Progress towards Digital Inclusion in rural Gudibande of Chikkaballapura District

Kiran Kumar Sen[[1]](#footnote-1)

# **1. Introduction**

## 1.1 Thrust on getting Indians use internet

Today making money, access to entertainment, employment opportunities, getting your government documents online, unlocking information for education, using healthcare services- all of these are reality with the help of a click and being connected with internet network. The use of internet is fast spreading becoming one of the essential need of smart-phone generation. The internet penetration in urban areas is significant as the different needs drives them. It is not so in rural areas, the extent of internet penetration is slower due to various factors. To promote internet use, the governments across the developing world including India are implementing schemes to bridge the gap between urban and rural digital connectivity. In 2015, Government of India launched an ambitious program named Digital India with vision to transform India into a digitally empowered society and knowledge economy. Previously sporadic e-initiatives have met with success initiated by different states but digital connectivity remained a challenge on a country level. The National e-Governance Plan in 2006 pushed for integrating such initiatives into collective vision and now this is taken ahead by Digital India program. A comprehensive approach to cover entire country is coordinated by the Ministry of Electronics and Information Technology (MeitY). The program has 3 areas of vision supported by nine pillars or focus areas (Introduction on Digital India, 2018). To realise this vision, the role of Information, Communication and Technology (ICT) sector is central. Therefore, program aims to increase digital infrastructure through setting up extensive broadband and incentivising the telecom network (Digital India, 2016). The goal is to bring about transformation to have empowered citizens in India using ITs, i.e. Indian Talent + Information Technology 🡪 India Tomorrow (Introduction on Digital India, 2018)

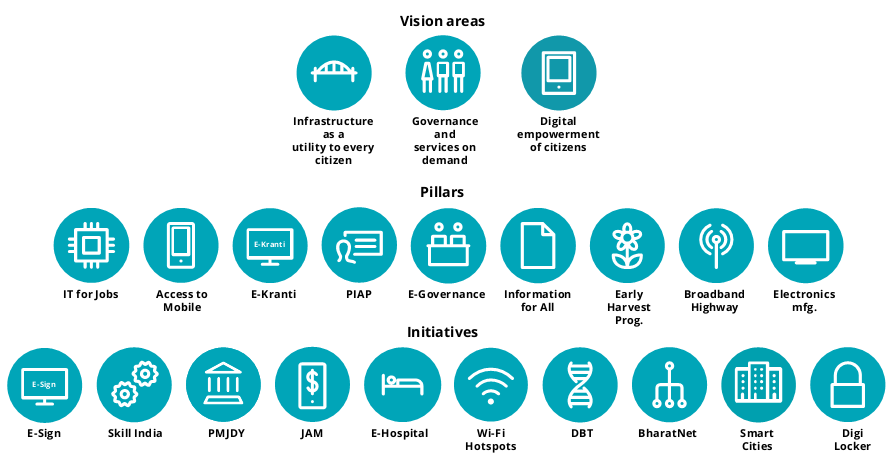


Figure : Overview of Digital India. Source- Deloitte and ASSOCHAM report on Digital India, 2016

Digital empowerment of the citizens is one of three vision areas. It is in this broader context that the study explores to what extent does the world of digital access and information technology touch the lives of the normal people in rural areas in Chikkaballapura district of Karnataka; to what extent are they included in this major program of transformation and the barriers to their inclusion.

## Benefits of Digital Technology

Several e-initiatives have been undertaken from governments from time to time. From 1990s, India began to apply several ICT initiatives such as e-governance, telecommunication, telemedicine, e-commerce and community information centers while promoting access to the Internet to bring economic benefits to the people. According to Prasad, some of the key application of ICT for public development among many, are the following a) Provide support to the public administrators to monitor and improve developmental programs b) Improve service to people and enable transparency c) Empower citizens through their access to information and knowledge d) Ability to access markets, participate in e-commerce and generate/expand employment opportunities. Realization of such benefits transform society into an empowered one.

Several e-governance/ICT initiatives in India have established success in improving accessibility, saving money and time, reducing corruption and increasing access to unserved groups (Prasad, 2012). No doubt that many states governments mandated the use of ICTs for their effective governance. When citizens are digitally empowered, they will be able to access government services, whole gamut of information and knowledge, markets and participate in e-commerce among other benefits. Many citizens including the author acknowledge the gains in efficiency and transparency brought about using internet in using services of banking, insurance, travel sectors which interact lives on daily basis. They provide opportunities to enable growth among citizens. To tap these opportunities, one’s ability to access internet is therefore critical.

