladesh (no filing for reseller services)
- ❖ Benin (no filing for reseller services)
- ❖ Nepal (no filing for reseller services)

Globally, Telcos have been increasingly deploying and integrating Wi-Fi solutions as add-ons to their cellular networks, using technologies such as Passpoint and Hotspot 2.0 for example. According to iPass's Wi-Fi Growth Map, India currently has just ~36 000 commercial hotspots, compared to emerging markets such as China (more than 6.1 million), Indonesia (more than 165 000) and Mexico (more than 165 000), reflecting a significant scope for further deployment of Wi-Fi access points across the country.

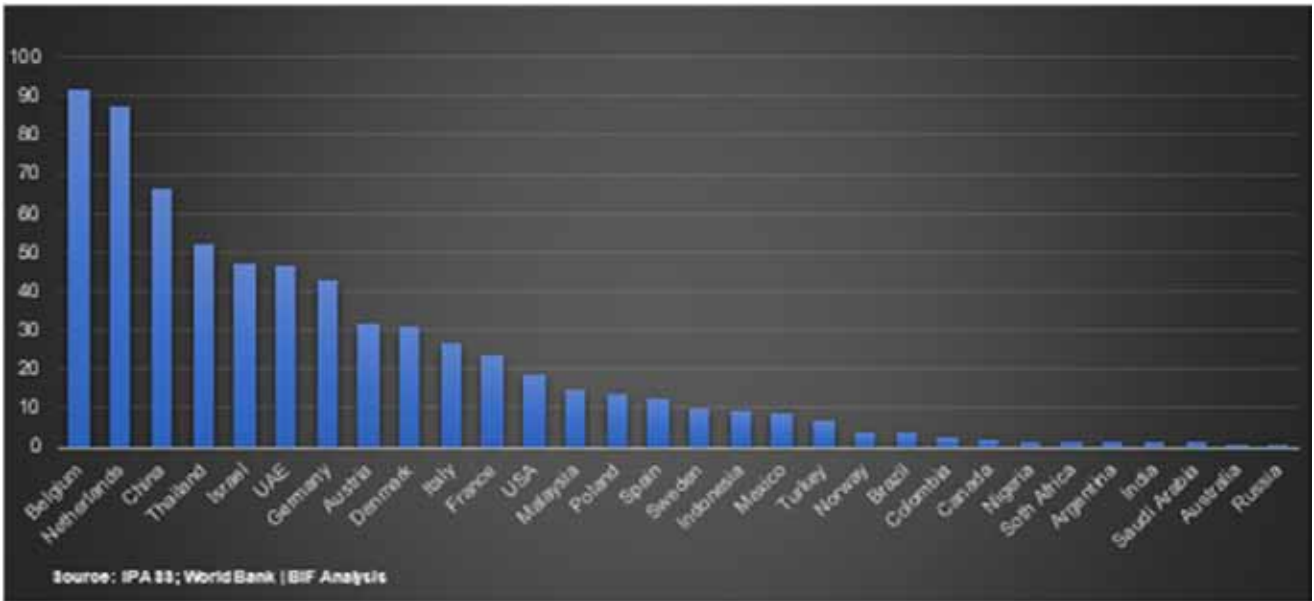
The following graph demonstrates India's position against 34 other nations, big & small, and is illustrative of a simple truth. At approximately 2.68 hotspots for every 1,00,000 (or one hotspot for approximately 37500



people), India fares far poorly in comparison to other nations. It is also interesting to note the magnitude of difference between nations that rank at the bottom of this comparison. Nigeria, South Africa and USA all have far more impressive averages than India at 7.25, 27.17 and 51.86 hotspots per 1,00,000 people respectively. While one hotspot serves a whopping 37500 people in India (on average), one hotspot is on average serving 13,800; 3,680 and 1,928 people in Nigeria, South Africa and USA respectively.



At the same time, it is interesting to note how these nations stack up against each other when the rollout of public hotspots is examined in a spatial context. The following graph illustrates the relative positions of these nations when compared for the rollout of hotspots as a function of land mass. We believe both sets of data are useful for getting a complete picture of the state of public wifi across this sample set of nations.



India performs poorly when you look at the above two analysis and hence really need to push the fact that WiFi has a huge capacity to deliver connectivity to improve the economy of the country.

Conclusion



It is a given that Public Wifi is the way to go to accelerate Broadband penetration in the country. The TRAI recommendations on Liberalised Approach to Public Wifi correctly highlight steps which are likely to facilitate creation of millions of Public Wifi hotspots and thereby help attain the country's vision towards achieving Digital India. These Recommendations are holistic in nature, neutral to service providers, provide for level playing field for all. These recommendations also enable opening up of a new additional revenue stream for TSPs and is likely to provide a big revenue boost to the carriers. It's a win –win for all as the Consumer gets sufficient bandwidth to download video files thereby increasing data usage which means higher revenues for the operator, and higher levels of internet penetration for the Govt to meet its Digital India objectives.

Digital revolution is helping India march towards a digitally connected nation by harnessing power of technology led innovations. Indian citizens are increasingly getting connected via cutting edge technologies like 4G and WiFi which are helping them in improving and empowering their lives. As per latest estimates, India has deployed around 100,000 public WiFi hotspots thanks to government and private telco initiatives for boosting broadband connectivity in tourist spots, government offices, educational institutes, health centres, market places, gram panchayats and others.

