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Enabling BharatNet Access: Where do the Institutional Users Stand?

LIRNEasia
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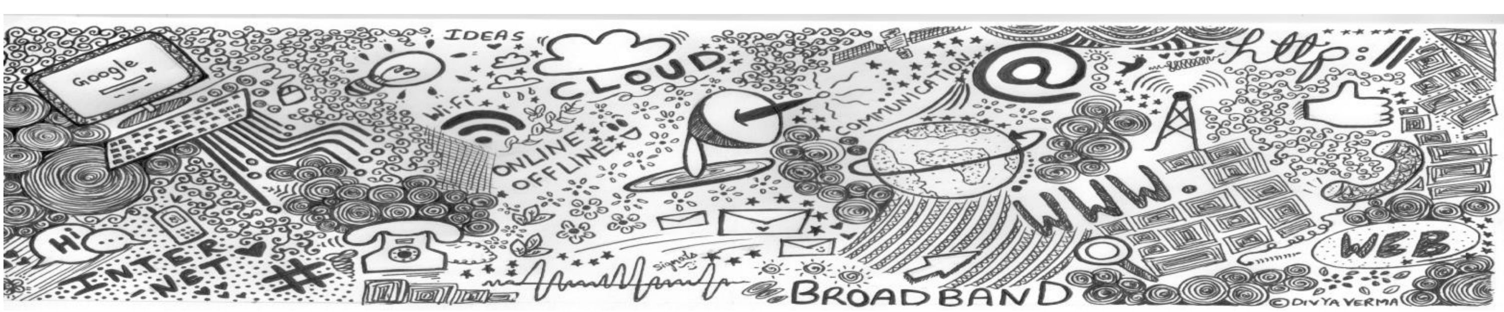
July 2017



Acknowledgements

We would like to thank Ford Foundation, New Delhi for funding the study. However they are not responsible for the contents in this report.

Many thanks to the following people!
Roshanthi Lucas Gunaratne had contributed in the ideation phase of the project. Anushruti Vagrani undertook pilot study in rural Rajasthan required for the project. Surat Pyari had provided research assistance in early stages of project. Nalini Srinivasan helped in converting most of the data tables into a text form used in this report. Vandana, Manisha & her team at Nilsen Mumbai office led the survey and put the descriptive statistics together. Officials at the Ministry of Electronics and Information Technology, participants of the LIRNEasia's Course on Broadband Policy and Regulatory Processes at New Delhi, respondents of the qualitative study - industry representatives, experts, and public officials were patient while hearing our findings and gave useful feedback. Other LIRNEasia members who are not part of the study had been ruthless in providing constructive criticism.

Executive Summary

Background

The present research report surveys the status of BharatNet through studying present and potential institutional users at the gram panchayats in India. The Government of India is connecting 250,000 gram panchayats through optical fiber network by Bharat Broadband Network Limited (BBNL), known as BharatNet (earlier called as National Optical Fibre Network (NOFN)). This digital infrastructure will take govt.-to-citizens (G2C), business-to-citizens (B2C) and person-to-person (P2P) services to the rural areas and contribute to overall socio-economic development. The cost of the project is estimated to be USD 8-10 billion / INR 70,000 crores.

In Oct 2012, fiber was laid in 58 Gram Panchayats spread across Arian (Rajasthan), Vishakapatnam (Andhra Pradesh) and Panisagar (Tripura) as pilot projects. The connection between the gram panchayats to the households or the citizens' hands is expected to be enabled by the institutional users (public, private organizations, private entrepreneurs and NGOs, etc.). In 2016, in in person survey was conducted with 1,329 institutional users in the pilot sites of Arian and Vishakapatanam.

The study specifically assessed whether present & potential institutional users in the gram panchayats have interest and possess adequate capacity to use and access the Internet and to deliver services to the rural households.

Methodology

The study is first of its kind to assess the institutional users with respect to BharatNet. 24 gram panchayats were selected using systematic random sampling in Arian (16) and Paravda, Vizag (8) and respondents were from state government, central government, private and non-governmental and semi-governmental organizations. Computer assisted in-depth interviews were conducted in person. 1,329 decision makers were interviewed in Jan-Feb 2016. The questionnaire covered organization profile, internet usage, triggers and barriers towards internet usage, and awareness of technologies and BharatNet. The fieldwork was undertaken by Nielsen India Pvt. Ltd during Oct 2016 – Jan 2017.

In the sample of institutional users or respondents, 77% of respondents are males. 37% of sample fell in the range of 26-35 years and 34% in 36-50 years. Only quarter of sample had education below 9 years of schooling. Almost all of the respondents had a phot id card, aadhaar card and bank account in own name. Two third of them know how to send SMS, half of the know how to use search engine, and use email. One tenth of them can troubleshoot hardware and minor software related problems.

68% are from private organizations, 23% from state, 2% from central and 7% semi government organizatios. Among the private organizations, 59% are petty traders. Overall, half of the sampled organizations have been started seven or more years. Of the cutomers served by them, 68% come from the same locality. Half of the sample is receiving electricity for more than 10-12 hours and 35% for 7-9 hours during 0600-1800 Hrs.

Key Findings

The key findings of the study are:

ICT Ownership & Access

- Out of 1329 contacted, only 32 institutional users access BharatNet.
- 65% organizations do not use Internet from any source.
- 62% of the instituttional users do not use Internet at the personal level as well.

- Among non-users, intention to use Internet in future is about only 16%. Half of them do not intend to use Internet.
- In terms of usage, on an average 3.4 years, Internet is being used. Number of public organizations are slightly higher and are shade bettter in openess to use BharatNet in future.
- One third of organizations reported that they are computerized. Inter-office connectivity is better among public organizations.
- Mobile Internet is the predominant form of access, ~43% and wirline access is around 10%.
- The Internet expenses including all mediums is: median - Rs. 300; average / mean - Rs 799 (Std Dev 1777). For the institutional users, this amount is perceived as expensive.
- Private telecom service provider, Airtel is the distinct market leader in all forms of Internet access among the users.
- In nearly 2/3 of the organizations, the respondents do not have additional manpower to handle the ICT related infrastructure. This is not surprising as most of them are very small organizations.

ICT Usage: Present & Future

- The Internet is used 3-5 hours per day by the organizations.
- The top three activities done at the personal level are: Reading Info Online, listening to music, radio online, and video.
- Use of private programs like accessing Google for information, using Whatapp and Facebook are done very frequently and higher than accessing governmental portals.
- Among Internet users, intercation with suppliers (33%), contacting potential custoemrs (33%) and interaction with customers (26%) and done 'somewhat frequently' or more.
- Only 8% of users are open to provide internet as product or services to external people, if permitted.

Triggers and Barriers of Internet Use and Access

- The top three triggers for Internet use are: 'to get instant information access' (69%), 'can do many things at once using Internet' (58%) and 'everyone around is using Internet' (51%).
- The top three barriers are: 'can continue work without internet' (75%), 'do not have required devices to access the Internet' (73%), 'no prior experience of using the Internet' (52%).
- The other barriers included: 'inadequate technical capacity', employees do not know how to use Internet', and 'using Internet is too complicated'.
- There are not much difference between personal and organizational use of Internet in terms of triggers and barriers.

Awareness about BharatNet / NOFN: Nature and Sources

- Awareness about wireless Internet is fairly high with 45%.
- Awareness about ICT related programmes appears to be poor: 83% did not know about optic fibre, 76% about Digilocker and 68% about Digital India.
- In overall, 30% of the responents claimed that they are aware of the BharatNet / NOFN of which 8% claimed to know it very well.
- "Newspapers" at 39%, "Friends and Family" at 37% and "Televisions" at 30% are top three sources of information about BharatNet / NOFN. People at office or business, 26%, is the next big source of information which is also the biggest source of information for public organizations.
- Of the perceptions, 67% agreed that BharatNet / NOFN is fully owned by the government and almost equal about connecting 250000 GPs in the country.
- Half of the sample felt that BharatNet / NOFN provides free Internet to people.
- Slightly less than half felt that poor electricity supply will affect BharatNet /NOFN.

- Among the Internet users, the top reasons for not using BharatNet / NOFN are: ‘Equipment breaking down’ (54%), ‘Slow Internet connectivity’ (53%), and ‘Already having internet’ (54%).
- The respondnets are optimistc about the potential uses of BharatNet / NOFN. Following are some of them: ‘Learn new skills for personal use (65%), ‘Access to better hospitals’ (66%), ‘Finding new business opportunities’(63%), ‘Access Internet banking’’ (70%), “finding new job opportunities” (66%), “getting information about Government Schemes (76%), “learning new things through online videos” (78%), “learning new skills for employment” (68%) and “receiving required latest information” (67%).

Policy Suggestions

The findings were presented to policy makers, industry representatives, academia, NGOs and opinion leaders. The implications and policy suggestions were developed on the basis of the feedback received. Following the major suggestions:

- There is a need for public information campaigns among the institutional users and other stakeholders, as extant awareness about BharatNet is poor. A demonstration of benefits and opportunities available is likely to result in better adoption.
- Private players including telecom service providers are not participating due to opaqueness in the project design, implementation and other terms and conditions, commercial viability and profitability, ease of doing business, and clarity of terms and costs. Better interconnection details and single window clearance are likely to accelerate the participation.
- Trade associations should conduct activities to spurn entrepreneurship in the rural digital entrepreneurship space. Innovation hackathons may be one of the activities.
- NGOs can work with private firms to deliver ICT based goods and services in rural India, by utilizing the corporate social responsibility funds to be spent as per government regulations.
- Local private entrepreneurs should be encouraged to explore new businesses on the basis of BharatNet. Contact center for ehealth, online education, skills training, and business process outsourcing is a possibility.
- Involvement of state governments by sharing USOF shall help them in taking ownership and exploring appropriate models at the local level.
- Representatives of the public organizations highlighted the lack of coordination between different organizations which is resulting poor implementation and planning about sustainability.
- The post implementation scenario can handled in three major models: Government-led, private-led, and shared model.

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Abbreviations

BBNL	Bharat Broadband Network Limited
BIC	Brazil, India and China
BSNL	Bharat Sanchar Nigam Limited
CAL	Computer Aided Learning
CSC	Common Service Centers
CSR	Corporate Social Responsibility
GDP	Gross Domestic Product
GP	Gram Panchayat
GST	Goods and Services Tax
HSC	Higher Secondary School Certificate
ICT	Information and Communication Technology
ID	Identity
INR	Indian Rupees
ISP	Internet Service Provider
NeGP	National e-Governance Plan
NGO	Non-Governmental organization
NOFN	National Optical Fibre Network
OFC	Optical Fibre Cable
PoP	Points of Presence
PSU	Public Sector Undertaking
SD	Standard Deviation
SDC	State Date Centers
SLA	Service Level Agreement
SMS	Short
SPV	Special Purpose Vehicle
SSC	Senior Secondary School Certificate
SWAN	State Wide Area Network
TRAI	Telecom Regulatory Authority of India
UID	Unique Identity Card
USD	United States Dollars
USOF	Universal Service Obligation Fund

1. Broadband and Development, BharatNet and Institutional Users

The present report presents the findings of a survey conducted among present and potential institutional users of BharatNet in India. By specifically studying about the absorptive capacity of these users, the study offers policy suggestions for future uptake and diffusion of BharatNet. This chapter is divided into three sections. The first section elaborates the linkage between broadband and development. The second section discusses about the BharatNet. The third section presents discusses about the institutional users and the importance of absorptive capacity.

1.1 Broadband and Development

It is generally accepted that broadband plays a key role in the world, impacting the economy, productivity, employment and other spheres of society. The digital technologies, in which broadband has a large role to play, impact three larger domains – businesses, people and government through three main mechanisms – inclusion, efficiency and innovation (World Bank, 2016). The businesses benefit by expanding their trade by expanding to new markets and opportunities through Internet which also lowers the cost of running the businesses and raises efficiency and labor productivity in all sectors. The overall competition also improves in the economy benefiting the participants. For the individuals, Internet creates new job opportunities, increases the productivity and results in surplus value as consumers. The governments benefit from enhanced participation of citizens in the governance process and strengthened public sector capabilities (for a detailed discussion, please see World Bank, 2016). There are ample empirical evidence to support these claims. The evidences are repeatedly validated by different academics and think tanks. Some of them are discussed below.

A large scale study covering 120 countries between 1980 and 2006 showed that for every ten percentage point increase in penetration of broadband services, there would be an increase in economic growth by 1.3 percentage points. This growth effect from broadband is significant and stronger in developing countries than in developed countries (Qiang, Rossotto, & Kimura, 2009). A more recent study on 57 aspiring nations including Malaysia and India showed that the Internet's impact on these economies is among the highest of the countries studied, at 4.1 and 3.2 percent of GDP respectively (Nottebohm, Manyika, Bughin, Chui, & Abdur-Rahim, 2012). In Ecuador, a study done for the period 2009-2011 found that every 1% increment in broadband penetration contributes to GDP growth at 0.052%, increases the employment rate by 0.0156%, increase in annual income by 3.67% of individual who own computers, and 7.10% in income levels of males who used dial-up Internet (Raúl & Callorda, 2013).

Another study looked at macroeconomic and microeconomic impacts of broadband focusing on eight OECD countries, as well as Brazil, India and China (BIC) (Ericsson, 2013). At the macro level, there are economic effects (increased innovation and productivity in businesses), social effects (better access to services and improved healthcare), and environmental effects (more efficient energy consumption). This relationship was provided using national level statistics and casual models. At the micro level, broadband access affects development in multiple ways. Household income increases by USD 2,100 / year when the broadband speed is consumed at 4 Mbps, whereas in the BIC countries, it is USD 800 / year. The study also highlights the possibilities of linkage between household income and the outcomes of Internet speed – increased personal productivity, flexible work arrangement including home-based work, access to better information and faster career paths.

Conviction about the potential impact of broadband on rural India is quite common in almost domains - academic circles ((Gopalakrishnan, 2012; Koutroumpis, 2009) private firms (KPMG & CII, 2013), international development organizations (ITU, 2013) and government.

1.2 BharatNet[1]

The Indian telecommunications industry is one of the fastest growing in the world and has been hailed as a success story like no other. In the last two decades since its liberalization in the early 90s, the Indian telecom sector in general, and mobile telephony in particular, have witnessed significant growth. India now is the world’s second largest telecommunications market, with 1.04 billion subscribers as of September 2016[2]. Among many reasons, increased network coverage, conducive competition regulations which also considered to be lowest in the world and the budget telecom model (Samarajiva, 2010) which allowed users to access the telecom network with minimal financial power are significant ones. The demonstration of successful of software outsourcing industry and use of ICTs in all economic sectors have propelled the Government of India to take up digital route for national development both for use at the governance level and as an industry. The Digital India programme which unified all erstwhile egovernance initiatives under umbrella by the present government stands as hallmark of this thinking.

The National e-Governance Plan (NeGP), comprising 27 Mission Mode Projects (MMPs) and 10 components was approved by the Union Government on May 18, 2006. E-Governance was set to evolve from mere computerization of departments into a service oriented, seamless and transparent offering at the citizen’s doorstep. Implementation of the NeGP involved setting up of common and support IT infrastructure such as: State Wide Area Networks (SWANs), State Data Centres (SDCs), Common Services Centres (CSCs) and Electronic Service Delivery Gateways.

The establishment of CSCs in rural areas was one among the many mission mode projects. The CSCs were to provide high quality and cost-effective video, voice and data content and services, in the areas of e-governance, education, health, telemedicine, entertainment as well as other private services[3]. The CSCs are also becoming center of all Digital India related activities in rural India. For instance, the present demonetization implementation challenges are being tackled through financial digital literacy programmes being conducted by CSCs to spread awareness and to improve the digital money initiatives[4].

The Broadband Policy was introduced in 2004[5], which highlights the 'potential of ubiquitous Broadband service in growth of GDP and enhancement in quality of life through societal applications including tele-education, tele-medicine, egovernance, entertainment as well as employment generation by way of high speed access to information and web-based communication'.

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[1] This section is based on an earlier work done by Ilavarasan and Srinivasan (2014) and kept under Creative Commons License at http://lirneasia.net/wp-content/uploads/2014/04/Naional-Optical-Fibre-Network-in-India1.pdf. This work can also be considered as a starting point for the present study. A revised version of the same paper is published as Srinivasan & Ilavarasan (2015).

[2] http://trai.gov.in/WriteReadData/PressRealease/Document/PR_No_117_Eng_09_Dec_2016.pdf

[3] For more details, please see http://csc.gov.in/. The roll out status is here: http://csc.gov.in/cscstatus/cscstatus.html

[4] http://indiatoday.intoday.in/story/cscs-to-offer-digital-financial-literacy-in-rural-india/1/823717.html

[5] www.dot.gov.in/print/telecom-polices/broadband-policy-2004

The broadband access to rural populace was conceived through a committee led by Indian rural telephone messiah Sam Pitroda, (for details, Pitroda, 1993) in a white paper entitled, 'Broadband to Panchayats' (PIII, 2010). This paper outlined the need to extend high speed Broadband services to 250000 Gram Panchayats (GPs) in the country through optic fibre network, built by public organizations.

GPs are the local self-government body at the village or small town level in India. A population of 500 is required to have a GP. Sometimes two or three villages are combined to form a panchayat, hence the size varies from state to state (for more details, see Buch (2012)). The GPs are the backbone of last line of administration created by decentralization of powers in India through Panchayat Raj Act. Village councils at the GP level have powers to decide about the way finances are spent in their neighborhoods. The GPs became important in the post liberalization era where the fund disbursal from the central government to the state governments also included periodic conduct of panchayat elections.