## 1.3 Meaning of digital inclusion

Before we set out to understand the extent of digital inclusion, it is important to understand what digital inclusion really means. **“**Digital inclusion is the ability of individuals and groups to access and use information and communication technologies.”[[2]](#footnote-2)The definition requires both access and ability to use the information and also use modern internet based communication technology. The Digital India aims to create a digitally empowered society and a knowledge economy. It is clear that inclusion is a precondition to empowerment. Thus the goals of the Digital Program would be served only if all the citizens in the country were digitally included. Hence it is important to understand to what extent our citizens are digitally included to know how close or how far they are from being digitally empowered.

## 1.4 When will digital inclusion happen?

Certain conditions must be available for citizens to get benefited from digital inclusion. Availability of electricity infrastructure to power smart devices, presence of data network through broadband or telecom operators, ownership to digital devices are a must to begin the journey. Other conditions concern with the digital ability and knowledge of the users. Citizens need the skills of using the device, logging on the network and navigating on the web. They must know what services are available on different platforms. They need to be able to negotiate their way on those websites. Finally they need to effectively interface between the digital and the analogue world by understanding what instructions and information on the digital platform expect them to do in the real world.

Digital inclusion can be said to have come about only if all these conditions are met. The extent of acceptance and usage of internet services differ from person to person and place to place. In India, this divide seems more evident between the urban and rural regions. According to the IAMA report, the overall internet penetration is 35% of the total population until December 2016. Among urban India, internet penetration stood at 64.84 % in Dec 2017, as compared to 60.6% in 2016. In comparison, Rural India penetration has grown from 18% to 20.26% in Dec 2017. But, the rural population is much higher than urban hence the urban-rural digital divide is more acute than what these numbers convey and the number of internet users in rural India remains critically low (Internet in India, 2017).

# **2. Karnataka Context**

On Sept 26 2002, Mr. Pramod Mahajan, then Union Minister for Information Technology was at a Bhoomi kiosk, at the Bangalore South Taluk office to access computerized land records. Post this, he said this experiment has freed farmers who “*illiterate in every sense, not just digital, from the clutches of the village accountant, who has for long been a Chitragupta of the living. The Village accountant could earlier “give anybody's land to anybody at any time”. With computerization of land records tampering with them had been made very difficult, and farmers could safeguard their lands, which was also their identity*” (Bhoomi project: 'Karnataka, a model for other States', 2002).

Inaugurated in 2000, Bhoomi project shot to fame for being one of its kind of system of land records management system in India initiated by the revenue department where IAS officer Rajeev Chawla played an instrumental role. The project computerised about 20 million land records covering more than 27000 villages. Today, a printed copy of the Record of Rights, Tenancy and Crops (RTC) can be obtained online by providing the name of the owner or plot number at such bhoomi kiosks in 177 taluk offices, for a fee of Rs.15, saving farmers of precious time and stopped paying bribes which they paid to village accountants earlier.

This brought a sea change in the way technology was used for effective governance and set precedent for other states to pilot such innovations in using ICT. The state also started Karnataka Valuation and e-Registration (KAVERI), BangaloreOne, e-Swathu, MobileOne etc. which has been at the forefront of digital governance in the state. All of this was possible, thanks to efforts made by officers in the government who put in place necessary policy, legal and organizational framework to gain from information technology (IT) revolution.

**Policy, Legal and Organizational Framework for e-governance**

The focus on IT by Karnataka was one of the earliest in the country. This is evident from the objectives laid down in the IT Policy in 1997. This acted as catalyst for the growth of IT in the state. This was further reinforced in the millennium year policy and using e-governance as a tool to deliver and monitor government services and benefits became a major thrust. Presence of convenient atmosphere, infrastructure and local talent helped Bangalore get investments and projects from many global IT companies. This paved the way for establishing the need for digital infrastructure in the state. In 2011, ICT policy aimed to foster the current growth of IT encompassing the needs of Tier 2 and 3 towns of the state. All these policies majorly focused on development of IT services, products and R&D for commercial interests. But this promoted the use of technology as a tool to innovate in governance.

