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Public Wi-Fi Program under Digital India – Future Ahead

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ABSTRACT

Now a day's everybody wishes to remain connected in this digital world. Whether they are at their homes, their offices, their college, or whether they are at public places such as railway station, bus stops, and airport or at any mall, coffee shop, library or a hotel, lots of people just find a way to get connected with the worldwide via Wi-Fi hotspots on their mobile device. Soon after taking the power in 2014, NDA Government launched a champion named "Digital India" with the aim of bringing a systematic change in the bureaucratic apparatus and speed up work. Also NDA government came up with some innovative ideas like "Swachh Bharat Mission", "Make in India"," Skill India", etc. Digitalization in India was already initiated in early 90s, especially in communication and technology but GOI was not able to implement it in proper manner due to political instability.

The main objective of this paper is to highlight and analyze the collaboration between Internet giant Google and a Public sector unit "Railtel" for provision of free Wi-Fi service at 100 key railway stations in the country by the end of the year 2016. Indian Railway also targets to cover all 8500 railways stations with Wi-Fi facility by March 2019. It also includes the highlights of future projects from partnership with various private sectors in India.

1. Introduction

The term 'infrastructure' refers to the basic facilities in the economy like housing facility, roads, tunnels, bridges, water supply facility, telecommunication etc. but now a day's the meaning of such basic requirements has changed to digitalization and online access vie international network. Digital Infrastructure is defined by a focus on enabling business agility and powering user experiences that drive customer engagement and loyalty[1] (Flower). Now a day's everybody wishes to remain connected in this digital world. Whether they are at their homes, their offices, their college, or whether they are at public places such as railway station, bus stops, and airport or at any mall, coffee shop, library or a hotel, lots of people just find a way to get connected with the worldwide via Wi-Fi hotspots on their mobile device. Especially the users who are getting connected on public places have all used an open Wi-Fi network by just setting their location. In short people get connected to the network on such place uses the wireless connection to the network is known as public "Wi-Fi". Modern telecommunication infrastructure is equally important in the developing nations for rapid growth as well as to meet the requirement of global competitive market.

A 1987 US National Research Council panel adopted the term "public works infrastructure", referring to:

"... both specific functional modes – highways, streets, roads, and bridges; mass transit; airports and airways; water supply and water resources; wastewater management; solid-waste treatment and disposal; electric power generation and transmission; telecommunications; and hazardous waste management – and the combined system these modal elements comprise. A comprehension of infrastructure spans not only these public works facilities, but also the operating procedures, management practices, and development policies that interact together with societal demand and the physical world to facilitate the transport of people and goods, provision of water for drinking and a variety of other uses, safe disposal of society's waste products, provision of energy where it is needed, and transmission of information within and between communities."

The Organization for Economic Cooperation of Development (OECD) also classifies communications as a part of infrastructure.

2. Objectives

1. To analyze the status of public Wi-Fi facility at various railway station of India
2. To highlight the upcoming stations for coming under Wi-Fi programme accessibility.
3. To study the journey of Digital India and Digital Infrastructure.

3. Research Methodology

Data collected for this research paper are purely based on secondary data, which are collected from various government official documents, various departmental websites, various newspaper articles, magazines, etc.

4. Digital Infrastructure and Digital India

Soon after taking the power in 2014, NDA Government launched a champion named "Digital India" with the aim of bringing a systematic change in the bureaucratic apparatus and speed up work. Also NDA government came up with some innovative ideas like "Swachh Bharat Mission", "Make in India","

[1] Alan Flower, HCL, Vice President & CTO-Europe

Skill India", etc. Digitalization in India was already initiated in early 90s, especially in communication and technology but GOI was not able to implement it in proper manner due to political instability and transforming the country with new economic policy, i.e. scrapping of planning commission and giving importance to NITI Ayog to compete with the world [2] (Dr. Jignesh Kauangal, 2016). India's make over from present to future is only possible by adopting the following equation:

India Talent + Information Technology = India Tomorrow

Digital infrastructure will focus on providing high speed secure Internet. Governance and services on demand will stress on integrating services across departments and jurisdictions and making services available in real time for both online and mobile platform. With the launch of Digital India champion on 2nd July 2015, the Indian government took a step ahead for transforming the country into digitally empowered knowledge economy. This initiative comprises of connecting rural area with the high-speed internet. There are three parts of the above mention initiatives. (India G. o., 2015)

- **Infrastructure as a utility to every citizen:**

High speed internet shall be made available in all gram panchayats; Cradle to grave digital identity; Mobile and Bank account would enable participation in digital and financial space at individual level; Easy access to common service center within their locality; Shareable private space on a public cloud; and Safe and secure cyber space in the country.