By 2010, only 0.53% of India's broadband connections were working on optical fibre. The country had close to 1 million routes Km (rKm) of optical fibre network available and of this nearly 650,000 belonged to the state owned BSNL. Hence deployment of optical fibre involves significant costs and challenges involved in acquiring the Right of Way (RoW) and laying the cable and installing the associated equipment. The white paper estimated a cost of 2.66 billion USD and 24-30 months for the complete deployment through creation of special purpose vehicle (SPV) of relevant public sector stakeholders and departments. On 25 October 2011 the Government of India approved the setting up of National Optical Fiber Network (NOFN). In Jan 2012, the government had formed a special purpose vehicle for the same, called as Bharat Broadband Network Limited (BBNL) and incorporated as a Public Sector Undertaking (PSU) in 25 February 2012. BBNL was to be a wholesale bandwidth provider who would provide non-discriminatory access to the NOFN infrastructure to all Service Providers.

In 2009, the existing fibre optic infrastructure deployed by various operators was approximately 1.1 million Rkms and covered the entire urban area but had only limited presence in villages and rural areas. BSNL accounted for most of the existing fibre infrastructure (~60% of the total) and had Points of Presence (PoP) in all the districts / cities and 28,000 villages. It was estimated that additional optical fibre cable OFC deployment of 301,000 route kilometres mainly from blocks to villages to cover the 250,000 GPs as part of the backhaul network is needed (Analysys Mason, 2010). The final deployment plan is based on utilizing the existing optical fibre network of BSNL, POWERGRID and RAILTEL. Allocation of Gram Panchayats to BSNL, POWERGRID, RAILTEL is 70%, 15% and 15% respectively. The scheduled time line for completion is 24 months. The schematic presentation of the programme is given in Figure 1.

The NOFN is to be rolled out in a phased manner at a cost of 4 billion USD and was slated for completion in December 2012. The funding for the project shall be from Universal Service Obligation Fund (USOF) collected from the telecom service providers. Upon the completion of the NOFN roll out, GPs were expected to get broadband connectivity with speeds of up to 100 megabits per second. The proposed completion period for the project was December 2012. As part of the project, the State Governments are given the role of providing free Right of Way (RoW) for laying Optic Fibre Cable (OFC). According to BBNL (2013), NOFN will be using Gigabit Passive Optical Network Technology (GPON)[6]. This technology reduces the amount of fibres from the Central Offices (CO) as compared to a point-to-point system. One, or fibre pair, from the CO in the network is split into several subscriber lines by use of passive

[6] For further details, http://www.bbnl.nic.in/content/page/technology.php

optical splitters. These splitters are inexpensive and do not use electronics and no maintenance and power supply is required. They can be kept at any convenient location in the network.

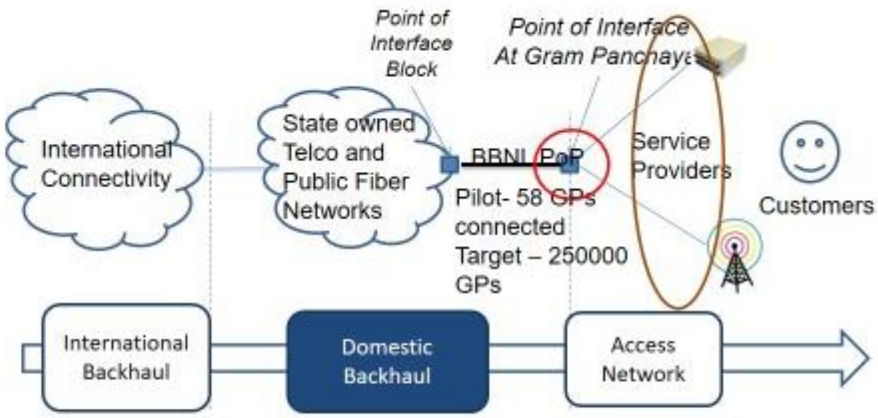


Figure 1: Concept map of BharatNet / NOFN
Source: http://www.bbnl.nic.in/content/page/nofn-concept-diagram.php

It is expected that various services or goods for the rural population could be delivered through broadband, especially through public service institutions. As the numbers indicate (TRAI, 2010) leisure activities music and video downloading, searching information especially education related is gaining popularity and showing considerable increase in Internet usage in rural India. This increasing absorption of ICTs in rural areas, signal a significant impact of broadband in future. Another area where broadband is expected to play notable role is e-education (TRAI, 2010). Various initiatives of the Government for increasing the use of ICT in education are already in progress (for instance, Sarve Shiksha Abhiyan, Education for All programme has a component of Computer Aided Learning (CAL), wherein a provision of 5 million USD per district had been made as an innovation fund. The health sector is another area of focus, apart from small and medium enterprises using ICTs to integrate into the e-commerce market which is tipped to be next growing business sector in India.

The NOFN was to be rolled out in a phased manner and was slated for completion in December 2012. It was subsequently pushed back to December 2013 and has been delayed so far[7]. The government recognizes this delay as in any large public infrastructure building process in India. It constituted a joint working committee with the industry with Mr. Kiran Karnik, a reputed administrator, as its chairperson and identified various measures to tackle the problems. In April 2015, the NOFN name has been changed into BharatNet[8].

The BBNL embarked upon pilot projects in three blocks covering 58 Gram Panchayats in three different states. All participating PSUs (i.e. POWERGRID, RAILTEL, and BSNL) were asked to execute a pilot project in one Block each within 90 days. These Blocks were Arian in Ajmer district (Rajasthan), Paravada in Visakhapatnam (Andhra Pradesh) and Panisagar in North Tripura district (Tripura). The target date for completing the Pilot Projects was 15/10/2012, and the same has been achieved with fibre laid out to all

[7] http://economictimes.indiatimes.com/articleshow/54926866.cms
[8] The report uses both the terms, NOFN and BharatNet, as the questionnaire used NOFN during the data collection.

the GPs in the Pilot Blocks and Electronic Equipment (OLT and ONT) having been tested for offering services.

There are no publicly available evaluation of the pilot projects. Anecdotal evidences and informal discussions do not provide a positive picture, however there is a need for a systematic study. A recent qualitative study of three pilot sites (Mudliar, 2016) highlights the poor implementation and questions the future sustainability of the project. A representative of NOFN[9] observed that the electricity is a major problem. In a pilot location, there is no electricity from 9 AM to 7 PM and installing inverters for 12 hour back-up could serve only as a temporary solution. As the perceived size of the rural market is too small for investment, the response from the private service providers is lukewarm. Initial journalistic reviews of NOFN in Tripura,[10] a hilly region of ethnic minorities, showed that government driven e-learning, direct cash transfers and communication have improved greatly and there are problems in functioning of e-health or electronic out-patient department due to weak digital literacy skills.

Given that pilot GPs had received the BharatNet in 2012 and other GPs are in the process of receiving the same, need for an empirical study in the mid-term helps the empirical process. Though there are studies that focus on the infrastructure building part[11], there has been no study on the users or consumers of BharatNet. The present study attempts to fill this gap.

1.3 Institutional Users and Absorptive Capacity

In the BharatNet plan, optical fibre is being laid till the GPs' office. The onus of taking Internet from that point of contact to the end users is left to the service providers. The service providers can be private, public, NGOs and semi-governmental organizations. At present, CSCs in the GPs are assumed to be connected with BharatNet at a subsidized cost of Rs 700 per year[12]. The access to the bandwidth is being offered on non-discriminatory basis to all private players. Despite the pilot implementation few years ago, it appears that private players have not taken up the BharatNet in a big way. As the service involves requirement of Internet Service Provider (ISP) license, not many entrepreneurs are exploring this space. Tamil Nadu state government has taken up this role through its entity, Tamil Nadu Fibernet Corporation and the work is under progress.

Assuming that ISP license related things are relaxed, the role of private entrepreneurs in GPs have a greater role to play in taking broadband to the households and individuals through BharatNet. As the government is pushing for egovernance initiatives both at the state and central levels, the heads of public organizations at the GPs are likely to use the mandatory BharatNet. The other important players in the village ecosystem, NGOs, political activists and semi-governmental organizational personnel are likely to play a role. Either they provide information to the needy or deliver services to the GPs by making use of BharatNet or serve as a bridge between service providers and the people. In many occasions, political activists or members of political organizations are private entrepreneurs themselves. The study call these individuals as institutional users. These users are infomediaries (Sein & Furuholt, 2012). Inspired from literature related to ecommerce, infomediaries 'essentially match demand and supply through aggregating information needed by users and often provide institutional infrastructure and in doing so,

[9] Identity is protected.

[10] http://www.thehindubusinessline.com/features/some-hits-many-misses-in-tripura-pilot-project/article5753263.ece

[11] http://www.livemint.com/Opinion/HEPnbjHSOEiX8SYszi0UyK/Building-another-pipe-dream.html

[12] http://www.medianama.com/2016/11/223-bharat-net-progress-dipp/

engender trust between suppliers and users' (p. 333, Sein & Furuholt, 2012). The possible structure of infomediaries is presented in Table 1.

Table 1: Infomediaries: Dimensions & descriptions

Dimension	Description
What – The service offered and performed by an intermediary	Offering physical access to the Internet, facilitate access in terms of user support, creating awareness, facilitate access information from Internet, related offline service, training, and other related services (fax, digital photos etc.)
Who – Various intermediary roles	Individual (entrepreneur, developer, government officials informal), organizations (NGO, government, private firms), and technological (devices)
How are services provided?	Direct people-to-people support in public access Internet place, one-to-many training, and remotely.
Why are they doing this?	For profit, development objectives, political or religious objectives
In which context?	Overall general Internal access, In a specific domain like education, and health etc

Adapted from (Sein & Furuholt, 2012).

The most celebrated case of mpesa in Kenya in addressing financial exclusion problem through mobile phones is grate example of institutional users playing a major role as infomediaries in scaling up the innovation (Foster & Heeks, 2013). Mpesa grew because of small agents and distributors who introduced new mechanisms to serve the customers, which later were adapted by the Vodafone, the telecom service provider. Though the idea of mobile money was top down phenomenon, the spread was due to bottoms- up approach. As the institutional users are closer to the rural populace, they would be able to adapt or customize the BharatNet for wider use and diffusion.

The diffusion or uptake of BharatNet is dependent on the institutional users in rural India who double up as infomediaries in rural India. In the context of BharatNet, following individuals or organizations would play the role of infomediaries: cable TV operators, banks, hospitals / primary health centers, post offices, schools, movie theatres, businesses – small & big, agents of telecom operators, talk time sellers, telephone exchanges, public distribution system shops, panchayat offices, Internet service providers, electricity distribution exchanges / offices, public employment program implementers, Gram Sabha leaders, former and present Panchayat chiefs, political organizations, libraries, courier agencies, agriculture extension offices, and common service centers etc.

The study focuses on the absorptive capacity of the institutional users. The concept absorptive capacity is largely discussed in the context of meso and macro units like organizations and countries. Among many things, it is 'about the ability to value, assimilate and apply new knowledge' and requires ' a broad array of skills, reflecting the need to deal with the tacit components of transferred technology, as well as the frequent need to modify a foreign-sourced technology for domestic applications' (p. 188, Zahra & George, 2002).

In the case of broadband, the absorptive capacity of the stakeholders is important to fully realize the benefits of the infrastructure (Kelly & Rossotto, 2012). It is expected that the users of the broadband, in this case, BharatNet, should have capacity to understand, learn and garner the benefits. There are four important elements of absorptive capacity: macroeconomic environment, business environment, quality of human capital and governance. The quality of human capital is taken up by this study. Once the optical fiber is laid, the absorptive capacity of the institutional users will determine the level of reach of broadband to the rural households. Though the optical fiber is laid by the government and led by the government organizations in service delivery, scaling would be made possible only by the multiple sets of institutional users.

The absorptive capacity of the institutional users is examined by asking the following broad questions:

1. What is the level of ownership and usage of Internet?
2. Are they aware of the BharatNet / NOFN, its potential and the projected benefits?
3. In what ways, can Internet change the way they conduct their businesses / activities?
4. What are the future plans of use of Internet in their conduct of businesses / activities?
5. What are the potential challenges they foresee?

2. Methodology

The present section describes the methodology adopted by the study.

2.1 The process

The study followed the quantitative survey method. The data were collected from the present and potential institutional users of the BharatNet. Following categories of institutional users were interviewed at every gram panchayat (GP): state government organization; central government organization; private organization; NGOs; and semi-governmental organizations. Rather than looking at individual consumers as units of analysis, the study focused on the institutional users. Questions were asked to capture organizational or institutional perspective of the Internet. There were some questions related to the personal aspects of the Internet use and access etc. The study assumed that prior personal experiences of using technologies shall result in better and faster adoption at the workplace. The user satisfaction is important for success of information systems in organizations (Delone & Mclean, 2003). These users are main or one of the decision makers for the branch/ business handled in case of bigger organizations who are likely to lead the BharatNet adoption and sustained use.

As a pilot phase, BharatNet was launched by the Government of India in 59 GPs, 30 in Arian block of Rajasthan, 15 in Paravada block of Vizag, Andra Pradesh, and 14 in Panisagar block of Tripura in October 2012. The data were not collected from Tripura, as requested by the funder research due to regulatory restrictions for data collection. The study selected one one GP each from Rajasthan and Andhra to test the questionnaire and to gain understanding of the field. The main survey covered the 50% of the pilot sites of BharatNet GPs in Rajasthan (15) and Andhra (7).

The GPs for the main survey were selected randomly. We arranged all GPs in alphabetical order. Since the survey has begun in November 2015, all letters were mapped against their alphabetical positions and these numbers are then added, which resulted in 94. The digits of the year, 2015 were added to get eight. Adding these two results gave us 102. Totaling of this numbers gave us three which is treated as random number. Every third GP in the selected block was selected for the main study.

From each GP, we wanted to collect data from 30 users spread across four major categories: State, Central, Semi govt., NGO & private organizations. We had envisioned to divide the respondents into two big sets: organizations that collected fee directly for the government and provided services for free, and those collected partial fee for the services and running on behalf of the government and / or owned by the government, semi government, NGOs and private organizations. Due to non-availability of adequate government organizations, we were not able to maintain this spread. The larger part of the sample is of private organizations. During field visits, the research team found this spread to be valid. The central government organizations, NGOs and semi-governmental organizations seem to be less in Indian villages. The distribution of different organizations in the sample and the planned composition for Arian and Paravada presented in Table 2 and Table 3 respectively.

Table 2: Composition of organizations in the sample GPs in Arian

		State Gov. Org.		Central Gov. Org.		Private Org.		NGOs		Semi-gov. Org.		TOTAL	
Centre	GP Name	T	A	T	A	T	A	T	A	T	A	T	A
Arain	Ajgara	15	17	15	1	15	21	3	0	6	5	60	44
	Arain	15	17	15	4	15	101	3	3	6	2	60	127
	Bhagwanpura	15	15	15	0	15	17	3	1	6	3	60	36
	Bhogadeet	15	14	15	0	15	24	3	1	6	3	60	42
	Birla	15	17	15	1	15	37	3	0	6	3	60	58
	Dadiya	15	14	15	2	15	28	3	0	6	2	60	46
	Deopuri	15	15	15	1	15	25	3	0	6	4	60	45
	Fatehgarh	15	20	15	3	15	68	3	0	6	3	60	94
	Gothiyana	15	8	15	1	15	24	3	1	6	4	60	38
	Hingoniyan	15	19	15	2	15	35	3	0	6	4	60	60
	Jheerota	15	12	15	1	15	15	3	0	6	2	60	30
	Kasheer	15	17	15	1	15	28	3	0	6	7	60	53
	Lallai	15	14	15	0	15	11	3	0	6	3	60	28
	Manoharpura	15	17	15	2	15	28	3	0	6	1	60	48
	Sapla	15	13	15	1	15	62	3	0	6	2	60	78
TOTAL		225	229	225	20	225	524	45	6	90	48	900	827

Notes: T – Target; A – Achieved

Table 3: Composition of organizations in the sample GPs in Paravada

		State Gov. Org.		**Central Gov. Org.**		**Private Org.**		**NGOs**		**Semi-Gov.**		**TOTAL**	
Centre	**GP Name**	**T**	**A**	**T**	**A**	**T**	**A**	**T**	**A**	**T**	**A**	**T**	**A**
Paravada	Edulapaka Bonangi	15	7	15	0	15	48	3	0	6	4	60	59
	Gorlivani Palem	15	7	15	0	15	31	3	0	6	4	60	42
	Kunnuru	15	7	15	1	15	32	3	1	6	9	60	50
	Mutyalammapalem	15	10	15	0	15	23	3	0	6	8	60	41
	Paravada	15	23	15	2	15	193	3	1	6	9	60	228
	Thadi	15	4	15	1	15	41	3	0	6	3	60	49
	Vennelapalem	15	5	15	1	15	24	3	0	6	3	60	33
TOTAL		**105**	**63**	**105**	**5**	**105**	**392**	**21**	**2**	**42**	**40**	**420**	**502**

Notes: T – Target; A - Achieved

The sample selection followed a mix of judgmental and snowball sampling techniques. The institutional users of state and central governmental organizations were sought by the investigators. Other respondents were contacted using snow ball sampling technique. Request for interviews were rarely rejected, as the respondents are willing to share the information and spent the time for the research. It is common for the investigators to be invited inside the house for the interviews and a cup of tea.

The data were collected through computer assisted interviews using a structured questionnaire. The questionnaire was constructed by a lead researcher and content validity was checked by a team of six experts. The questionnaire was pilot tested in the two GPs, one each in the Andra Pradesh and Rajasthan which resulted in some minor modifications. The questionnaire was fed into a tablet whose application enabled the interviewers to skip the contingent questions automatically. The data collection was executed by the Nielsen private Limited, Mumbai, India. After the data collection by Nielsen, the researchers randomly selected 10% respondents and validated the data collection by calling them telephonically. During the fieldwork, one researcher accompanied the field investigators for two days and oversaw seven interviews. The data collection was undertaken during October – December 2015.