Time came in 2006, after the success of Bhoomi project, that Department of Administrative Reforms (DPAR) set the Centre for e-Governance (CEG) to reinforce e-governance reforms. The next year, the DPAR set up another unique institution i.e. Directorate of Electronic Delivery of Citizen Services (EDCS) through a government order- GO DPAR 32 EGM 2006 (About EDCS Directorate, 2018). This institutional framework gave impetus to promote digital inclusion in Karnataka. The emphasis on using e-governance services for public benefit also came through various legislations. For example, The Karnataka Information Technology (Issue of Digital Extracts and Certificates for e-Governance Projects) Rules, 2007 provides for a mandated process to electronically deliver e-services to citizens. In 2008, an amendment issued to the Karnataka Transparency in Public Procurement Act, 2002 gave legal backing to the e-procurement initiative (CEG, 2018). This set precedent in the state way before than as mandated by Good and Services Tax reforms currently.

When it comes to the functioning, CEG is responsible for establishing and maintaining digital infrastructure such as digital network, data centre, core applications and capacity building activities for the smooth working of the government’s needs i.e. G2G (government to government) services. On other hand, delivery of the services for the common citizens i.e. G2C (government to citizens) services is held by EDCS. The MobileOne project in this regard has won several accolades, setting example for mobile-governance in the country. According to the IAMA report on Internet readiness, Karnataka ranks second after Maharashtra for its contribution of IT and success in e-government initiatives (Index of Internet Readiness of Indian States, 2017).

The following illustration depicts the e-governance structure and major services offered in Karnataka.



Figure 2: E-governance structure and initiatives in Karnataka

# **3. Study area and Methodology**

Gudibande is a town Panchayat and also Taluk headquarter with the same name. It is located 93 kms from the city of Bengaluru and 35 km north from the district head quarter Chikkaballapura. It is the smallest Taluk in Chikkaballapura district in the southern state of Karnataka. The town takes its name from the fact that it is situated at the foot of a dome-like rock (bande) with a temple. This rocky hill and the temple are the main objects of tourist interest (District Census Handbook Chikkaballapura Part XII-A).

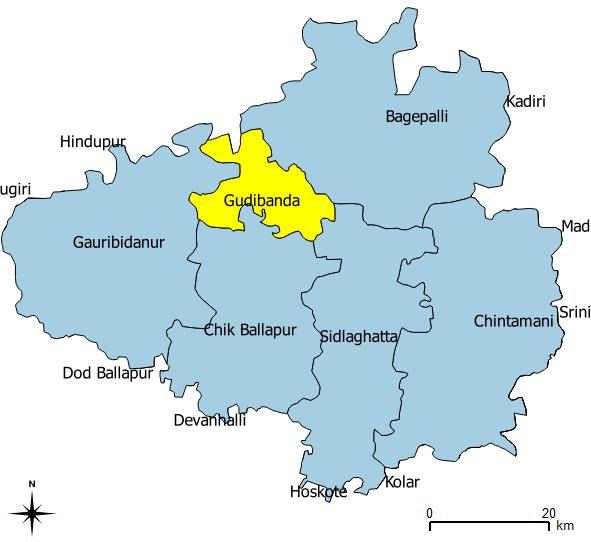


Figure 3: Map of Chikkaballapura dsitrict

The total geographical area of Gudibande Taluk is 227 sq. kms. According to the 2011 census, the population of the Taluk was 55,832, less than 5% of the total population in the Chikkaballapura district. Almost 83% of the population lives in rural areas, indicating small extent of urbanization. The sex ratio is 981 Women for every 1000 Men. This is highest in the district, whereas urban ratio in the Taluk stands at 1001 Women. The Scheduled Caste (SC) and Scheduled Tribe (ST) form 24.2 % and 15.7 % of the population respectively. The literacy rate is 65.18 % which is among the lowest in the district, next only to Bagepalli Taluk (Chikkaballapura District at a Glance , 2015-16).

Gudibande Taluk falls under eastern dry agro climatic. It experiences a semi-arid climate characterized by typical monsoon tropical weather with hot summers and mild winters. The mean annual rainfall of the Taluk is 714 mm (Annual Report 2016). The land use pattern can be seen from the graph below.

Figure 4: Land Utilization in Gudibande. Source- Analyzed by author

The net irrigated area in the Taluk is 2368 Ha, which contributes 4.7 % of the total net irrigated area in the district. In the absence of surface irrigation systems, groundwater is the major source of irrigation. According to the official estimates, there are about 91 tanks, 50 wells and 1301 borewells in the district driving agriculture, which is the major occupation. Principal crops in terms of coverage and production are Maize, Ragi, Groundnut, Red gram, vegetables and fruits. Sericulture hasn’t picked up among farmers in Gudibande unlike in taluks of Sidhlaghatta, Chintamani where it is dominant (Chikkaballapura District at a Glance , 2015-16).