- **Governance and Services on Demand:**

Single window access to all persons by seamlessly integrating departments or jurisdictions; availability of government services in online and mobile platforms; All citizen entitlements to be available on the Cloud to ensure easy access; Government services to be digitally transformed for improving ease of doing business; Making financial transactions above a threshold, electronic and cashless; and Leveraging GIS for decision support system and development

- **Digital empowerment of citizens:**

Universal digital literacy; All digital resources universally accessible; All government documents/certificates to be available on the Cloud; Availability of digital resources/services in Indian languages; Collaborative digital platforms for participative governance; Portability of all entitlements for individuals through the cloud.

The Government of India hopes to achieve growth on multiple fronts with Digital India Champion, specifically the government also aims to target nine 'pillars of the digital India that they identify as being:

- Broadband Highway
- Universal access to Internet
- Public Internet Access Programme
- E-governance Reforming Government through technology
- E-kranti – electronic delivery of services
- Information for all
- Electronics manufacturing
- IT for jobs
- Early harvest programme

During the launching ceremony of Digital India week by Prime Minister of India on 1st July 2015, top Chief Executive Officers from India and Abroad as well, committed to invest 224.5 lac crore towards this initiative. The Chief Executive Officers also said that the investments would be used towards making smartphones and internet devices at a reasonable price in India which would help generate jobs in India as well as reduce the cost of importing them from foreign countries.

People from various places like Silicon Valley, San Jose, California supported the initiative during the PM's visit in the year 2015. The CEO of Facebook, Mark Zuckerberg changed his profile image in the favor of digital India and started a chain on Facebook and assured to work on Wi-Fi hotspots in rural area of India. Google's CEO, SundarPinchai also assured to provide broadband connectivity at five hundred railway stations in India. Microsoft agreed to provide broadband connectivity to five hundred thousand villages in India and make India its cloud hub through Indian data centers. Qualcomm announced an investment of US$150 million in Indian startups. Oracle plans to invest in 20 states and will work on payments and Smart city initiatives.

5. How Wi-Fi work?

Wi-Fi uses anexact type of wireless local area networks which functions on specifications confirming to IEEE 802.11b. The term Wi-Fi is used when referring to any kind of 802.11 networks, whether it is a dual-band, 802.11a or 802.11b. The Wi-Fi Alliance, a registered trademark tests, approves and certifies products as interoperable with each other, even if they are from different manufacturers.

One can use a Wi-Fi Certified product with any brand of an access point along with any other brand of certified hardware. If your Wi-Fi product uses a radio frequency of 2.4GHz for 802.11b or 11g, 5GHz for 802.11a, you can be sure it will function even if it is not Wi-Fi certified. Globally accepted(TRAI) a Wi-Fi facility as a smarter alternative to wired LANs. Today, various places like airports, hotels, coffee shops etc. have hotspots that provide public access to Wi-Fi networks, in foreign countries and India as well, so that people can get connected to the internet on the move.

6. Internet users in India and globally

Now a days, Internet is became such a force to reckon with, responsible for trillions of dollars in direct and indirect revenue annually and understanding how it contributed to the growing world economy will only help your business grow.

According to an accepted definition "An internet user can be define as an individual who can access the internet, through

[2] Dr. JigneshKauangal, Prof. NaishalRaval, Digital India – Route Towards Development, 2016

computer, or mobile device, within the home where the individuals lives."

Above 460 million users India ranked second largest online market, only behind china. It is expected that by the year 2021, there will be about 635.8 million internet users in India. One aspect whereby India shares the characteristics of other global internet users is its passion for social media. In 2021, it is projected that there will be around 358.2 million social network users in India, a significant increase from 2016, when this figure stood at about 216.5 million. This means that the share of the Indian Population that access social network is expected to jump from around 16.3 percent in 2016 to just over 25 percent. Facebook is one of the maximum used by the people of the nation.