The final questionnaire consists of the items to capture answers to the following questions:

– What is the level of ownership and usage of Internet?
– Are users aware of the NOFN, its potential and the projected benefits?
– In what ways, Internet is changing / can change the way they conduct their businesses / activities?
– What are the future plans of use of Internet in their conduct of businesses / activities?
– What are the potential challenges they foresee?

In addition to the items related to above questions, demographic details were also asked. The questionnaire was bilingual – English and Hindi / Telugu. The investigators are native speakers of local language and can speak in English. The interviews were conducted in local languages. Consent form was signed by the respondents before the interview. The questionnaire formatted for the tablet is attached in Annexure A.

2.2 Sampled organizations

In the sample, over two thirds of institutional users (68%) belonged to private organizations, wherein Arain this stood at 63%, Paravada had a much higher percentage of institutional users from private organizations (77%). The second category in terms of percentages of institutional users were from the state government organizations, where the overall percentage in this category was 23%, Arain had nearly double the percentage of users in state government organizations (28%) as compared to Paravada. A relatively smaller number of users belonged to the other three categories namely central government organizations, NGOs and semi government organizations. Overall, 68% belonged to private organizations and over the 32% public organization users asked, the majority belonged to state government organizations (Figure 2).

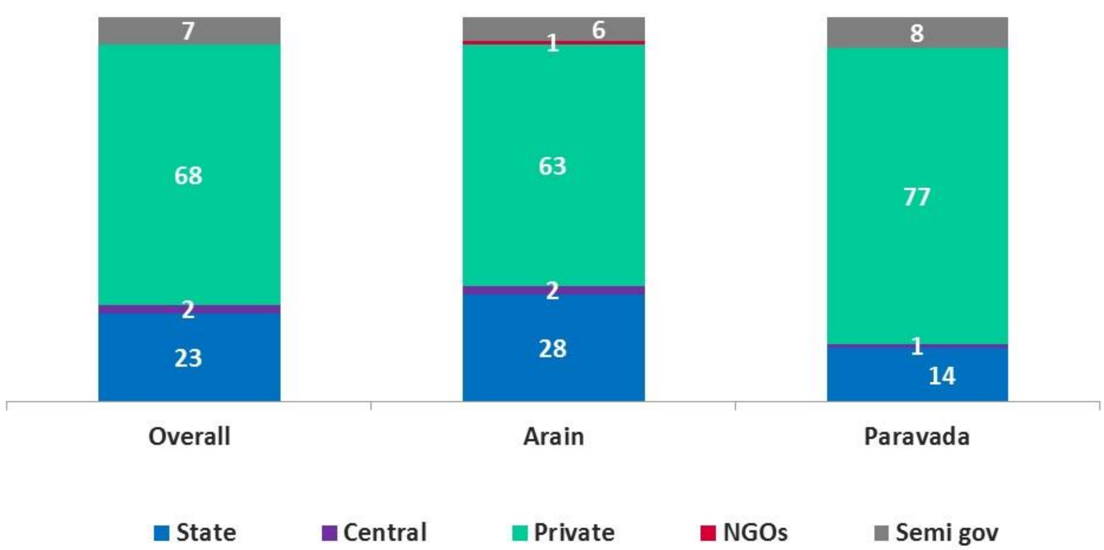
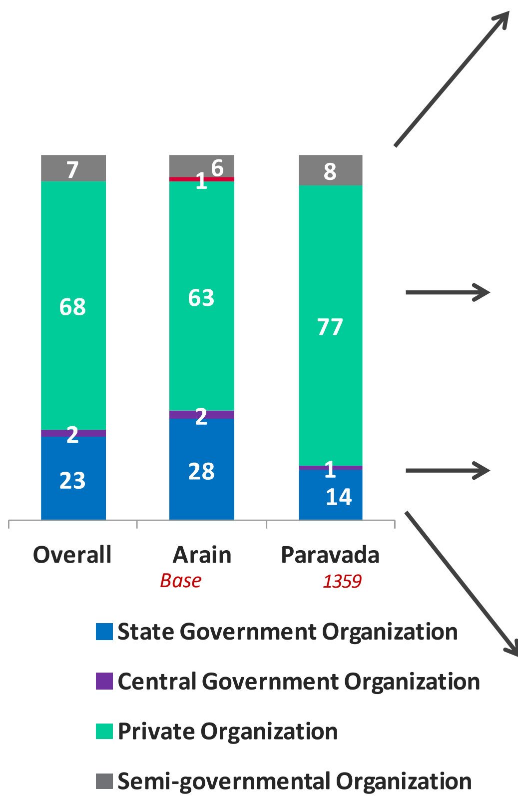


Figure 2: Types of organizations in the sample

Amongst the private organization users, 59% were petty traders and 10% ran small and medium enterprises. The semi governmental users included members of the dairy industry and other cooperative societies that are either sponsored by or affiliated to the government. Of the users from organizations affiliated to the central government, 56% to the postal department and 19% belonged to the nationalized banks. Users belonging to institutions affiliated to the state government came from Anganwadi or state sponsored child care centers (29%), state run schools (29%) and other village level administrative units like Panchayat Offices (7%), public Distribution Shops (6%) etc (Figure 3).



Milk dairy	41%
Cooperative Society	37%
Public distribution shops / Ration shops	11%
Mee Seva	6%

Other Petty traders (general store, carpenter, tailor etc.)	59%
SMEs	10%
Talk time seller	8%
Political Activist	6%
Local Trade Market Entrepreneur	5%
School	2%
Private Hospital / clinic	2%
Ex Sarpanch	2%
Others	6%

Post Office	56%
Bank	19%
Petrol pump/ Gas agencies	12%
Panchayat Office/ Public Emp Program	8%
Telephone Exchange office	4%

Anganwadi	29%
School	29%
Panchayat Office - GS leader/Sarpanch	7%
Public distribution shops / Ration shops	6%
Primary health centre (govt.) – Sub-centre	4%
Primary health centre (govt.)	3%
Public Employment programmers	3%
Bank	2%
Police station	1%

Figure 3: Composition of institutions in the sample

The study also asked about the age of organizations. The users were asked when the branch of the organization was started. At the overall level over 50% of the organizations were established or had been in existence for more than seven years. The average tenure at the overall level stood at 5.1 years. As is to be expected public organizations that include government departments or other state sponsored organizations had significantly higher average business tenures i.e. 6.2 years, where institutions of the state government has an average tenure of 6.3 years and the semi government organizations an average tenure of 5.7 making them older in business compared to others (Figure 4).

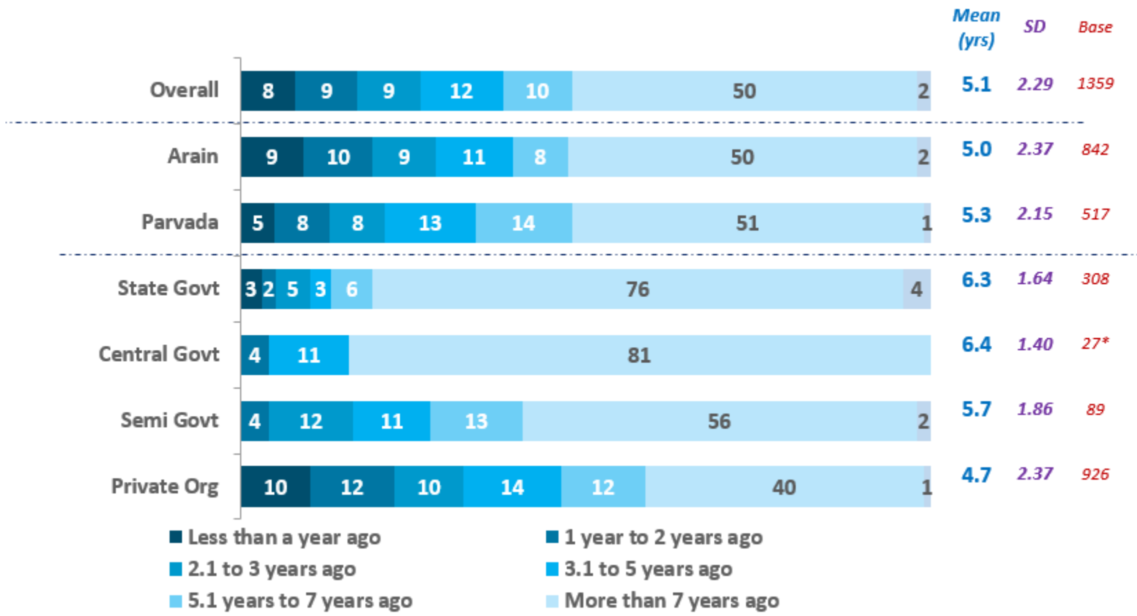


Figure 4: Mean age of the organizations in the sample.

Adding further granularity, in both the locations, the organizations which were seven years or older accounted for nearly half of the organizations from which users were asked. In both localities the average tenure of these organizations was around the five years mark (5.0 and 5.3 respectively with the overall average being 5.1 years). More than three quarter of the state government organizations that the users asked belonged to had tenures of over seven years (76%). With central government organizations this figure stood at 81% and for semi government organizations this was 56%. All these figures further strengthening that fact the government organizations in these locations had been in existence longer than private organizations with and almost a two years difference in their tenures.

The study wanted to understand the nature of customers served by the organizations. The role played by the ICTs can be greater in relation to the distances. The extant research indicates that there are cost savings for citizens by using the egovernance services by not travelling (Bhatnagar, 2010) or small businesses are able to gain more customers by catering to larger number of consumers from faraway places (Donner, 2006). When users were questioned about where their customers originated from, it was found that a majority of the customers came from the same locality (68%) followed by 28% who came from neighboring localities. Only 2% of the customers came from faraway places. In the area of Arain, 85% of the customers came from the same locality as opposed to 42% Paravada where perhaps greater mobility of customers saw a 56% foot fall from neighbouring localities (Figure 5). State government organizations saw the highest portion of their customers come from the same locality while private salaried users saw a significantly higher portion of their customers come from faraway places. There is a possibility that BharatNet would enable the organizations to cater to larger number of citizens or customers through Internet.

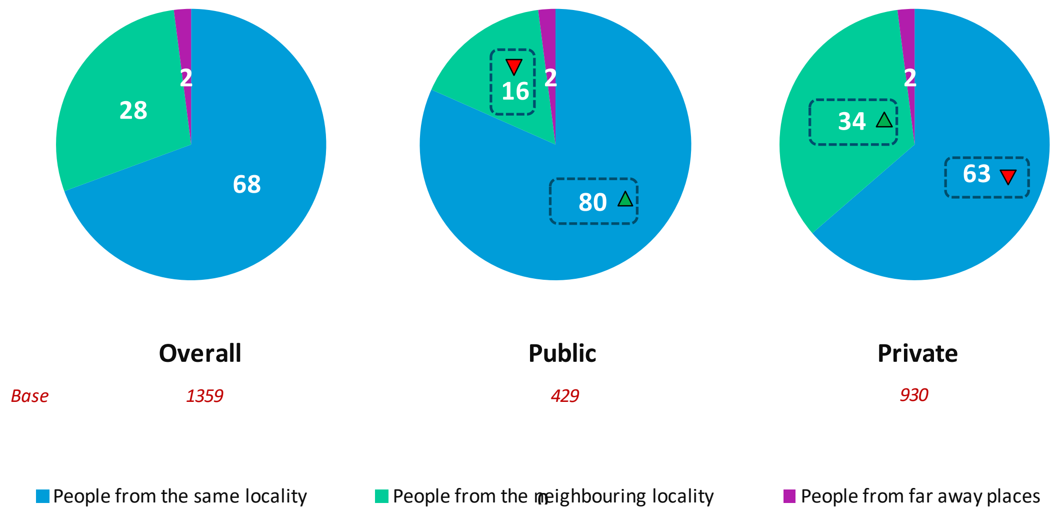


Figure 5: Spread of customers for the sample organizations

The presence of complementary assets are important for the ICTs to be successful. The complementary assets includes many things including organizational characteristics, human resources and basic infrastructure like electricity (Hameed, Counsell, & Swift, 2012). The users were asked as to how long during the daytime between 6:00 AM to 6:00 PM they had electricity supply. The options given were 10-12 hours, 7-9 hours or less than 7 hrs. At an overall level 12% of the organizations seemed to have less than 7 hrs of power during the daytime, 35% had between 7-9 hrs and 52% had 10-12 hrs of power during this time period. With 54% having 10-12 hrs of power supply and 35 % having 7-9 hrs of power supply, private organizations fared slightly better than public organizations where 50% indicated a power supply of 10-12 hrs and 34% were in 7-9 hr bracket. A larger percentage of public organizations (16%) saw less than 7 hrs of electricity supply during the day time as opposed to only 10% for private organizations (Figure 6).

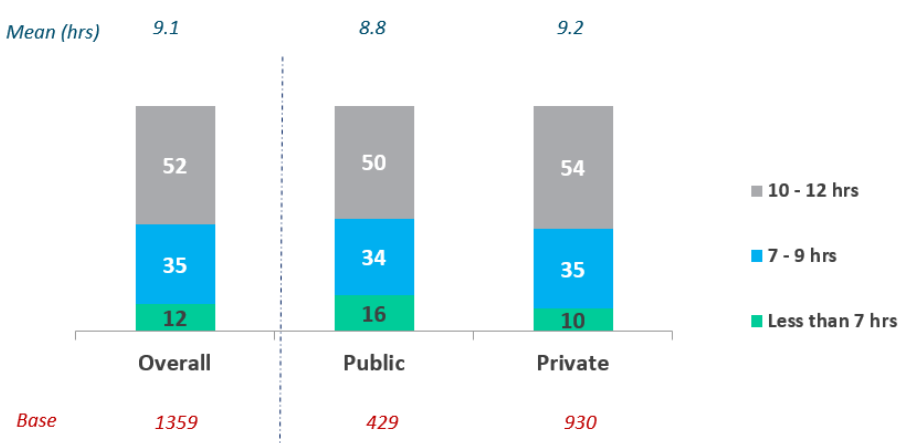


Figure 6: Electricity supply in the organizations

The above finding assures that ICT based business activities are less likely to suffer from power inadequacy problems. Only 12% of the organizations appear to be affected. The study wanted to understand whether organizations are geared up to meet the power problems and fluctuations. In response to questions on whether their organizations owned inverters or generators as a source of backup power, users from 24% at an overall level responded to say that their organizations owned an inverter with 11% saying they owned a generator. A higher portion of public organizations owned inverters (31%) and generators (15%) as opposed to private organizations where these percentages were 21% and 9% respectively. It may be noted that the generators in question are run on diesel which have a fairly high running cost while inverters, which have a chargeable battery, have a significantly higher one time upfront cost and are less polluting. The numbers are surprising, given the larger part of the working day has electricity.

2.3 Respondent characteristics

The study had also collected information about the respondents themselves. Many of the respondents are organizations themselves, as in the case of micro entrepreneur and one person public distribution shops. When this person is ill, operations of the organizations comes to halt. Their abilities and capacities are also signals for the future course of the BharatNet, as these people are going to connect the fiber with the people. At the overall level, 77% of the respondents were males and 23 % females. Users from public organizations who were administered the questionnaire comprised 60% males and 40% females while the same percentages in private organizations were 85% and 15% respectively. In the two localities Arain and Paravada where users were asked, the first had 83% males amongst the users asked and the latter had a ratio of 68% males to 32% females. While Paravada showed significantly high proportion of females amongst the respondents, their proportion is highest in public organizations, while private organizations have significant proportion of males (Figure 7).

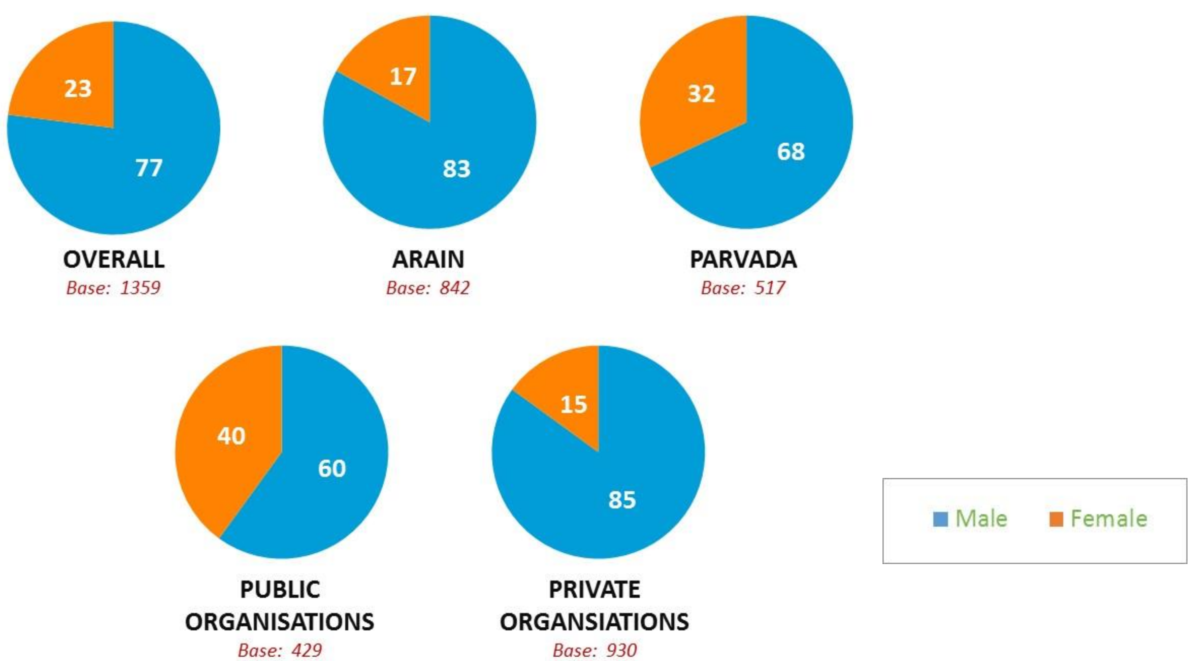


Figure 7: Gender Composition of the sample

The earlier research indicates that the linkage between age and ICTs adoption is negative. As one grows older, the capacity to adopt new technologies seems to be inadequate (González, Ramírez, & Viadel, 2012). The age structure of the sample population is supportive towards introduction of new technologies, especially like BharatNet. At an overall level 37% of the respondents were between 26-35 years of age and 34% were between 36-50 years of age. The combined percentage in these two brackets accounted for 76% in public organizations and about 68% in private Organization. Public organizations showed a significantly higher proportion of mid and older age groups, while private organizations showed larger chunks in the younger age groups. While this proportion of 26-35 year olds was significantly higher in the locality of Paravada (43%), the younger age group was higher in the locality of Arain (22%). The above 50+ age range had the lowest portion of respondents at the overall level (12%) and saw its least portion in private organizations (9%) (Figure 8).