There is significant push by both central (Digital India) and State government (CeG and EDCS) to promote internet usage among citizen so that digital inclusion happens. Inclusion of rural areas by providing opportunities to access and benefit from digital technology is key towards empowering the rural population. 83 % of the population of Gudibande Taluk lives in rural areas and hence it seems relevant to undertake this study to understand the extent of digital inclusion in rural areas. The study seeks to explore and contribute to literature on factors related to extent and barriers to digital inclusion among rural communities. In specific, the study is aimed to understand the following.

* Make a robust estimate of the proportion of citizens who are digitally included in the study region.
* Understand digital inclusion across different social groups, age group and gender in these villages.
* Understand the factors which favour and hinder digital inclusion process amongst rural communities. Suggest ways for furthering digital inclusion

The field survey data for this study was collected from 5 selected villages in the Taluk. The list of villages was retrieved from the Census 2011 website and randomly selected for study. A total of 100 respondents from 100 households were selected across these 5 villages. The respondents were selected based on their willingness to participate in the research. The primary data was collected through survey method using a questionnaire. A pre-designed semi-structured interview schedule was used to interview and document responses from the participants. The interviews were conducted in their respective houses. In addition to this, to understand digital literacy, citizenship and access amongst different groups based on age and gender, 10 focus group discussion were conducted, including one in Gudibande town. Relevant data from government and non-governmental agencies in form of articles, presentations and reports were referred under the study. Relevant quantitative and qualitative tools have been used for analysis.

# **4. Analysis and Discussion**

The representation of gender was even with both men and women respondents being equally represented. This was not intentional, but has helped in contributing out diverse views across both genders. The findings reveal different factors which either facilitated or acted as barriers to the process of digital inclusion are presented in the following sections.

4.1 Power and Network Infrastructure - Facilitating Factors

There was no issue in terms of power availability with all reporting access to electricity in their houses. Under the Niranthara Jyothi scheme, 24 hours of uninterrupted power supply is energizing rural life and contributed to the rise in use of electric devices. TVs, mixers, phones, fans are common sight now. Dependence upon alternative sources for power was negligible. Only few households used solar power mostly for water heating. When it comes to availability of data network, there was presence of 2G, 3G and even 4G in all the study villages. Infact, the data network of more than one telecom operator was available but the speed varied when it comes to 4G network. The author came across Manjunath who owned a small grocery shop in Varlakonda Gram Panchayat (GP). A part of his shop was decorated with ads of different telecom operators with bright numbers displaying latest offers on internet and calls. He says even 4G network is available in addition to the existing 2G and 3G. Airtel and Jio are popular around these parts.

As we find even in urban areas, the stability of the data network seems to be an issue. About 28 % reported that there were issues with strength of the signal. The data network and its speed varied across different locations of the village. 25 year old Naveen Kumar from Dhumkuntahalli using Jio 4G complained “*Sometimes network is poor and need to come out of the house to access internet*”. Bhargya, a housewife says she climbs to the first floor or above to make calls saying “*Network is available only at higher altitudes*”. Others also confirm such issues with strength of the signal mostly with Idea, Docomo, Aircel and newcomer Jio. They used phrases like “*come out of the house*”, “*move to a higher altitude*”, “*wait for long to connect to internet*” while trying to use internet. Due to poor network of some telecom operators, many had migrated to different telecom operator and many were in the process of switch over.

Figure 5: Strength of the Network as per respondents

## 4.2 Extent of digital Inclusion- connections still missing

Despite the presence of telecom infrastructure, internet usage is not uniform and varies from person to person and from place to place. There are challenges which interact at individual level along with contextual factors which influence internet usage in such regions. As described earlier, internet is beginning to interact with our lives on daily basis like never before and imagining a world without internet seems terrifying. But such thoughts have to be taken with a pinch of salt when you are in such rural settings. Because when one finds person after person saying they were “never online” kept both the author and translator[[3]](#footnote-3) who were avid internet users pondering how they managed their life without internet. As we continued asking the frequency of internet use, 22 years old Anita from Kadehalli used internet on daily basis, but her mother who was standing beside her seemed puzzled as to ‘what is internet’. Both the author and the translator had to use terms like data, WhatsApp, YouTube, Net, 3G/4G to connect with people. Chaithra from Lekkanahalli is a housewife who had no smart device and hence didn’t use internet. She had heard about WhatsApp but owned keypad phone for calling purposes.