In the year 2015 Total number of mobile phone internet users was 279.5 million and in the 2016 it was 322.9 million, and in the year 2017 it is expected that total number of mobile phone user is 366.2 and from this figure, in the year 2021 it is projected that there will be drastic increase in number of mobile phone user will be 524.5 million (statics)

Currently in the year 2018, Out of total population of 133 crore in India, 37 crore people are internet subscribers and this could give the biggest boost to digital India, since the arrival of internet in India 21 years ago, because in the outcome of demonetization, the government is promoting cashless.

7. Wi-Fi connectivity in India

The development of Internet penetration in India and understanding of its full potential is closely tied to the proliferation of broadband services. Currently "Broadband" is defined as a mean a data connection that is able to support interactive services, including internet access, with the capability of minimum downloading speed of 512 kbps.(India G. o., 2015)

Before launching a free Wi-Fi facility at various railway stations, this facility has been launched in some of the cities like Ahmedabad, Mumbai, Bengaluru, Chennai, Pune, Mumbai, Kolkata, Hyderabad etc. these service offers free Wi-Fi access up to half an hour of usage. The users later can recharge it by using prepaid vouchers[3].

Majority of public Wi-Fi hotspot in the country are venue based arranged. Venues like airports, railways stations, hotels, shopping malls, some leisure place like restaurants & Resorts, coffee shops, etc. Presently 31000 public Wi-Fi hotspots are installed in country. According to an estimate by the industry it is expected that this number will grow beyond 202000 by the end of the year 2018.

In India, challenges for telecommunication company includes public body clearance, significant marketing budgets, channel distribution to reach up to the consumer etc. are some of the major issues that discouraging the telecommunication company from focusing on public Wi-Fi arrangements and growth.

Public Wi-Fi facility in India is viewed as complimentary. Recently Social media giant "Facebook" recently announced a plan to set up community public Wi-Fi hotspot in rural Indian collaboration with Bharat Sanchar Nigam Ltd (BSNL). The major objective of this collaboration is to attract new internet user and expose them to the world of possibilities enabled by high-speed connectivity.

8. Google Partnered with RailTel

Mr. SundarPinchai, Chie Executive Officer of Google, was first to announced about the free Wi-Fi facility at the Indian railway stations when Prime Minister visited California in September 2015. So to convert this dream into reality, the Internet giant, Google got partnered with public sector unit named "RailTel Corporation" which is going to contribute towards the success of Honorable Prime Minister's initiative of Digital India.

RailTel is Public Sector Unit which is having a Pan-India Optic Fiber network completely on the railway tracks. Around 45000 Km of optic-fiber networks are there so google will utilize it for its Wi-Fi. The Wi-Fi services to passengers are being provided under 'Railwire', the retail broadband distribution model of RailTel, which is designed to offer users the best internet experience. Railway stations are the place where the cross section of the society is available. This initiative is part of bridging the digital divide and providing high speed access network to all rail users with financial inclusion of local cable operator. This facility shall provide people to remain connected till the train arrives on platform.

Table 1:Indian Railway stations with Wi-Fi facility

S. No	State	Commissioned Stations
1	Andhra Pradesh	Kurnool Town, GudurJn, Chirala, Tirupati, Vijayawada, Vishakhapatnam, Guntur, Palasa, Rajahmundry, Kakinada Town, Nellore, Srikakulam Road, Bhimavaram Town, Samalkot Jn., Eluru, SatyaSaiPrashantiNilayam, Anantapur, Kadapa, Tadepallingudem, Renigunta, Anakapalle, TenaliJn, Tuni, Ongole & Vizianagaram
2	Assam	Guwahati, RangiyaJn, Barpeta Road, Jorhat Town, Kamakhya&Lumding
3	Bihar	Madhubani, SasaramJn, KhagariyaJn, Raiganj, Danapur, BarauniJn, Mokama, Kiul Jn., SamastipurJn, Dehri-On-Sone, KatiharJn, BakhtiyarpurJn, PurneaJn, Patna, Hajipur, Muzaffarpur, Gaya, Darbhanga, Chapra, Bhagalpur
4	Chandigarh	Chandigarh
5	Chhattisgarh	Raipur, Bilaspur, Rajnandgaon, ChampaJn., Bhilai Power House, Raigarh&Durg
6	Gujarat	Veraval, Viramgam, Valsad, Gandhidham, Navsari, Udhna, Surendranagar, Bhavnagar, Bhuj, Nadiad, Anand, Ankleshwar, Jamnagar, Palanpur, Surat, Ahmedabad, Vadodra& Rajkot
7	Haryana	AmballaCantt, Hisar, Kalka, Jagadhri,