The study also asked about the educational qualification of the respondents. Quarter of the sample has done some schooling, 5-9 years, another quarter has completed senior secondary school (SSC) / higher secondary school (HSC). The educational composition indicate that introduction of new technologies should not be a problem (Bayo-Moriones & Lera-López, 2007), as there is adequate capacity to learn is present among the potential users of BharatNet. The numerical ability of the respondents is also good, with 58% of them could do simple addition, subtraction and multiplication and equal amount of them could calculate percentages, interest rates and tax calculations etc (Table 4).

Table 4: Educational qualifications of the respondents

Education level	Percentage
Non educated	1
School upto 4 years/ no schooling but literate	4
Schooling 5-9 years	25
SSC/HSC	25
Some college but not graduate (Incl. Diploma)	12
Graduate General (e.g. B.A., B.Sc, B.Com)	17
Post Graduate General (e.g M.A., M.Sc, M.Com)	9
Graduate Professional (e.g. B.E., B.Tech)	2
Post Graduate professional(e.g., M.Tech,MBA,CA,MBBS, LLB)	3
Total (N = 1359)	100

The study asked the respondents whether they have a photo (identity) ID card, Aadhaar card and bank account in their name. It is indeed striking that across that board at an overall level, in the two localities and in private and public organizations the possession of the Unique Identity Card issued by the National Government (Aadhaar Card) is close to 100%. Interestingly, again, it is 1% of the respondents from public organizations who don't seem to have an Aadhaar Card. Above 80% of respondents at the overall level, the localities of Arain and Paravada, public organizations and private organizations seem to have government issued Photo Identification cards and these percentages stood at 89%, 93%, 82%, 92% and 87% respectively while the possession of a Bank Account in the individual respondents name saw percentages of 98%, 97%, 100%, 99% and 98% respectively. Comparing the two localities, Arain was found to have a higher ownership of government issued photo ID cards and public organizations were found to have significantly higher ownership of photo ID, compared to private organizations (Figure 9). This information might not be relevant to the respondents of public organizations, but shows a significant indicator of potential among the private organizations. Having a clearly recognized identity and bank account shall serve as a easy point of contacts for programmes that be initiated from BharatNet.

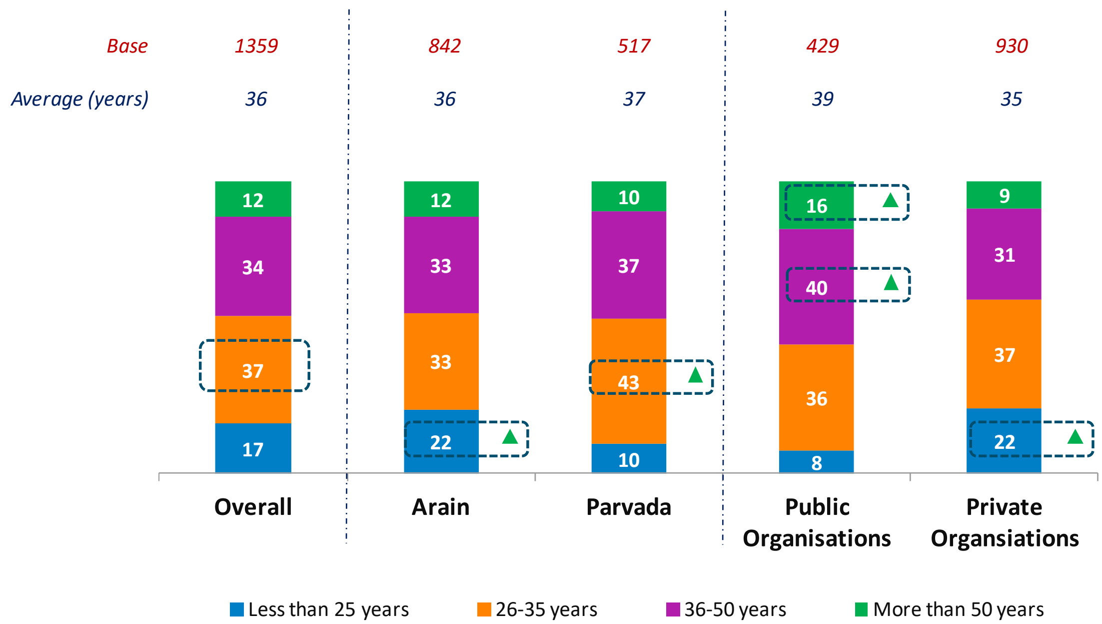


Figure 8: Age composition of the respondents

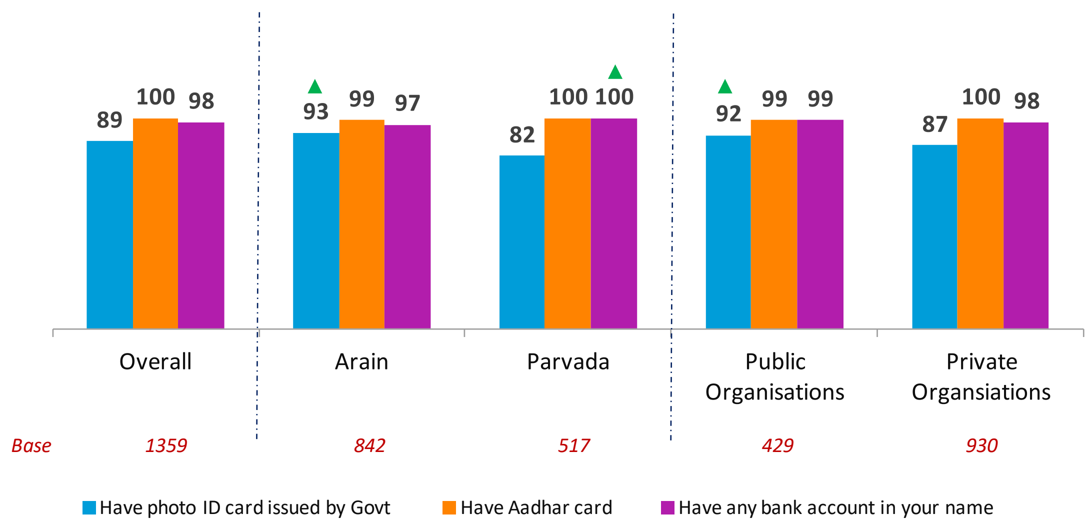


Figure 9: Respondents' possession of photo id card, Aadhaar card and own bank account.

We have asked few questions to capture the technical skills of the respondents. Availability technical skills results in faster adoption of ICTs and organizations are able to generate value out the ICTs deployed (Kannabiran & Dharmalingam, 2012). These skills may be useful in accelerating the adoption of Internet through BharatNet. Two thirds of sample is very comfortable in sending SMS. Nearly half of them knows how to use search engine to find information online. Slightly more than one third of people knows how to send an email. One tenth of sample is also highly qualified who can troubleshoot hardware and software related problems. Overall, the capacity of the sample is positively supporting the potential ability to sustain the programmes related to BharatNet (Table 5).

Table 5: Ability to perform technical activities by the respondents

Technical activities	Very uncomfortable	Neither uncomfortable nor comfortable	Very Comfortable
Sending a SMS	14	9	71
Switching on / off Computer	14	11	48
Using search engine to find information online	14	11	48
Using email	20	14	36
Computer programming	22	16	19
Troubleshoot hardware problems	29	17	12
Troubleshoot minor software related problems	28	17	12

Note: Figures in % of 1359. Total may not be 100% as the table is summarized form of multiple questions.

3. Institutional Users: ICT Ownership, Access, Usage, Triggers and Barriers

The present chapter covers three major themes: ICTs ownership and access, ICTs usage in present and future, and triggers and barriers of Internet usage by the organizations. These themes are covered from institutional perspective and compared with the personal domain in selected places. For instance, frequent use of Internet at the personal level and non-use of Internet at the organizations infers about the possibilities what BharatNet could do at the rural India.

3.1 ICT Ownership and Access

It appears that one of the major challenges of the BharatNet is to make institutions and their functionaries to use Internet. This challenge comes much before establishment of the infrastructure itself. With Internet penetration is possible through mobile phones, larger part of rural India is yet to enter the networked ICT ecosystem. The findings of this study are throwing new lights into this domain.

In terms of Internet usage, only 35% of the organizations from which users were survyed used the Internet. 65% of the organizations did not use the Internet and at the personal level 62% of the respondents did not use the Internet making this level slightly higher than the former by about 3 points. 50% of the respondents don’t have even the intention to use the Internet in the future while 16% said that they intended to use the Internet in the future. 6% saw no purchase intention vis-à-vis NOFN even if they did have intentions to use the Internet. Only 9% of the respondents showed positive future purchase intention towards NOFN. Percentage NOFN Net usage among the organizations using Internet was extremely low and only 32 respondents. The average tenure of organizations ‘Using internet’ from which users were asked, was significantly lower as compared to overall (mean: 4.8 years as compared to overall mean of 5.1 years) (Figure 10).

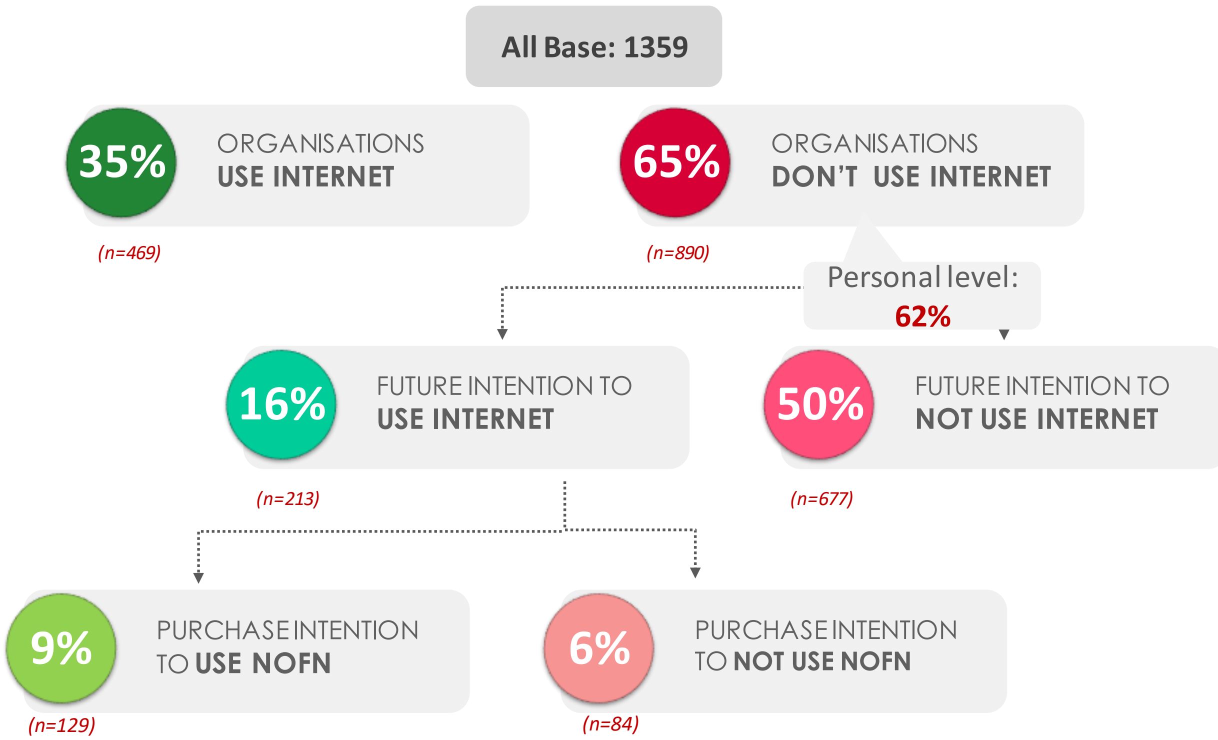


Figure 10: Current and future Internet intention of usage

Among the users of Internet, at the overall level and for private and public organizations in particular, Internet usage had been happening over the last 3.4 years. 36% of the public organizations and 34% of the private organizations from which users were surveyed reported current usage of the Internet. At 32% as opposed to 20% for private organizations, future intention to use the Internet was seen to be significantly higher among public organizations (Figure 11). Though this numbers are not large, demonstration effect of these innovators shall result in faster adoption of Internet, if pushed through BharatNet. The findings are also not surprising. A recent survey among the bottom of pyramid micro entrepreneurs in Delhi and Patna in India showed that only 52% of them use mobile phones and none of use either PCs and Internet (LIRNEasia, 2014).

Quarter of the sample is intended to use Internet indicating likely adoption of BharatNet. This intention is more among the public organizations. The efforts to proliferate should focus on the users are intended to it in the future, especially the government controlled organizations.

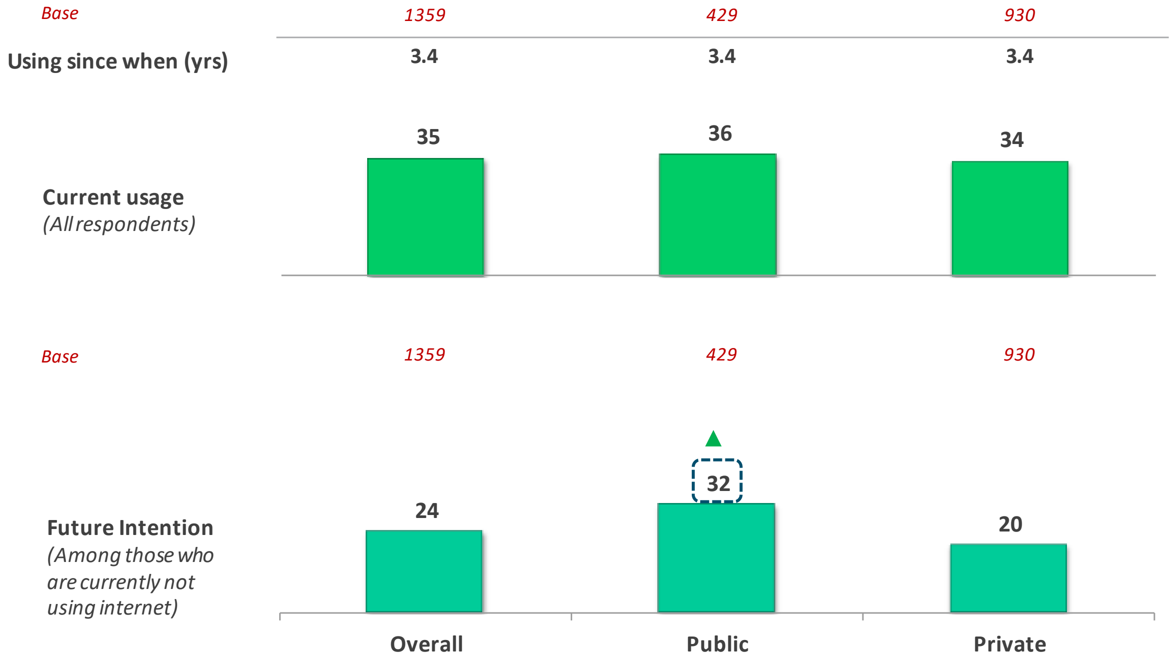


Figure 11: Internet usage years – Current and future intention

The study attempted to capture the ICT ecosystem of the organziations by asking multiple questions related to ICT use within the organizations. Out of the public organizations in the sample, 41% strongly agreed or somewhat agreed that their offices were connected with other offices, 36% strongly agreed or somewhat agreed that most employees use smart phones, 34% strongly agreed or somewhat agreed that their offices were computerized, that employees know internet use and that in future interactions with their clients would be online. However, when asked about whether their organizations had an official page on a social networking site, whether one could do online financial transactions with their organizations or whether one could carry out non financial transactions with them online the percentages of users who strongly disagreed were 47%, 45% and 41% respectively. Therefore, it can be assumed that while inter office connectivity is relatively higher among public organizations, the flexibility to perform online transactions and the online presence of the organization (in terms of official website, or online information about the organization) was very low (Figure 12).

In discussion related to various stages of egovernance (Andersen & Henriksen, 2006), this falls in nascent stages of first phase, where backend operations of the governance functions are automated. Without connection among various government organizations across functions, automation within organizations shall be missing out value of the ICT systems. BharatNet can also be explored for the same. Once connected, the government organizations shall also benefit from infomediaries (Sein & Furuholt, 2012) who are likely deign and deliver services for citizens using the BharatNet.