The story remained the same in bigger populated GP of Varlakonda closer to the Chikkaballapura town than other study villages. Ambarisha (29) also didn’t have smart device and did farming. He never got online because he perceives that internet doesn’t add any economic value towards his occupation. When calculations were finally made, there were many like Ambarishas and Chaithras i.e. 51 % of respondents who have never used internet. They never accessed internet due to their individual engagement with technology and the worldviews they perceived about internet. With rise in ownership of smartphones, some 37% of the people reported they access internet daily, while 12 % have accessed internet in the last 3 months. Among those who are not regular users are one who had smart devices earlier or have accessed internet at internet café or libraries while they were studying. The extent of internet access across total respondents and among gender is seen from the below graph.

Figure : Frequency of Internet Access among respondents

It is disturbing that even in this space, women continue to be less empowered than their counterparts. Out of the people who have never accessed internet, 56 % are women. The extent of such women would be more if only women were to be interviewed. During fieldwork of this study there were scenarios observed by the author where women usually mothers would alert their children to respond to the questionnaire as the word Internet or Data or WhatsApp didn’t seem to ring a bell among them. This points out to the extent of awareness on internet and it’s usage among them. Because the ownership of smart devices was higher in men, they used internet more frequently. Men who used internet daily was at 46 % versus 28% for the Women.

Views about age influencing internet usage was discussed and taken up by the author. In Lekkanahalli for instance, discussion took place under the banyan tree where a group of men were playing cards initially. This group with 8 people whose age ranged between 26 and 64 with flying comments from passing people. It was only the youngest person who used internet, while all the rest who seemed above 35 years never accessed internet but wanted their children to understand and use benefits the internet had to offer. Similarly in Dhumakuntahalli, one of the discussant from the group said “*only 25 % of the villages know and use internet. Villagers above 35 years of age don’t have much idea about internet*”.

While these narratives paint such stories, the data seems to support such views. Significant number who access internet daily are below the age of 35. This is expected as youngsters are prone to learn and use new technology. The need for socializing or communication using internet platforms motivate this group to use internet. Beyond this age, the proportion of users who never got online increases with increasing age. This group tends to be technology handicapped as they feel usage of internet access through smart phones is either beyond their comprehension or internet bring no value to their lives.

Figure 7: Internet access among different age groups

If one analyses the internet usage across caste, the OBC group which includes Vokkaligas, Balajigas, Bajanthris, Neygis, Vaishyas etc. dominate the sample. They are highest among users who never accessed internet, spread across the mentioned caste groups. The same group also had daiy usage of internet being highest gradually reducing with the Scheduled Caste (SC) and lowest among the Scheduled Tribe (ST). It is the ST group which seem to be out of the internet generation having relatively higher numbers not ‘connected’ to internet.

Figure 8: Frequency of Internet Access across caste

## 4.2.1 Smartphones- core of digital infrastructure in rural regions

More than the third of the respondents i.e. 85 % accessed internet through the use of mobile internet from smart phones. This is also true with the larger rural India who prefer mobiles to TVs. According to Telecom Regulatory Authority of India (TRAI), currently there are 499 million mobile subscribers in rural India as of June, 2017 of which 109 million users own smartphones (Sharma, 2017). There are two primary reasons behind this development. First, smart phones have become more affordable with many mobile companies rolling ‘budget’ phone to attract more buyers. Second, mobile internet rates have become more affordable. Thanks to the entry of Jio 4G provider, the prices of the data plans have dropped significantly due to the competitive pricing between operators. This is reflected in the other 12 % who shares data with family and friends as a result of the affordable plans and options in smart phones which enable sharing of data. Thus smartphones along with the telecom operators form the backbone of digital infrastructure which enable internet use among rural users. Personal ownership of digital devices like Desktop and Laptops are still low. Smartphones are still preferred even for educational purposes.

|  |  |
| --- | --- |
| How do you access Internet | Share of respondents |
| Personal computer/laptops/tablets | 4% |
| Use mobile internet from Smart Phone | 85% |
| Have access to device and data on share basis | 12 |

Since, most people access internet from phone from home itself, there is no need for them to travel. While some respondents who traveled were mostly students who accessed internet from either their educational library or internet café for filling educational/govt. related documents.