[3] TRAI Consultation paper on Proliferation of broadband through Public Wi-Fi Networks

		Faridabad, Karnal, Rohtak, Rewari, Panipat, Sonipat, Gurugram, Ballabgarh
8	Jammu and Kashmir	Jammu Tawi, Udhampur
9	Jharkhand	Ranchi, Dhanbad Jn., JasidhJn.,Bokaro Steel City, Hatia, Gomoh Jn., Madhapur, Parashnath, Koderma&Tatanagar
10	Karnataka	Shimoga Town, Belgaum, Dharwad,Bangalore City, Manglore Central, Hubli, Gulbarga, Mysore &Yesvantpur, Raichur, Krishnarajapuram, Bellary, Banglore Cant. Yadgir, Hassan Jn., Hospet, Manglore Jn.
11	Kerala	ErnakulamJn, Thiruvanthapuram Central, Thrissur, Kollam Jn& Kozhikode, Shoranur Jn., Tiruvalla, KayanakulamJn.,Kanhangad, Thiruvananthapuram central, Palakkad Jn,
12	Madhya Pradesh	Katni, Bina, Maihar, Satna, Singrauli, Morena, Itrasi, Pipariya, Visidha, Ratlam, Hoshangabad, Saugor, Nagda, Rewa, Khandwa, Betul, Damoh, Burhanpur, Ujjain, Bhopal, Jabalpur, Gwalior &Indore
13	Maharashtra	Parbhanijn, Jalna, Amravati , Nagarsol, Gondia, Ballarshah, Mumbai Central, Churchgate,Bandra, Bandra Terminus, Dadar, Khar Road, Kalyan, LokmanyaTilak Terminus, Byculla, Panvel, Thane, Borivali, Lonavala, Kurla, Andheri, ChhatrapatiShivaji Terminus, Belapur, Vashi, Dombivli, Chembur, , Vasai, Virar, Bhyander, Ghatkopar, Daund, Wardha, SainagarSirdi, Pune, Mulund, Kurduwadi, Bhusawal, Nagpur, Kopargaon, Manmad, Badnera, Solapur,Badlapur,Vadala Road, Ahmednagar, Akola, Shegaon, Aurangabad, Nasik Road, Kolhapur,Jalgaon, Nanded, Chandrapur, Miraj, Chalisgaon&Latur
14	Delhi	Delhi SaraiRohilla, HazratNizamuddin, AnandVihar Terminal, Delhi Cantt., Adarshnagardelhi, Delhi Shahadra, New Delhi & Delhi Jn
15	Odisha	Bhubaneswar, Cuttack, Sambalpur, Berhampur, Khurda road, Rourkela, Rayagada, Jaipur-Keonjhar, Jharsuguda, Balasore, Bhadrak&Puri
16	Rajasthan	Bhilwara, Bandikui, Suratgrah, SawaiMadhopur, Bikaner, Hanumangarh Jn., Rani, ChittorgarhJn.,Jaipur, Ajmer, Udaipur city, Falna, Abu road, Phulera, PaliMarwar, Marawar Jn., Lalgarh, Gandhinagar Jn., Sri-gangasagar, Bharatpur Jn., kota& Jodhpur
17	Punjab	Jalandhar City, Bathinda Jn., Amritsar, Beas, Pathankot, Chakki Bank, FirozpurCantt., JallandharCantt., Rajpura Jn., Phagwara, Sirhind Jn. & Ludhiana
18	Tamil Nadu	Tiruppur, VirudhunagarJn, Mayiladuthurai Jn., DindigulJn, NagercoilJn, Madurai, Coimbatore, Chennai Egmore, Tambaram, Arakkonam Jn., Tiruchchirappalli, Chennai Central, Udagamandalam (Ooty), Chengalpattu Jn., Coonoor, Rameswaram, Villupuram Jn., Erode Jn,, KarurJn, JolarpettaiJn,
		Kumbakonam, TirunelveliJn, ThanjavurJn, Salem Jn, Kanniyakumari,Kovilpatti, Katpadi, Tuticorin&Mettupalayam
19	Telangana	Nizamabad, Khammam, Kazipat Jn., ManchiryalKacheguda, Secunderabad, Hydrabad& Warangal
20	Uttar Pradesh	Khalilabad, Lalitpur, Sultanpur, Fatehpur, Azamgarh, Jhansi, Lucknow, Lucknow Jn., Ayodhya, Mughalsarai Jn., Gorakhpur, Allahabad, Aligarh, Gonda Jn., Bareilly, Kanpur, Mathura, Varanasi, Agra Cantt., Ghazipur City, Bhadohi, Muzaffarnagar, Basti, Pratapgarh, Etawah, Saharanpur Jn., Moradabad, Mirzapur, Tundla,Shahganj, Janghai, Mau Jn., Meerut City,Phaphund, Meerut Cant., Ghaziabad, Barabanki, Ballia, Belthara Road, Hapur, Rampur jn., Rae - Bareli Jn., DeoriaSadar, Agra Fort , Raja Ki Mandi,Orai, Hardoi&ShahjahanpurJn.
21	Uttarakhand	Dehradun, Haridwar, Kathgodam, Roorkee, Rudrapur City
22	West Bengal	Sealdah, Kharagpur, Asansol, Barddhaman, Digha, Rampurhat, New Jalpaiguri, Malda Town, Howrah, Durgapur, Darjeeling, SiliguriJn, Naihati Jn., New Farakka, Alipurduar Junction, New Coochbehar, , Coochbehar, Bandel, New Alipurduar, Kolkata Terminal, PuruliaJn&Ghoom
23	Goa	Vasco-Da-Gama
24	Nagaland	Dimapur
25	Himachal Pradesh	Solan, Shimla
	TOTAL	**392 Stations**