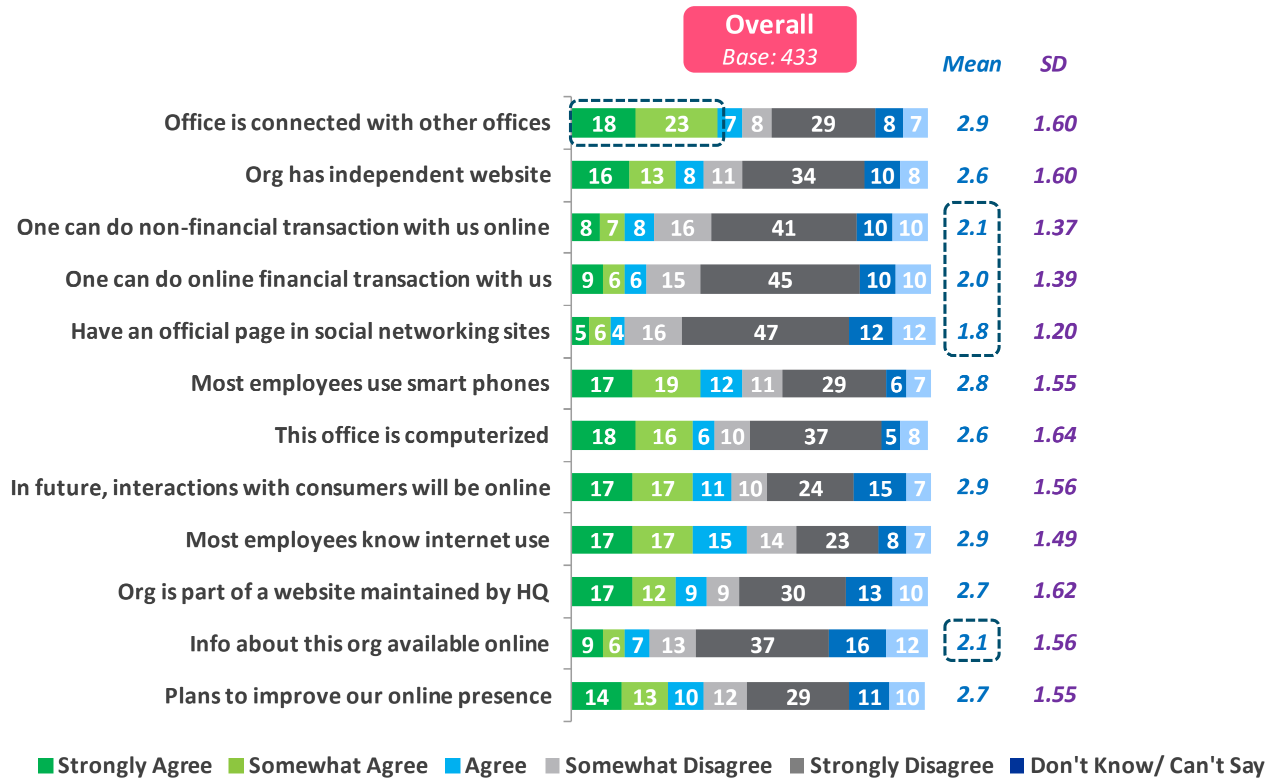


Figure 12: ICT profile of the public organizations

Of various modes of Internet access, among the organizations that use Internet, mobile Internet forms the preferred mode for Internet access. While 41% were using 2G services, 43% were using 3G services. While private organizations with no employees were found to be using mobile Internet via 2G services, private salaried organizations and segments aware of the BharatNet / NOFN were found to be using the more advanced 3G Internet technology. Broadband / wireline access without Wifi stood at 10% with state government organizations forming the biggest user segment as also for Broadband / Wireline access with Wifi at 8%. Data Cards/Dongles saw a fair amount of popularity with 21% of the base. Among various access points, on an average organizations are using 1.2 points (Figure 13).

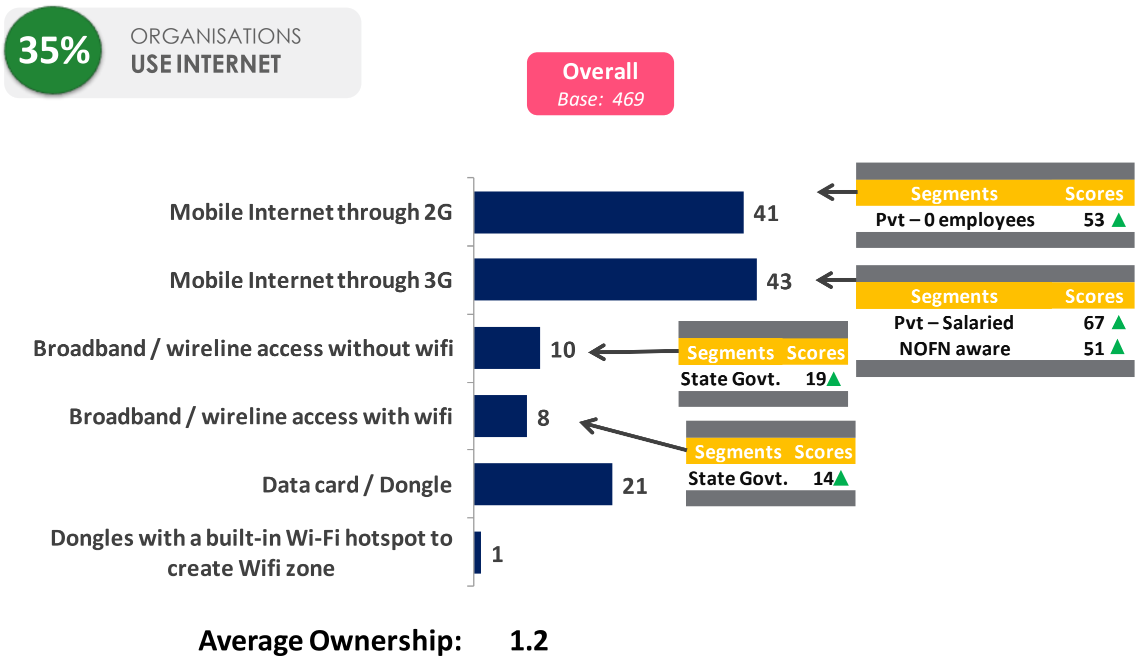


Figure 13: Modes of Internet access

In different modes of access, public organizations are more diverse when compared to others, though overall it is minimal. A significantly higher portion of public organizations use broadband / wireline access without Wifi at 19% compared to private organizations where mobile internet access via 2G or 3G services seem equally popular at 45% each. Data Cards/Dongles enjoy almost as much popularity in public organizations (24%) as in private organizations (19%) (Figure 14).

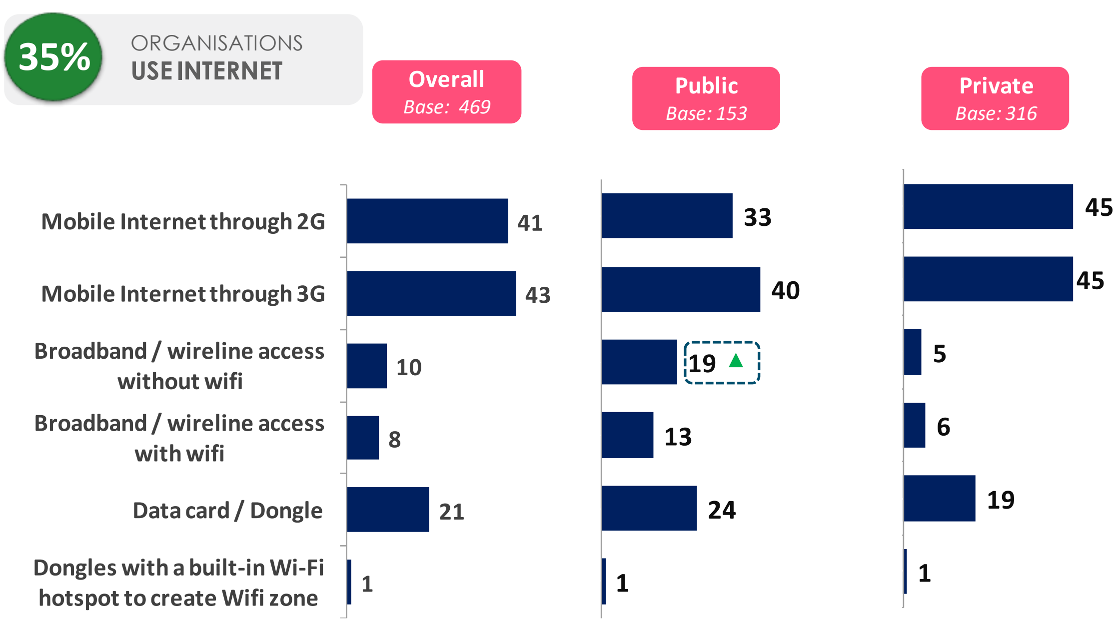


Figure 14: Modes of internet access across organizations

Of the service providers, Bharti Aitel seems to the most commonly used service provider when it comes to organizational access to the Internet whether through 2G or 3G mobile internet services or by using data cards or dongles. Vodafone is the other private player in the reckoning but only a disatnt second to Airtel. Of the state owned operators, Bharat Sanchar Nigam Limited (BSNL seems to be the most preffered service provider for broadband / wireline service with or without Wifi access. As far as NOFN is concerned,its usage seems higher for broadband with Wifi than broadband without Wifi (Figure 15).

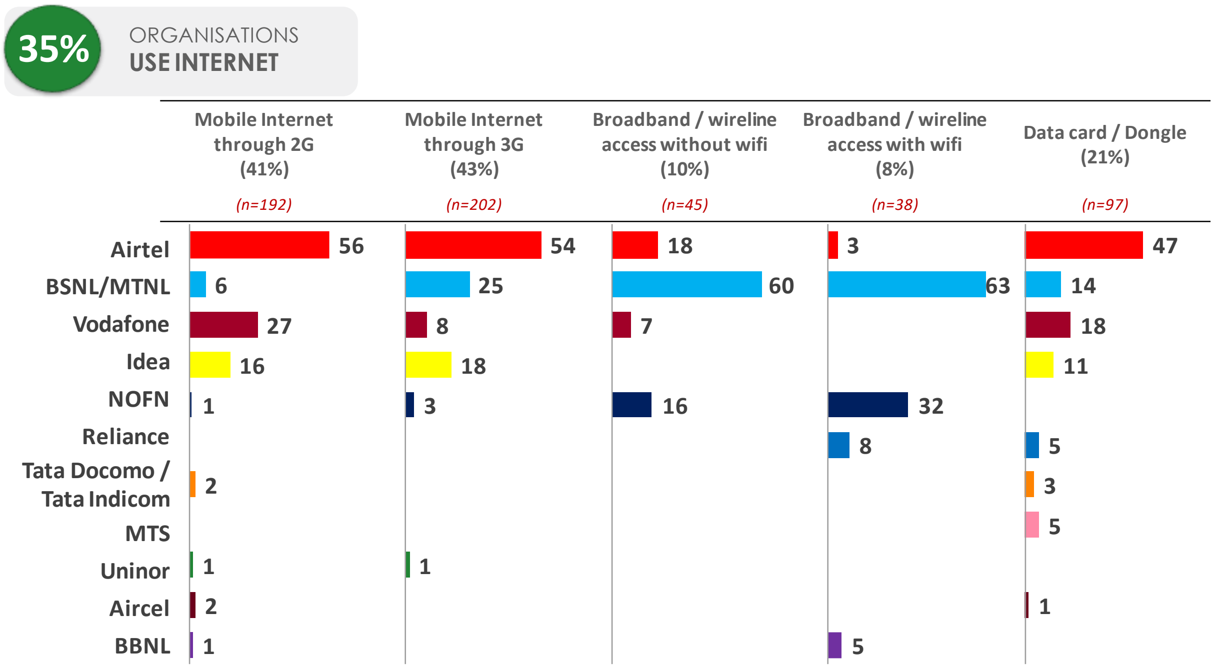


Figure 15: Internet service providers used by the organizations

At a personal level, 38% use the Internet. Over 50% of the respondents using the Internet, access the Internet using mobile 2G technology (52%) and/or mobile 3G technology (49%). Only 11% access the Internet using data cards / dongles. Broadband use for Internet access with or without Wifi is an abysmally low 1% and 2% respectively (Figure 16). The similar adoption of Internet between personal and organization use indicates less problems to the BharatNet unlike a situation wherein organizational use is more than personal use. Given that most of the organizations managed by one or two persons, the similar usage level reduces one problem while dealing with adoption.

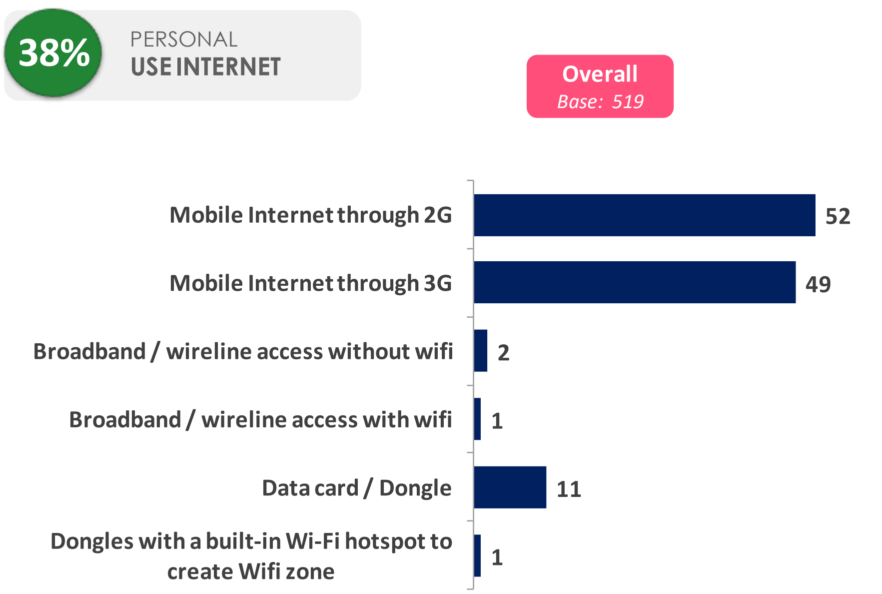


Figure 16: Modes of Internet access for personal usage

The penetration of provate service providers is evident in the study. At a personal level, Airtel is the most commonly used private service provider for Mobile Internet access using 2G Technology (52%), 3G Technology (60%) or using Data Cards/Dongles (43%). Amongst the other Private Service Providers, Vodafone is majorly used for 2G mobile internet access, while Idea is relatively less used for 2G and used more for its 3G Mobile Internet services. MTS, another private player, seems popular as far as its Data Cards/Dongles based Internet access is concerned (Figure 17). This trend also highlights the need for active participation of private players in the BharatNet ecosystem.

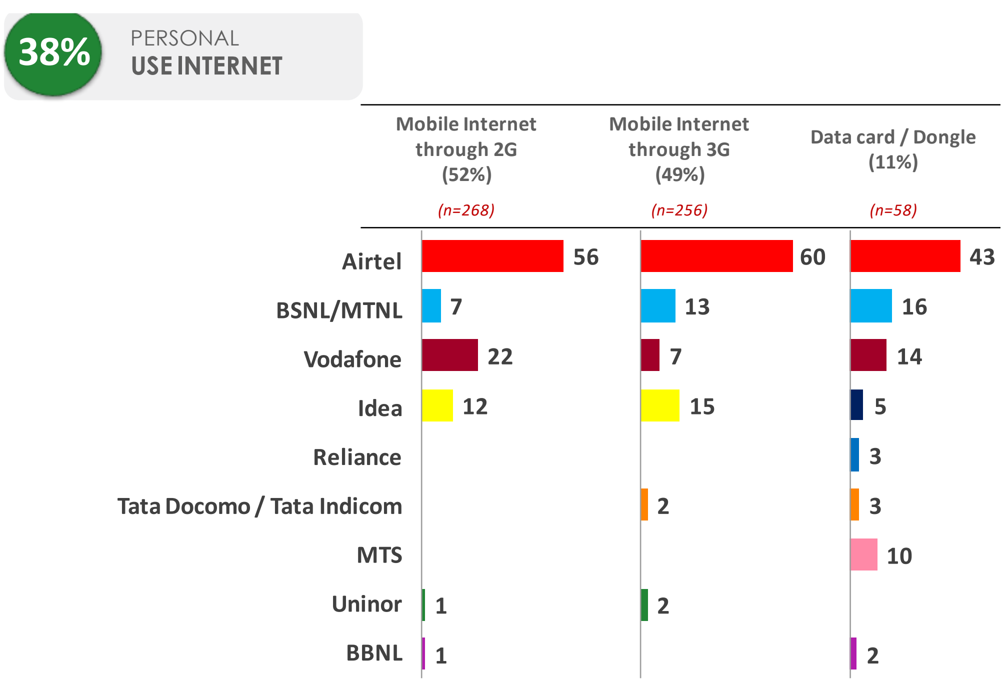


Figure 17: Service providers for personal Internet usage

Quality of system and services determines the success of information systems in organizations (Delone & Mclean, 2003). 35% of the organizations from which users were surveyed used the Internet while 38% of the users surveyed used the Internet at a personal level. As far as satisfaction with Internet speeds are concerned, at a personal level, more than 88% of the users seemed satisfied with the Internet speeds achieved using 3G Mobile Internet Technologies and over 52% using 2G Mobile Internet Technologies. However, at an organizational level, satisfaction with internet speeds was relatively higher among broadband users (with / without Wifi) as compared to other modes of Internet access with over 75% in agreement in each of the two cases (Figure 18).