## 4.2.2 Using the internet- Affinity for social network and entertainment

To understand what use the rural populace have for internet, following are experiences of few people. The first is about Chandrashekar LV who resides in Lekkanahalli is an assistant teacher at a nearby Govt. high school. He actively uses internet to access information by navigating on websites like YouTube, Wikipedia and Britannica. He often downloads informative videos to teach children at school. According to him, internet has opened up possibilities to educate self and others. He regularly uses online banking for making financial transactions and began to experiment with online shopping these days.

Second, is the experience of Shashikala who at 32 years is a housewife uses mostly WhatsApp, YouTube and Facebook. She says “*I don’t know how to best use the internet*”. Third, the experience is of Narsimha Murthy. He works as an employee at a private group doesn’t know what is available on the internet and he is constantly hooked on social networking sites like WhatsApp and Facebook. The cases of Chandrashekar are very few and rest of the internet usage among other respondents resembles that of either Shashikala or Narsimha Murthy.

According to the study data, applications like WhatsApp, YouTube and Facebook dominated the usage among 79 % who used internet. To capture this behavior separate category which includes both social media and infotainment channel is considered. Some users were found to access only WhatsApp under social media group (10%) and YouTube only under Infotainment category (8 %) navigating on news channel to track current affairs around the place.

Figure 9: Internet Products used by respondents

Users who access Wiki or alike website or government and bank websites are mostly students for completing their project assignments or visited government and bank websites to complete their scholarship/college exam process. Others include farmers who visited government websites for claiming some benefits. Another layer into understanding such extensive use of social media and YouTube services is possible due to the presence of pre-installed applications in such budget phones. In such scenarios, the users typically don’t enter any keywords to navigate to such websites and access with help of just a click. This is fairly evident and supported by data on understanding the digital ability of the respondents. The digital ability is captured in the following graph on the basis of the ability of the respondents to perform the mentioned tasks. More than half the respondents had issues with navigating on the web (51%), creatively use key words (58%) and understanding the language which requires them to perform certain task (53%).

Figure 10: Digital ability among respondents

While services like emails, social networking, online shopping, financial transactions are prevalent in urban regions. Entertainment like watching videos, movies, programmes, sports matches etc. drives internet consumption in rural regions. Even online financial transactions which include both e-commerce and digital payments or transfers are still not preferred. Lack of skills to perform such digital tasks is prevalent and is characteristic of the respondents who have accessed internet in the study region. The following graphs corroborates such behavior among rural users. Using internet for online ticket booking, online banking, accessing government services forms a tiny proportion of their usage.

Figure 11: Using internet services among respondents

It is clear that watching/streaming regional programmes, sports, news, playing games, social networking are major activities among respondents. A small proportion of the respondents use internet for research (14%) and Job search (13 %). As mentioned earlier, financial transactions are still not popular as this interface represent a new language or practice which requires more effort and time for confidence undertake such transactions. On this note, online shopping is opening up in such areas but payments have to be made online. When booking is made, the delivery is picked by customer from nearby big town like Chikballapura or Bagepalli. Therefore, digital literacy continues to be challenge making rural users apprehensive about engaging with new interfaces with technology.

Figure 12: Using digital services among respondents

Very less people use them to gather news, book online tickets or access bank websites. The idea that internet could potentially offer platforms or services where it offers economic benefits to their business, richness to their education and enable smoother financial transactions is limited among respondents.

## 4.3 Barriers to Digital Inclusion in the study region

The inferences made in this section are drawn from one to one discussions and focus group discussions (FGDs) conducted in the study villages. The observations and inferences are collated under the major themes mentioned below.

**Ownership and access to Smart devices**

In Dhumakuntahalli village, there is Nagaveni in her 30s running small shop selling tea, biscuits, cigarettes and pan masalas. One finds people loitering around her shop along the road sipping tea, ruminating pan masalas or smoking beedis. She manages the shop between 11 am to 4 pm when her husband is out for work. She has a confident smile when says she has passed SSLC (10th grade) and knows some English. But that has not resulted in her accessing internet. There is no smart phone in her family. The only communication happens with basic phone which her husband owns. She says she has no interests to know about internet before going back to handling customers in her shop. This is one of the principal barriers among large number of non-users. Most people who never accessed internet is due to non-availability of smart devices, affecting women the most.