Globally, total public WiFi hotspots (including homespots) will grow 6-fold from 2016 to 2021 from 94 million in 2016 to 541.6 million by 2021 as per Cisco VNI report and this is true also for India thanks to Digital India initiative.

The draft Telecom Policy i.e. the National Digital Communications Policy 2018 talks about achieving 10 million WiFi hotspots by 2022 through NagarNet and JanWiFi. For achieving this, India has a long way to go as NagarNet project focuses on establishing one million WiFi hotspots in urban areas whereas JanWiFi is looking at deployment of 2 million WiFi hotspots in rural areas. Both these WiFi initiatives are planned to be funded through Universal Service Obligation Fund (USOF) and Public Private Partnerships.

For achieving large number of hotspots, TRAI has come out with Public Data Office (PDO) concept. The vision of this initiative is to establish an Open Architecture based WiFi Access Network Interface (WANI), such that any entity (company, proprietorship, societies, non-profits, etc.) should easily be able to setup a public WiFi access point and user should be able to connect one or more devices in single session through low denomination package.

One of the major Operator plans to deploy around 1.5 million WiFi hotspots at stadiums, housing complexes, bus stops, public parks and tourist spots, schools and colleges, government buildings, and other places in the country. The company has deployed over 80,000 access points for hotspots, colleges and WiFi offloads. One of the social media giant has deployed 700 Express WiFi hotspots in states of Uttarakhand, Rajasthan and Gujarat by signing with local ISPs. The company has also



partnered with one of the leading telecom operator to launch an additional 20,000 hotspots. Moreover, another operator plans to deploy 100,000 WiFi hotspots of which 70,000 Wi-Fi hotspots will be from their resources and 20,000 WiFi hotspots through Capex mode.

The country will witness more around 100 - 1,000 WiFi hotspots in 100 Smart Cities Project of Ministry of Urban Development. For e.g. Pune Smart City Development Corporation is planning to install 150 Google Stations as hotspots. Google Stations will be installed as a hotspot in Pune municipality area by Larsen & Toubro. Potentially, 3 million Pune-kars can now get online within seconds, to message friends, pay bills, shop online, watch music videos – and do millions of other things – at locations all around the city.

The implementation of 514,382 Wi-Fi hotspot services across 250,000 gram panchayats covered under BharatNet Project Phase I and Phase II is presently under process. The focus is for providing Wi-Fi/broadband services and to operate and maintain the entire infrastructure thus created for a minimum period of four years from the date of successful completion of works at all gram panchayat areas in the project area/cluster.

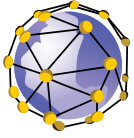
One of the major stakeholders has provided high speed RailWire WiFi services to the rural areas by implementing WiFi facility at 298 designated rural railway stations close to the inhabited villages across the country with the support from Indian Railways and Universal Service Obligatory Fund (USOF). It is providing fast WiFi experience to the railways stations situated at remote corners of India. It has taken a lead in providing fast WiFi for the use of passengers at A1, A category Railway stations through Google as the technology partner. Presently, it has deployed WiFi hotspots in 392 stations and 33 stations are still remaining. It has invited tender for supply, installation, testing, commissioning, operation and maintenance of WiFi Services at 7,700 rural railway stations (D, E & F category).

Recently, the Telecom Commission has also given a go ahead to inflight connectivity. With this, the airlines and the telecom service providers can offer voice and data services in Indian airspace once an aircraft reaches an altitude of 3,000 metres say end of 2018 or early 2019.



Some of the key recommendation:

1. WiFi hotspots deployment as per India's population so Indian government should strategise accordingly and focus more on villages.
2. 6.5 - 7 million WiFi hotspots to be deployed in 649,481 villages with total population of 833 million. Deployment through Government funds, BBNL, USOF or CSR Fund of telcos and other technology companies.
3. 3.5 - 3.0 million WiFi hotspots to be deployed in 7,935 cities/towns with total population of 377 million. Deployment through telcos, ISPs and others.
4. Deployment in villages will lead to achieving doubling of farmers income and doubling of crop yield as ministry information w.r.t. agriculture, education, health, skill development, water resources, mother and child development, government services should be available in regional languages.
5. All the ministries related to rural development i.e. Ministry of Telecommunications, Ministry of IT & Electronics, Ministry of Rural Development, Ministry of Agriculture, Ministry of Health & Family Welfare, Ministry of Water Resources, Ministry of Human Resources and Development, Ministry of Skill Development, Ministry of Mother & Child Development and others need to come forward and work together if the focus is on uplifting villagers.
5. Digital Awareness Melas should be conducted in all 649,481 villages so that people are aware about how WiFi/digital can transform their lives.
6. Maintenance of BharatNet Network and WiFi CPEs will be a big challenge so government should train village level entrepreneur for After Market Maintenance (AMS) of BharatNet Network and CPEs thereby employing around 65,000 locals for this job.
7. There would be lot of savings for the government by putting digital information in the portal either through video, text or pictures and not go for conventional approach like banner, hoardings and others.



BIF

Broadband India Forum

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