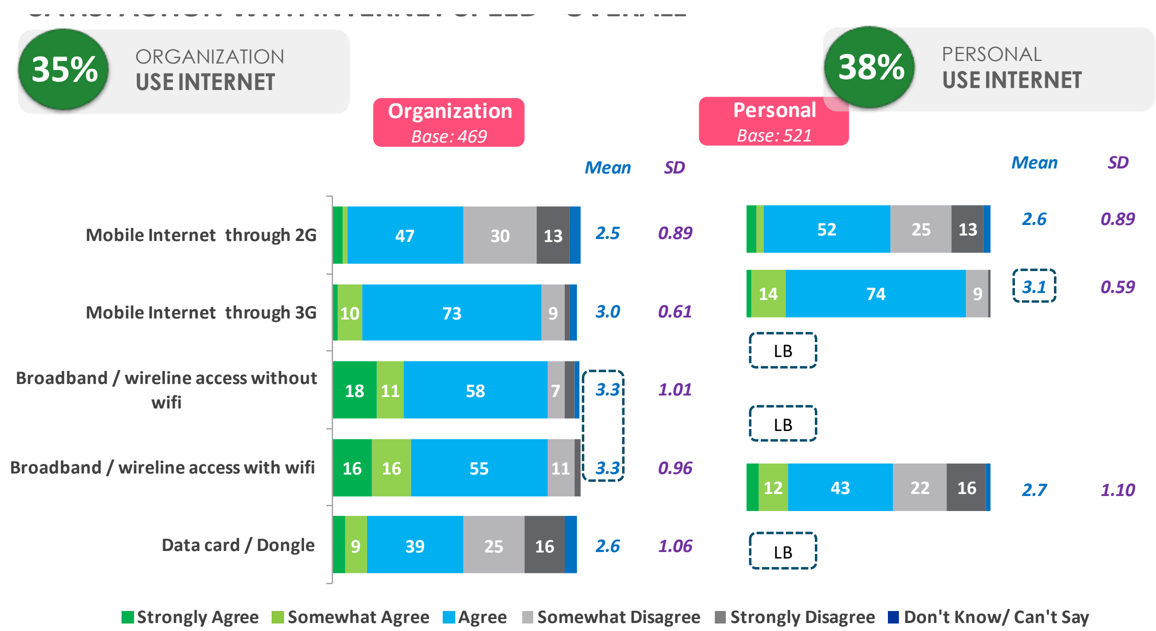


Figure 18: Satisfaction with Internet speed

Provision of dedicated ICT personnel or availability of technical support staff ensures continuous use of ICTs and its impact on the organizations (Hameed et al., 2012). Nearly 2/3rd organizations had internet devices being handled by the selected respondent himself or herself. This ranged from 72% at the overall level to 90% and 50% respectively for the localities of Arain and Paravada. As compared to public organizations where this percentage was 65%, users from 2/3rd of the total private organizations i.e. 75% said that they themselves handled their internet related devices. This finding is not surprising, as the organizations are smaller and the interviews are conducted with the head or the decision maker. However, with additional responsibility of handling ICT infrastructure, how much ever small it might be, one tends to keep it as last priority in terms of functioning.

At an overall level 16% of the user organizations seemed to have a dedicated technical person to handle their internet related devices, while this portion stood at 20% for public organizations and was highest at 30% in the locality of Paravada. Paravada showed higher occurrence of both ‘dedicated technical person’ & ‘external contractor’ for taking care of internet related devices (30% and 11% respectively). Public organizations showed a significantly high proportion for ‘person who also does non-computer related work’ as a person in-charge of internet devices (7%) (Figure 19).

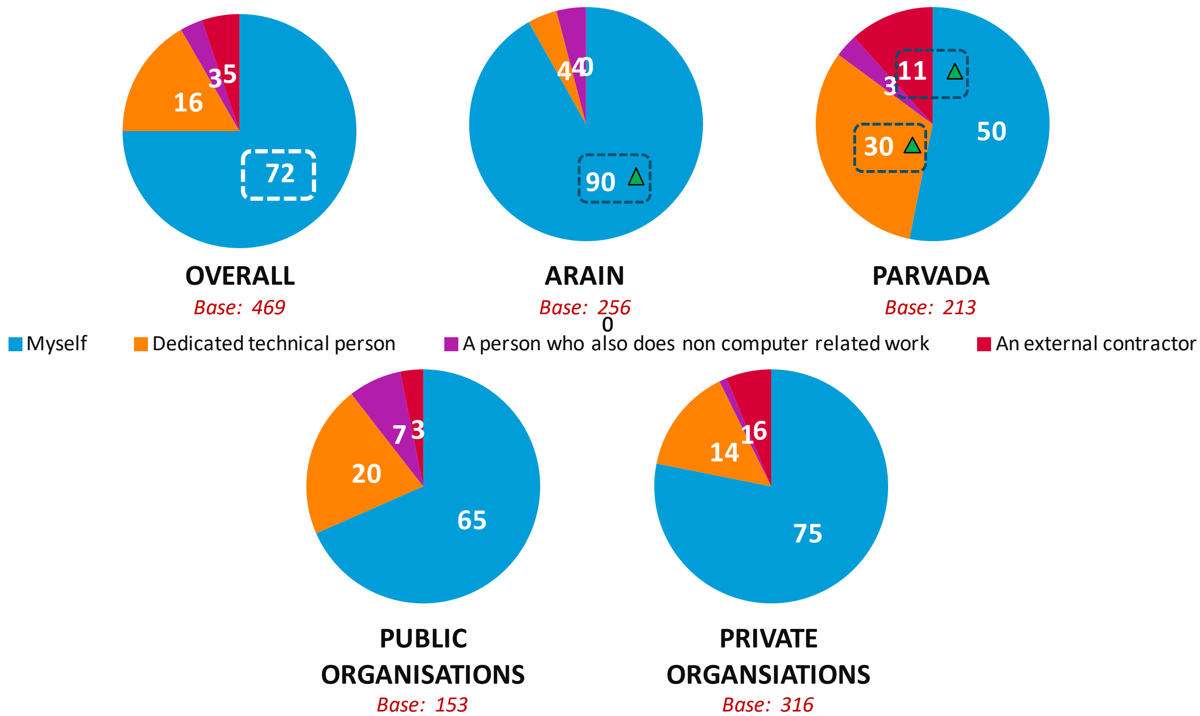


Figure 19: Personnel taking care of internet related devices

The cost of ICTs, lack of knowledge about the return on investment of the same, and inadequate capacity to exploit its potential result in discontinuation of usage of ICTs (Hameed et al., 2012). Of those who are using Internet, when asked about money spent on Internet in a month including all mediums, the median value is Rs. 300, average is Rs 799 (Std Dev 1777). For the institutional users, this amount appears to be expensive.

When asked if the Internet was expensive for their organizations, at an overall Level 71% of the users surveyed felt that it was expensive with 30% saying it was “Very expensive” and 41% saying it was “Somewhat expensive”. This was more pronounced in private organizations where 75% agreed that the Internet was expensive for their organizations as opposed to only 61% in public organizations. A significant chunk of private organizations (36%) said that their Internet was ‘Very expensive’. However, public organizations have the least clarity on the expense associated with the Internet with 21% of the users asked being unsure whether the Internet was expensive (Figure 20).

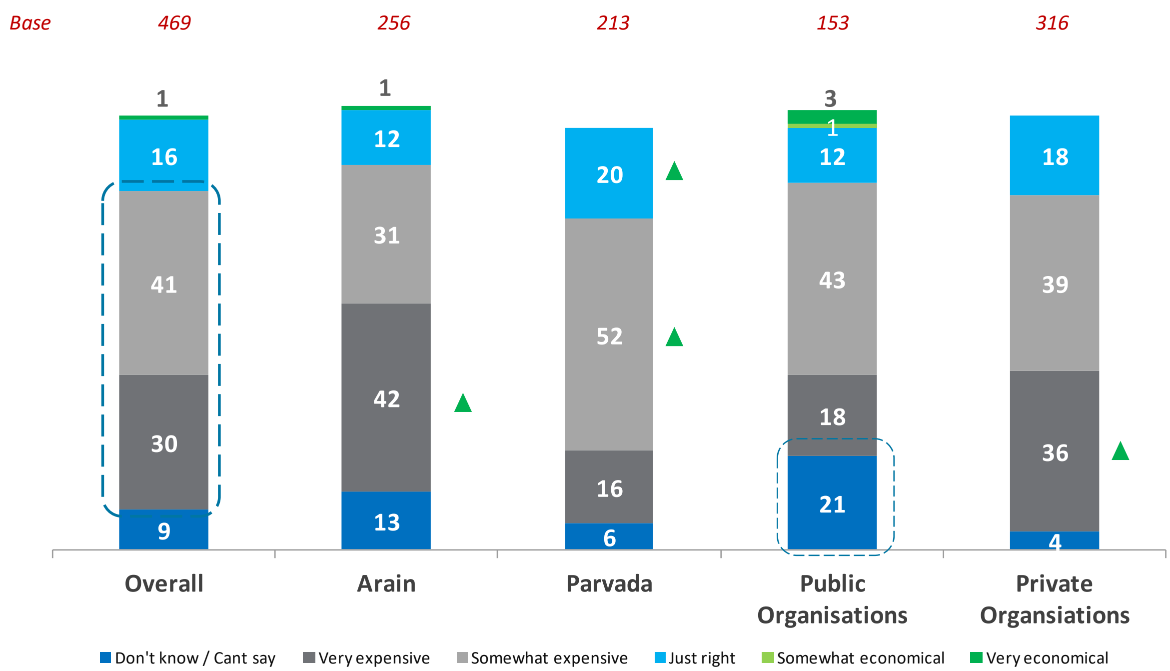


Figure 20: Internet expensiveness of the organizations

At a personal Level, nearly 85% individuals surveyed said that their Internet access was expensive with 31% terming it as "very expensive". In both the localities where surveys over conducted over 80% of the users surveyed considered Internet access to be expensive (Figure 21). This problem can be sorted out either with regulation with improving competition or subsidizing the access. Govt of India is doing the former, but the results are yet to be realized by the rural populace.

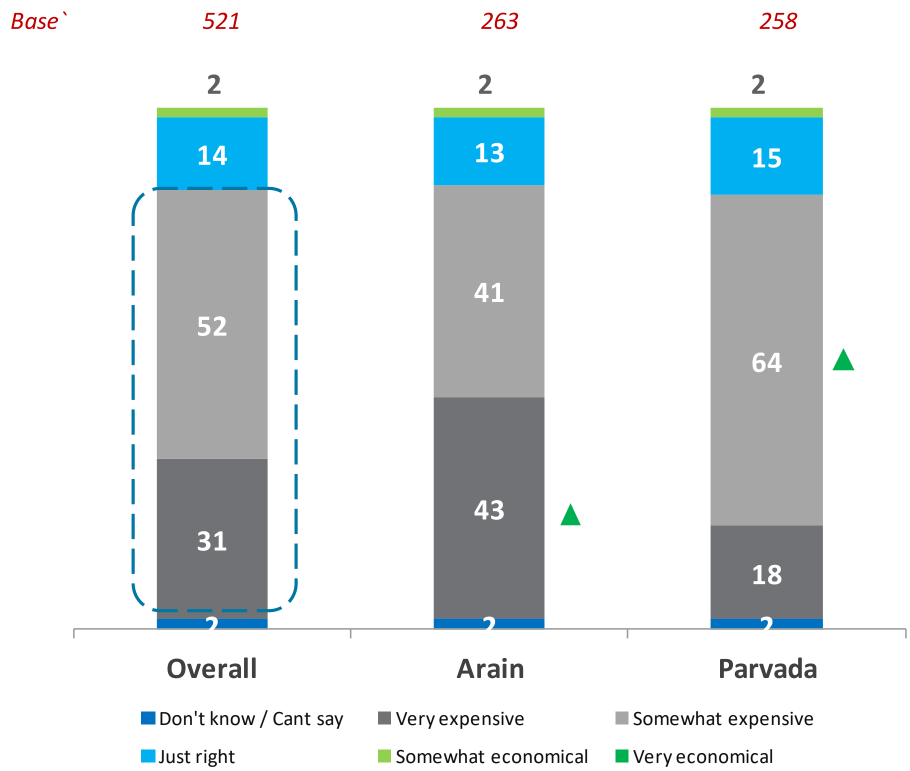


Figure 21: Expensiveness of Internet at personal level

3.2 ICT Usage: Present and Future

In this, section, the nature of ICT usage now and likely to use in future by the organziations shall be described. Wherever, applicable there will be discussion comparing personal and organizational usages.

The sample uses Internet on average 3-5 hours per day (mean - 3.9 hours; median - 3 hours, and SD 3.3). There is no difference between private and public organizations. At a personal level "Reading Info Online" was ranked as the number one online activity followed closely by audio (listening to music, radio online) and video (seeing videos) as a third preferred online activity. This ranking at an overall level holds true for those in public organizations and private organizations as well with the percentages against each ranking being consistent across the three. 'Seeing images' and 'Chatting' took 4^{th} and 5^{th} places respectively at the overall level as also individually for the public and private organization segments (Figure 22).

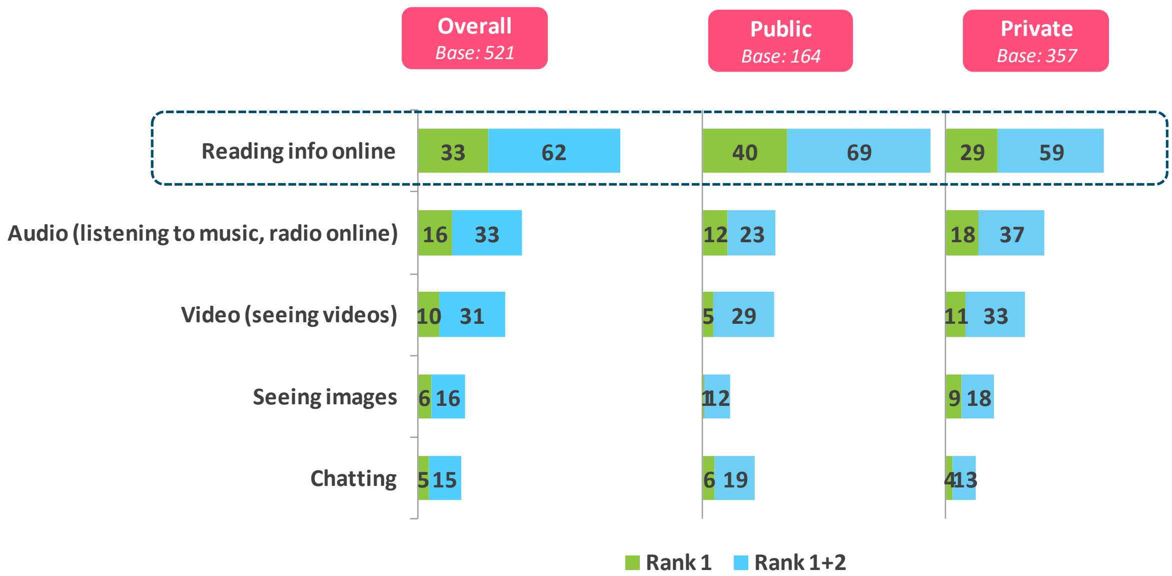


Figure 22: Activities done via Internet at personal level

At an overall personal use level, Information searching on Google ranks as the number one activity with over 83% of the respondents using it somewhat frequently, with Whatsapp and Facebook access coming in second and third with 68% and 67% respectively with respondents saying that they engaged in these activities somewhat frequently. Sending and receiving emails and accessing government portals appears amongst the top three activities for users from state government organizations with 58% of total respondents saying they send/receive email somewhat frequently and 57% of the total respondents saying they surf other government portals somewhat frequently. While 48% and 43% respectively engage somewhat frequently in watching Youtube or reading Newspapers online, activities like online games, Twitter, We chat, Instagram, Skype and Linkedin saw 50% and above of the users surveyed saying they never engaged in these activities (Figure 23).

Out of the various things used or accessed at the organization, private programs top the list. At an overall organizational level, Information searching on Google ranks as the number one activity with over 83% of the respondents using it somewhat frequently, with Whatsapp and Facebook access coming in second and third with 68% and 67% respectively of the respondents saying they engage in these activities somewhat frequently. At a personal level, these percentages stood at 84%, 81% and 74% respectively showing a much higher usage of 'Chatting' & 'Social media' engagements at the personal usage level. Sending and receiving emails is another activity that saw 58% of total respondents at an overall level saying they send/receive email somewhat frequently and this percentage was 52% at a personal level. While 48% and 43% respectively at an overall level engaged somewhat frequently in watching Youtube or reading Newspapers online, these percentages were 51% and 42% at a personal level indicating a higher preference for entertainment related activities at a personal level. Activities like Twitter, We chat, Instagram, Skype and Linkedin, however, saw 55% and above of the users surveyed saving they never engaged in these activities. Online games with a 33% engagement were marginally more popular at a personal level than at an overall level with28%.