Smart phones are most often owned and used by the children and the male head of the family. The children often migrate to the nearest towns like Bagepalli, Chikkaballapura and even Bangalore for their education. Thus, young students have had external exposure to digital technology through schools and friends. This influences the ownership of smartphones among children. While, the men in the household owns smartphones for excuse of work and contact purposes. The women in the family are left with older basic keypad phones used for calling purposes only. They cannot justify their claim to smartphones and hence are away from internet access.

**Touch phones or Internet- not a priority yet**

This is extension of the previous barrier, but the thoughts behind this barrier is worth sharing. There were mixed opinions about this barrier. We conducted a group discussion consisting of only women near a temple premises in Halegudibande village. After discussing the extent of digital literacy among them, one of respondents said, “*spending our hard earned money on a smart phone seemed absurd. Women laborers earned 150-200 INR per day and spent on necessary items for their house and they had basic phones for communication*”. They seemed content with the present level of communication. The older women didn’t feel the need to spend extra thousands for “touch phone” which seemed like a luxury. To access any government service or documents, they went to the Taluk office and get their work done by an “agent” by paying certain fixed charges. A younger women responded “*Time is fast changing, as smart phones are becoming a household phenomenon, Internet beeku (we need internet)*”.

Another relevant experience was of Shivaramareddy, a 47 years old waterman of Halegudibande. He manages water supply of the village by operating motor at regular intervals. He had not accessed internet in his life. He took out his basic keypad phone from upper pocket and shared that he uses this for calling purposes only knowing to press “the green and red buttons”. He felt no necessity to know anything about internet by buying ‘touch phone’ as he saw no value and was hesitant of learning something new at this age. But there views differed when they spoke as parents they wanted their children to be equipped with internet and enhance their skills to become competent at education and work. More than economic inability to buy smart devices, their perception of needs have driven them to make such choices.

**English as Digital Language**

This is yet another major barrier which hinders internet access. Nearly 53 % of the respondents agreed that language was a constraint for accessing website. This were people who had very little or no education at all or were not competent in English. Hence, it was difficult for them to read, interpret and use internet services in English. It is true that many different vernacular languages are available for use, but most websites (exclude certain government websites) are in English in their default mode and changes have to be applied for vernacular languages. But things became more complex when we spoke to Rajamma, who manages water supply in Kadehalli. She said she didn’t have any formal education. She added “*I know to speak local language, but can’t read and write the same*”. This adds to the complexity of language barrier. This was reiterated in group discussions carried out in the same village where one women said “*we can’t read or write the local language and don’t follow English too*”. In such scenarios, respondents will face challenges even if the website runs vernacular languages.

**Lack of Digital Saathi or facilitator**

The experience of Shariffa in Halegudibande is relevant while discussing this barrier. She runs grocery shop in her village. She has never used internet and held up a smartphone in the hand saying “*I don’t know to use this phone. All I can do is answer the phone by sliding finger on the screen. This is my son’s phone who is currently studying in final year degree and he uses it. I studied very little 1st or 2nd standard maybe and don’t understand things in this phone*”. She feels unimportant about learning internet now. Such people represent part of that group who didn’t have the opportunity to learn about internet. But the question that arises who would teach her about internet? Her son could teach a thing or two about internet but he is away for most of the time in college.

This is another layer to consider, such villages only have primary education facilities. To continue secondary education children migrate to nearby towns. Sometimes they travel back returning only around night and spend less time at home. The working men also migrate and return occasionally. Migration of the young and working class influences the adoption of digital technology and their use in rural communities (Pavez, 2016). In these circumstances, most women and middle aged people lag behind in terms of knowledge about internet. In the group discussion in Halegudibande, one women said “*the younger generation don’t teach the older generation about use of internet*”. Hence non-users lacked motivation and knowledge about how to use internet. They are unaware of the potential benefits of using internet and changes it can bring in their daily lives.

**Attitudes and engagement with digital technology**

The researcher came across various prejudices which contributed in excluding people in digital inclusion. First, the usage of internet as we have seen earlier in lower among women but it further excludes them when owning a smartphone by women is not well appreciated by members of their society. Shashikala who uses internet on daily basis in Lekkanahalli says “*women and girls are labelled as bad if they use mobile*”. The group discussion with the women in the same village summed up such opinions where smart phones as “things” that stand to spoil women. Second, relates about concerns with the occupation mindsets of middle aged and old group of people. According to them, digital connectivity was of no significance to their economic life. Many people who practiced agriculture expressed that there is no requirement of internet or need to develop any kind of digital literacy to carry out their work. Hence they didn’t need any internet or its services and they are able to live without internet.