(India R.), As on May 2018

In September 2015, CEO of Google announced about free Wi-Fi services at 100 main Indian Railway stations by the end of December 2016. When the announcement was made it looks a difficult task or it was just a dream but things had gone right and partnership between Google and RailTel make it successful installations of Wi-Fi service at such places. Especially Mumbai was the first railway station who had gone lives by January 2016. As on April 2017 this partnership have provide free Wi-Fi 117 railway stations and it is also targeted that 200 more railways stations will get connectivity. Currently this partnership is setting the target of making 300 railways stations free Wi-Fi zone by the end of the year 2017. As on May 2018, there are 392 railway stations had a free Wi-Fi facilities by which

Presently more than 10 million people are using this service at 100 railway stations. According to the official data over, 15000 first time users are connecting to network every day.[4] The system can provide access to about 300 users at bigger stations and about 100 users at smaller stations. (Times T. H., 2017).

9. Findings and Conclusion

[4] The Economics Times, 2016.

- It has been founded that, total 392 railway station got the free Wi-Fi facility by the collaboration between Internet giant Google and “RailTel” a public sector unit.
- After getting success in achieving the target of providing free Wi-Fi service at 100 major railway stations, it was projected that by the end of year 2017, there will be 300 railway stations with free Wi-Fi facility. And now it is targeted that by the end of March 2019, all the railway station will be with Wi-Fi facility. 33 Railway stations are in the pipeline for enjoying the fruit of free Wi-Fi facility.
- It has been founded that Indian telecommunication companies should focus on the removal of present shortcoming because It is Projected that total number of mobile internet users are increasing which can demand the better internet facility.
- Free Wi-Fi services at railway stations provide an access to about 300 users at bigger stations and 100 users at smaller station.

Finally, hence it can be concluded as the partnership between “Google” and “Railtel” proved the fantastic example for developing rural area and developing infrastructure facility with collaboration private enterprise and public enterprise. Indian railway has also tied up with Internet service provider Syscon and Joister for the provision of this facility. This initiative is can be proved a step towards making a “cleverer India”. 33 more railways stations are about to get Wi-Fi facility and it is expected that by the end of March 2019, all 8500 railways stations will be equipped with the free Wi-Fi facility under the Digital India initiatives.

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