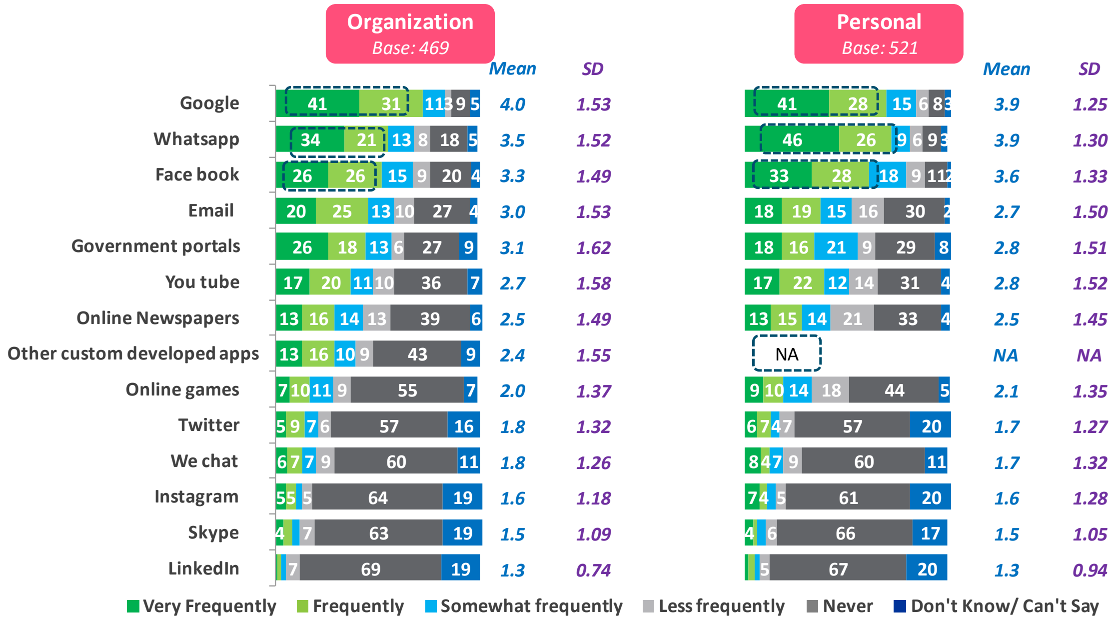


Figure 23: Organizational and personal preference of activities done on Internet

Amongst both the public and private organizations alike, “Google searching” appeared on top of the activities chart. Amongst public organizations “Email” and “Government Portals” appeared as the next two most performed activities, unlike in the case of private organizations indicating perhaps a great need by those in public organizations to use the Internet for official purposes. Even Youtube access and Online Newspaper reading saw greater percentages indicating somewhat frequent use in private organizations as compared to public organizations. However, Online games, Twitter, We chat, Instagram, Skype and Linkedin saw 50% and above of the users surveyed saying they never engaged in these activities and this was across public and private organizations alike (Figure 24).

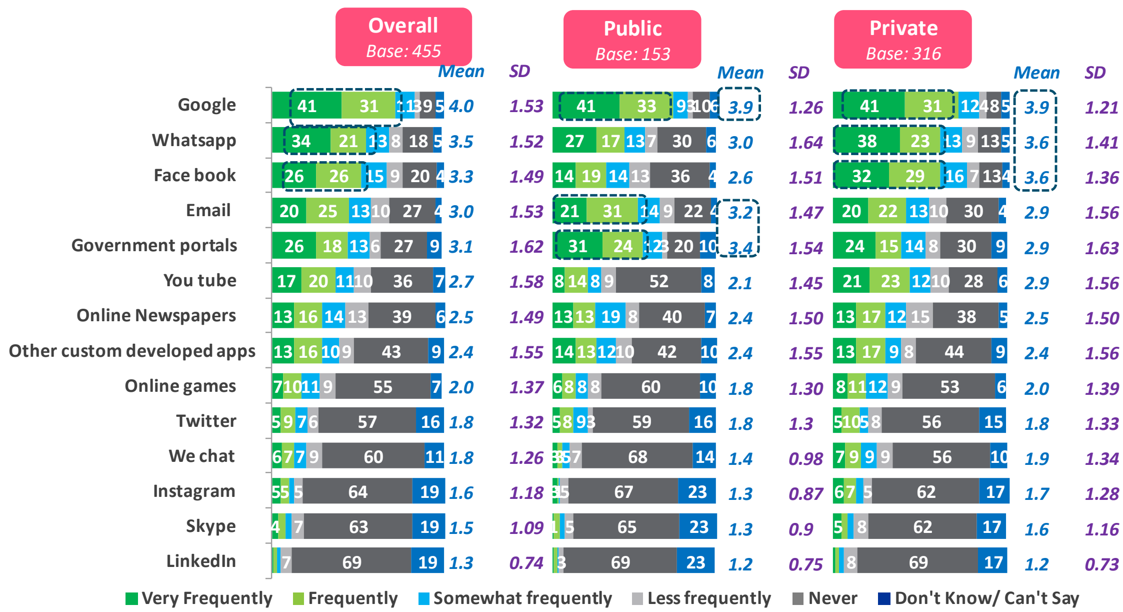


Figure 24: Organizational activities on Internet

At a personal level, in both public and private organizations, "Whatsapp" followed by "Google Searching" and "Facebook access" appeared to be the top three activities engaged in by users who were surveyed. While more users in public organizations visited "Governmental Portals" than in private organizations, almost the same percentages of users in public and private organizations alike engaged in activities like sending/receiving emails, accessing Youtube and reading Online Newspapers. Twitter, We chat, Instagram, Skype and Linkedin saw 50% and above of the users surveyed in both public and private organizations saying they never engaged in these activities. A significantly lesser percentage of users in private organizations versus public organizations said they never played Online games (Figure 25).

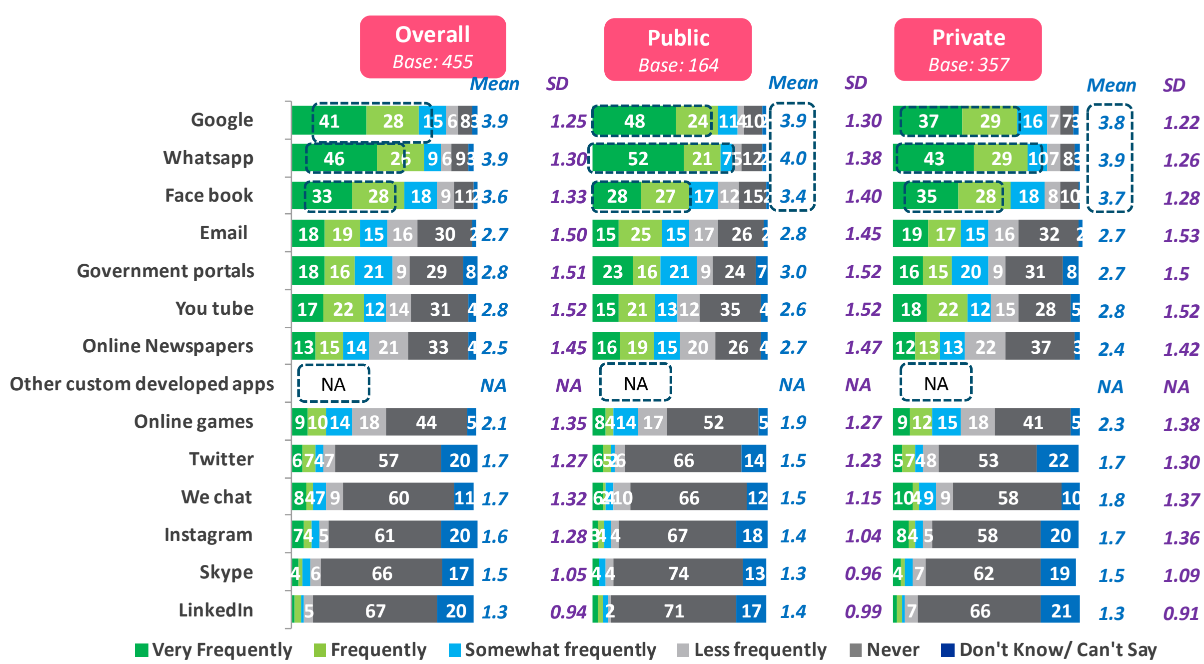


Figure 25: Personal activities on Internet by users across organizations

Internet in rural India is a fairly recent phenomenon and therefore, it is not surprising to see nearly 40% of those surveyed claiming to never use the Internet for any of these purpose. However, adding up the numbers of those who "very frequently use", "frequently use", "somewhat frequently use" and "less frequently use" the Internet for the listed activities gives results that are encouraging for private organizations. A good proportion of the users surveyed said they either currently use or would use the internet for "Interaction with suppliers", "Contacting potential customers" and "Interaction with customers"' in the future. 33% do use or will use the Internet for "interaction with suppliers", 44% use it for "contacting potential customers", and 36% use it for "Interaction with customers". The first two saw the maximum gap between current and future use indicating perhaps increased potential for use in the future. Carrying out "money transactions with Banks" at 37%, "paying utility bills" at 35% and "maintaining accounts" at 31% were some of the other prominent activities for which the Internet was being used or would be used (Figure 26).

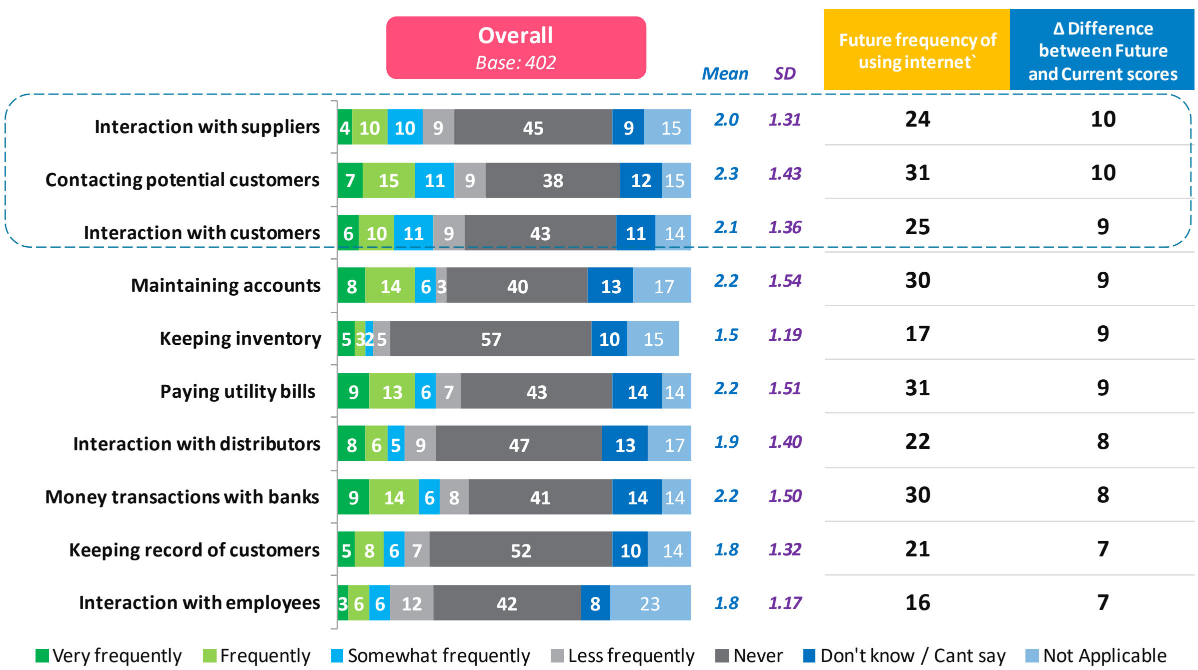


Figure 26: Present and future activities by private organizations on Internet

Users were asked to check if their organizations or institutions would provide internet as product or services to external people, if permitted. Organizations who are open for providing internet to outside people is relatively higher among public organizations as compared to private organizations. At an overall level 8% of the users said their organizations would provide, and this portion was 10% among public organizations and 7% among private ones. Significantly higher proportions of organizations who agreed are in the 'Aware of NOFN' and 'Use internet' categories (Figure 27).

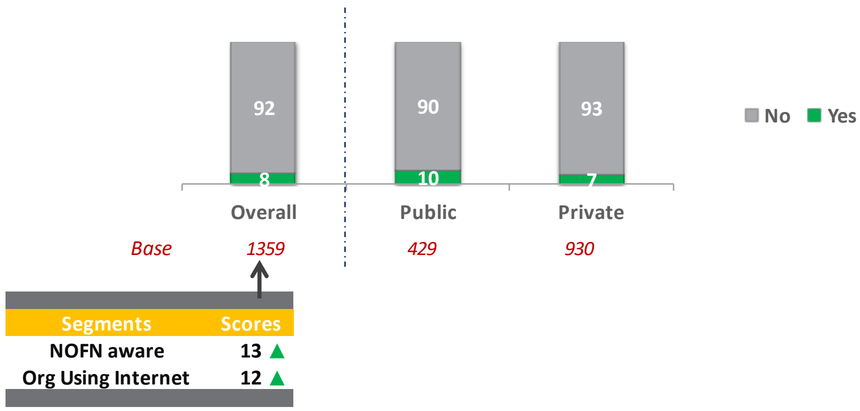


Figure 27: Openness to provide Internet as services or products to external people

3.3 Triggers and Barriers of Internet Use and Access

The study examined the triggers and barriers of Internet use and access among the institutional users. Of the total number of organizations from which users were surveyed, 35% organizations use the Internet. Getting instant information access gets the highest score as a trigger for using the Internet at 69% followed by the ability to multitask while using the Internet with 58% and ‘Everyone around using Internet’ as the third most important trigger with 51% for internet usage. “Influenced by colleagues and competitors using it” scored 41% and appeared to be amongst the top 3 for semi government organizations and private (1+ employee) organizations, whereas ‘Online Transactions’ with 35% at the overall level was amongst the top 3 for private (salaried) and the NOFN Aware segments. It is interesting to note the “for social networking” scored 26% indicative of the growing popularity of social media in semi urban and rural India and with a heartening 23% the category of “to stay connected with clients and vendors” represents the nascent segment that have started using the Internet for business purposes. “Video calling” and “voice chatting” saw 9% and 20% respectively but with 5% “faster video streaming” could indicate the push of the entertainment industry to find new modes for outreach (Figure 28).

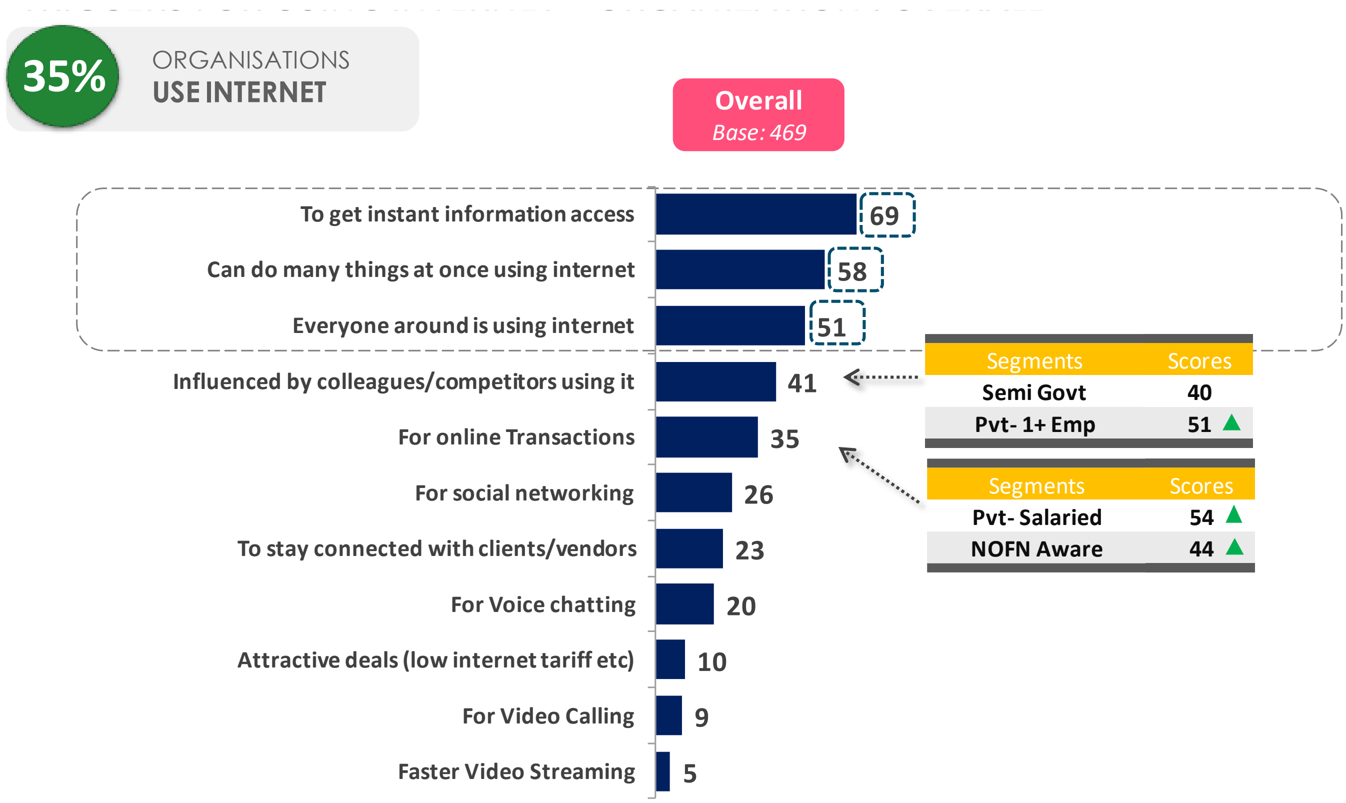


Figure 28: Triggers for using Internet by organizations

A comparison of public and private organizations do not show much differences except in few places. While public organizations showed higher percentages of users from organizations who reported “Multitasking” (67%) and “Instant Information Access” (79%) as the top motivating factors, at 53% and 65% respectively, private organizations also see these as top triggers for using the Internet. ‘Everyone around using Internet’ emerges as the third most important trigger for internet usage for both public (53%) and private (46%) organizations. While ‘Influenced by colleagues’ at 46% also appears among top 3 triggers among private organizations this factor seems of much lower importance in public organizations (29%). “For Online Transactions” and “for social networking” as categories seem far more important to public organizations at 40% and 33% respectively as compared to 32% and 22% respectively for private organizations. As far as the other categories are concerned, the percentages for public and private organizations are fairly close (Figure 29).