The third view was regarding the hesitancy or fear of making financial transactions. Online shopping doesn’t provide cash on delivery options, user has to make online payment. This requires interacting with technology to an extent of trusting to enable transactions. Most other business transactions were largely done on cash basis. Only 7 % of the respondents used services offered under online banking. Most shop owners in the town of Gudibande and the villages surveyed informed that digital payments are not yet the norm and everyone insisted on cash payments. Lastly, Nagarappa in Lekkanahalli village narrated the story of internet usage and how it became synonymous to accessing websites with adult content. He says “most boys of this village have fallen into the trap of using internet for “unwanted things”. This situation has compelled many to avoid using internet in his village and enforcing the same for his children.

# **5. Conclusion and Policy recommendations**

The study sought to understand the proportion of rural communities which are digitally included. It aimed at understanding the factors that favors and hinders the process of digital inclusion in the study region. The study further investigated the extent of digital inclusion based on gender and social groups closely associated with rural parts of the country. It found that public policies like Digital India program and e- initiatives in Karnataka promoted internet connectivity through the development of necessary digital infrastructure. All the villages were found to have total electricity infrastructure with equally supportive data network by the telecom operators. The signal strength posed certain challenges, but not to an extent to hinder digital connectivity.

49 % of the respondents have accessed internet on daily basis or have accessed it at earlier time. Of this men were more connected than women. More than the third of the respondents accessed internet through the use of mobile internet from smart phones at home. 79 % reported using internet for WhatsApp, YouTube and Facebook. This dominated the usage of internet due to the presence of pre-installed applications which came with the smartphone. Using internet for online ticket booking, online banking, accessing government services formed a negligible proportion of their usage. This is the characteristic of the respondents who used internet in the study region.

It is be noted that availability of economic resources and technological infrastructure is only the first step towards digital inclusion process (Pavez, 2016). This is relevant to the findings of the study, where certain factors, including the needs of the people in specific social and cultural context played an important hindering role. The study found that 51 % of the respondents have never accessed internet due to various hindering factors. The digital divide continues to exist with more disparity seen in rural women. Among such barriers, ownership and access of smart phones was the principal concern to large number of non-users. Most of them never accessed internet due to non-availability of smart devices, affecting women the most. For many, it was difficult for them to read, interpret and use internet services in English

Most users who access internet on daily basis fall below the age of 35. Beyond this age, people tend to lack the intention to adopt and engage with new technology such as internet in this case. The role of the digital facilitator was needed, as a result most women and middle aged people lagged behind in terms of knowledge about internet. Many expressed that there is no requirement of internet or need to develop any kind of digital literacy because their work continue without internet. They didn’t perceive internet to bring any value and have such mindset. Such rural communities, especially the poor and women are left out of Digital Included India, devoid and more importantly unaware of opportunities lost both at personal and societal levels. But the question that emerges, do we really them force digital inclusion on them?

The study brings out the view that dominant focus through Digital India and e-governance atmosphere in Karnataka has been in overcoming digital infrastructure barriers. But digital inclusion is a complex process, the extent of its realization will be depend upon factors such as the appraising tangible needs of the people and their present skillsets, enabling adequate social support and offering value to build motivations. The study finds that rural communities faces specific characteristics which must be considered in framing or implementing digital inclusion policies. Specific interventions for e.g. to educate the youth from digitally marginal background should be undertaken. The training should enable them to operate digital devices and enable them to send and receive emails, browse internet for advanced information, access government services undertake digital payments among other digital ability. (Overview of PMGDISHA, 2018). Digital Saathi or facilitators created by such trainings will help overcome this digital divide among urban-rural, male-female and empowered-non empowered ones. Given that digital inclusion in rural areas heavily depends on mobile internet, concrete steps to strengthen this infrastructure and improve the quality of service in these areas should be priority decisions.

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1. The author is currently a Wipro Sustainability Seeding Fellow working on solving water quality issues with INREM Foundation and part of rainwater harvesting initiatives under Biome Environmental Trust. [↑](#footnote-ref-1)
2. Institute of Museum and Library Sciences, “Building Digital Communities: A framework for Action”, pp 1; University of Washington, 2010 [↑](#footnote-ref-2)
3. The author would like to acknowledge the efforts of Manjunatha P, field officer for INREM foundation for his constant help with translations during fieldwork of this study. [↑](#footnote-ref-3)