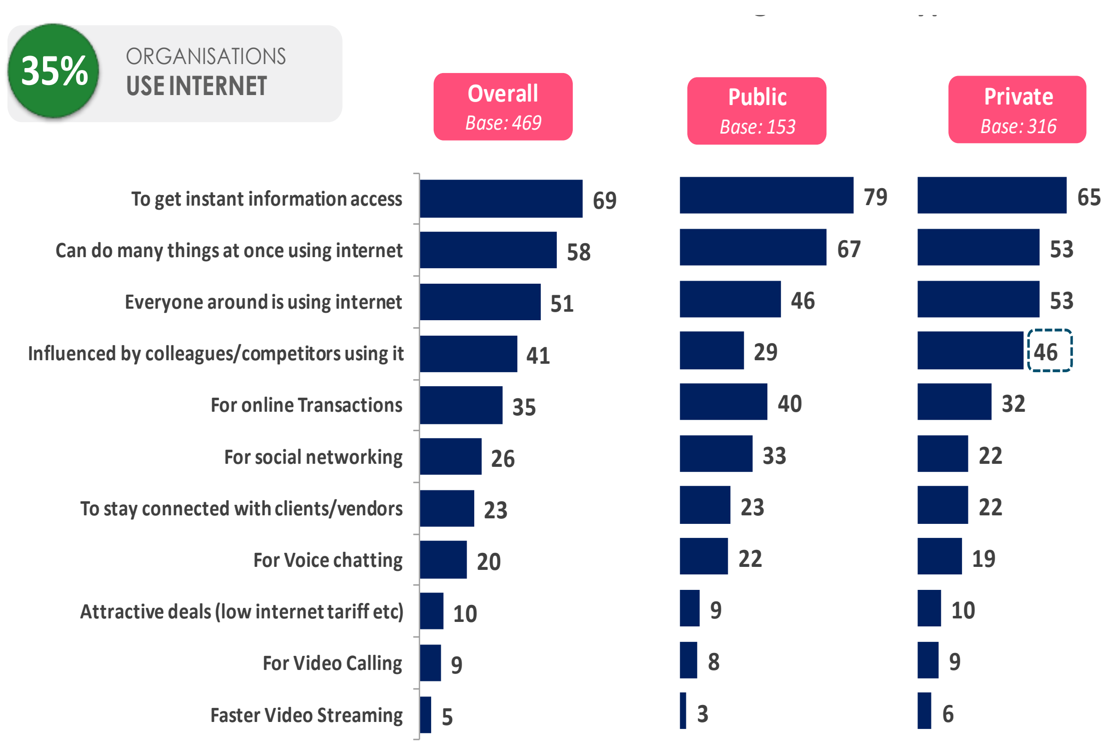


Figure 29: Triggers for using Internet across organizations

The study found that almost two third of institutional users do not use Internet and attempted to find out the reasons. Eight different possible causes or barriers were listed to those surveyed and they were asked to rate each from a Strongly Agree to a Strongly Disagree with a Don't Know/Can' Say option included as well. The relevance of the Internet, questioned as "can continue work without internet", saw 38% of the respondents strongly agreeing followed by "do not have required devices to access the Internet" and "no prior experience of using the Internet" with 35% and 25% respondent answering with a "strongly agree'. In the cases of both relevance and ownership of the required equipment over 70% of the respondents agreed to these as barriers. "Employees do not know how to use the Internet" was strongly refuted as a barrier by 28% of the respondents so also "using internet is too complicated" with 21% strongly disagreeing. 33% of the respondents were unsure if a slow Internet connection was a barrier and 20% were unsure if customers of their organizations not using the Internet would qualify as a barrier (Figure 30).

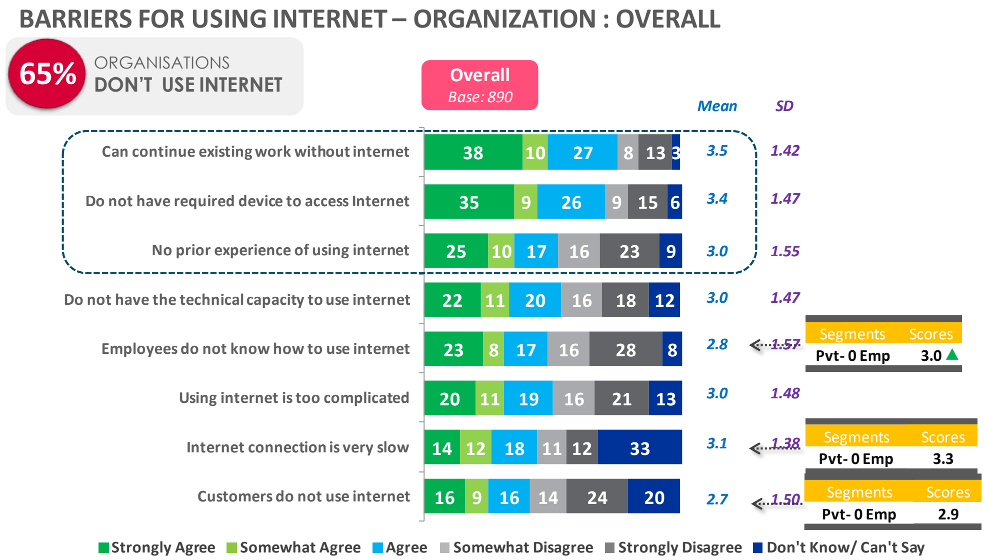


Figure 30: Barriers for using Internet by organizations

The three top major barriers “absence of required equipment”, “lack of need for the Internet for work” and “no prior experience of using the Internet” had 41%, 28% and 25% respectively users strongly agreeing from public organizations and in overall.

For private organizations 77% were in agreement that they could continue their current work without the Internet and 67% were in agreement that not having the required devices is a second biggest barrier to using the Internet. However, for private organizations “not having technical capacity to use the Internet” fared as the third largest barrier to using the Internet with 55% of the respondents agreeing to the same. 44% in public organizations and 44% in private organizations disagree that “employees not knowing how to use the Internet” poses a barrier to using the Internet. Like in the case of the overall at 33%, 37% in public organizations and 32% in private organizations were unsure if slow Internet speeds deter people from using the Internet (Figure 31).

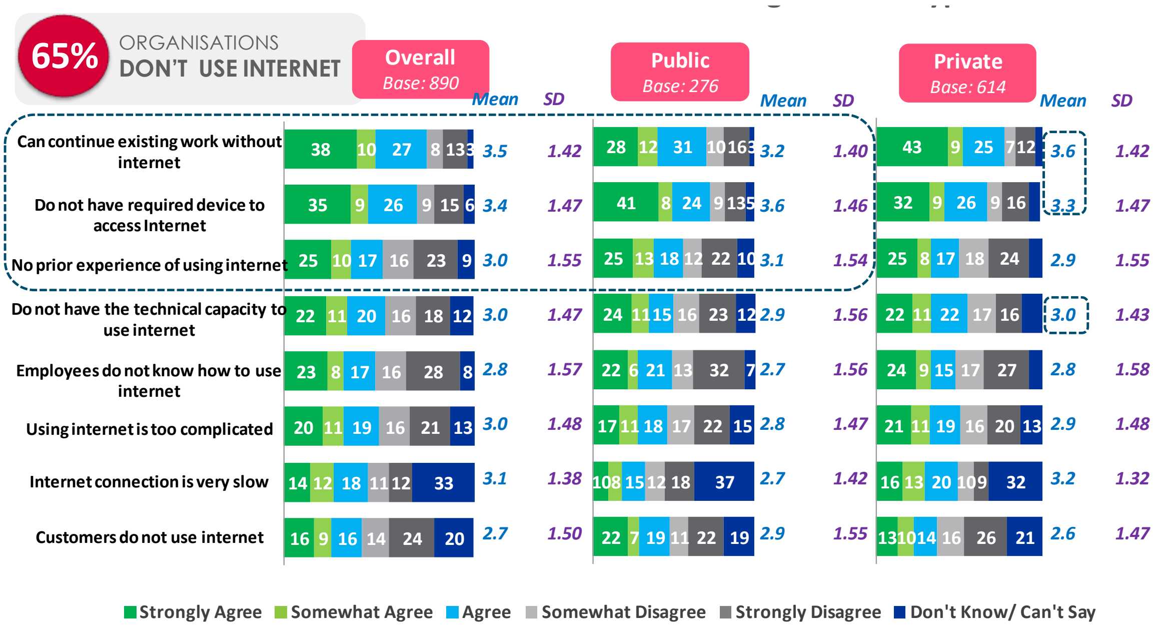


Figure 31: Barriers for using Internet across organizations – I

Of the other factors that were barriers to Internet use, 46% of users surveyed from organizations not currently using the Internet cited "the expense associated with the maintenance of Internet related equipment" as a barrier making it one of the top three barriers especially amongst the NOFN Aware and likely to use NOFN segments. "Competitors do not use the Internet" and "Internet equipment breaks down often" were the other two top barriers seeing 36% and 39% respectively in agreement. 51% disagreed that the Internet being perceived as totally non-beneficial could be a deterrent. It is interesting to note that while 30% of those surveyed saw "poor electricity supply" as a barrier, 53% disagreed with this and similarly while 28% believe that "the Internet being seen as a waste of money" may be a barrier, 53% disagree. At least six of the nine reasons cited saw over 20% of the people surveyed unsure of whether they were indeed barriers or not.

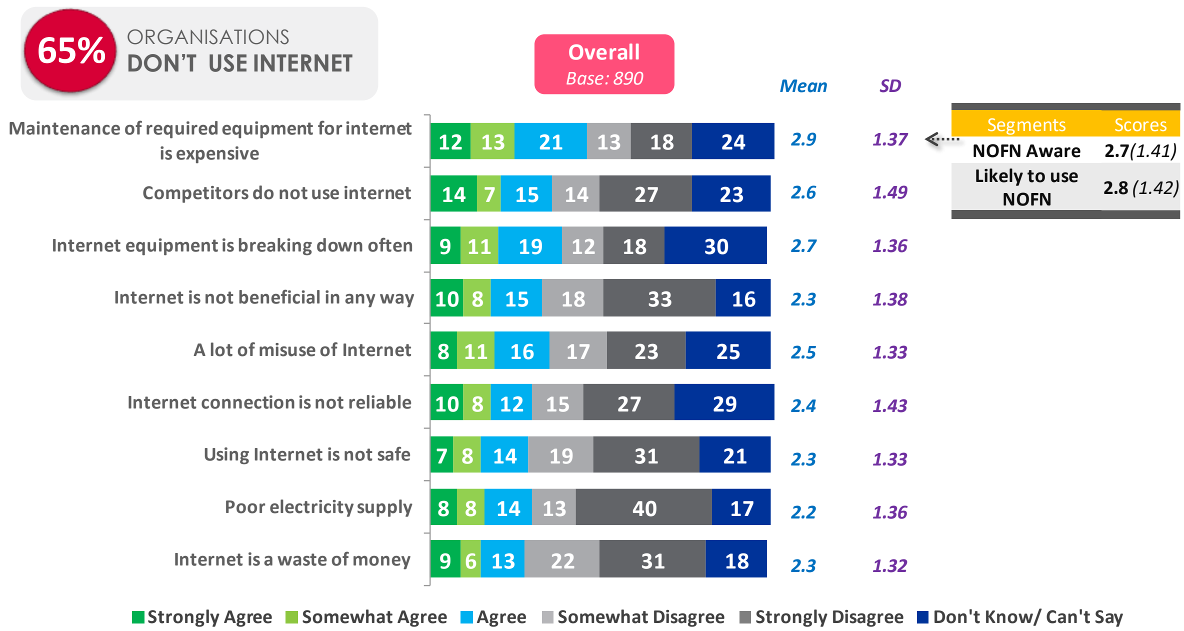


Figure 32: Barriers for using Internet across organizations – II

With both public and private organizations, the top three barriers remain the same as in the overall case i.e. “the maintenance of required equipment for internet is expensive”, “Internet equipment breaks down often” and “competitors do not use the Internet”. 61% in public organizations disagreed that perceiving “the Internet as not beneficial in any way” is a barrier as opposed to 47% in private organizations. In both public and private organizations, over 50% of those surveyed did not see “poor electricity supply” as a barrier. However, in many areas the percentage of those who lack awareness on the subject seemed to be above 20% (Figure 33).

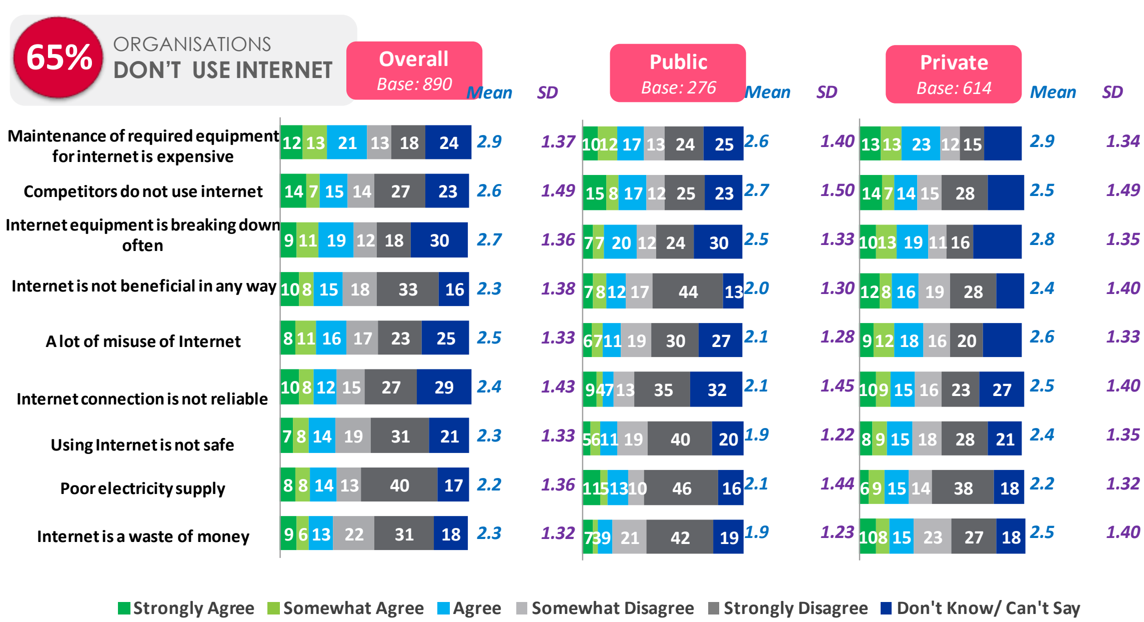


Figure 33: Barriers for using Internet across organizations – III

At a personal level too, “can continue existing work without the Internet” followed by “do not have the required devices to access the Internet” and “do not know how to use the Internet” were perceived as the key barriers to Internet use with 72%, 67% and 60% respectively in agreement . “Internet connection is very slow” appeared as one of the top 3 barriers amongst the “NOFN Aware”, “Likely to use NOFN” and “Personal Use Internet” segments. 46% of those surveyed agreed that “using the Internet is too complicated” was a barrier while 43% agreed the lack of prior experience in using the Internet was a barrier. 38%, however, were unsure if lack of Internet speed could be taken to be a barrier (Figure 34).

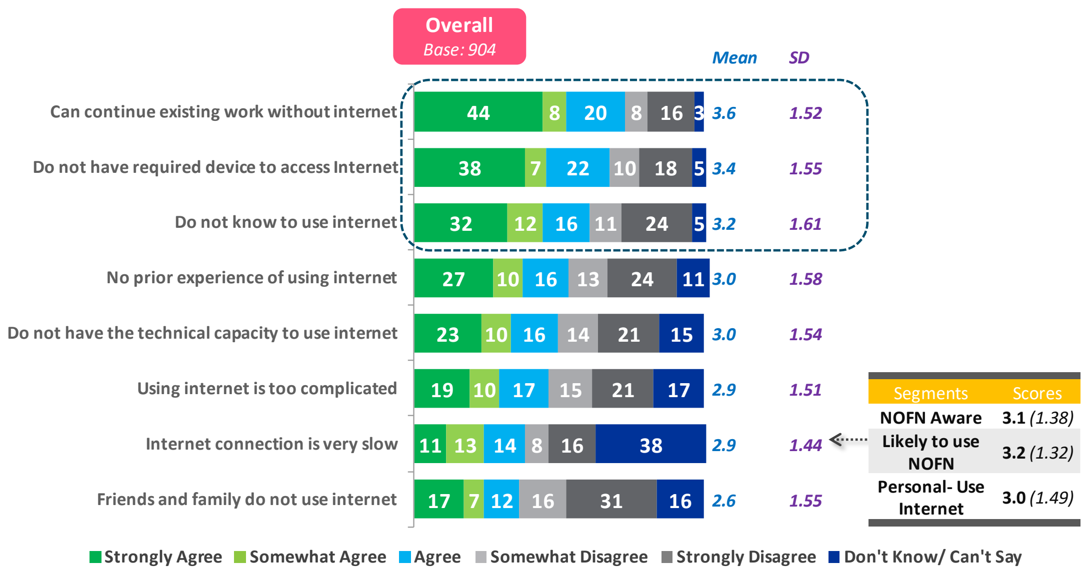


Figure 34: Barriers to personal use of Internet - I

Of the other reasons, “maintenance of required equipment for Internet is expensive” still remains the biggest barrier even at a personal level with 38% agreeing to the same, followed closely by “Internet equipment breaks down often” with 34% in agreement and “unaware about the Internet” with 33% in agreement. Again 54% did not agree that “poor electricity supply” was a barrier as also 59% disagreeing that the belief that the Internet was not beneficial in any way was a barrier. 55% disagreed that the Internet was a waste of money. However, for almost all the reasons posed, except one, 20% or more of the respondents claimed that they did not know or couldn’t say (Figure 35).

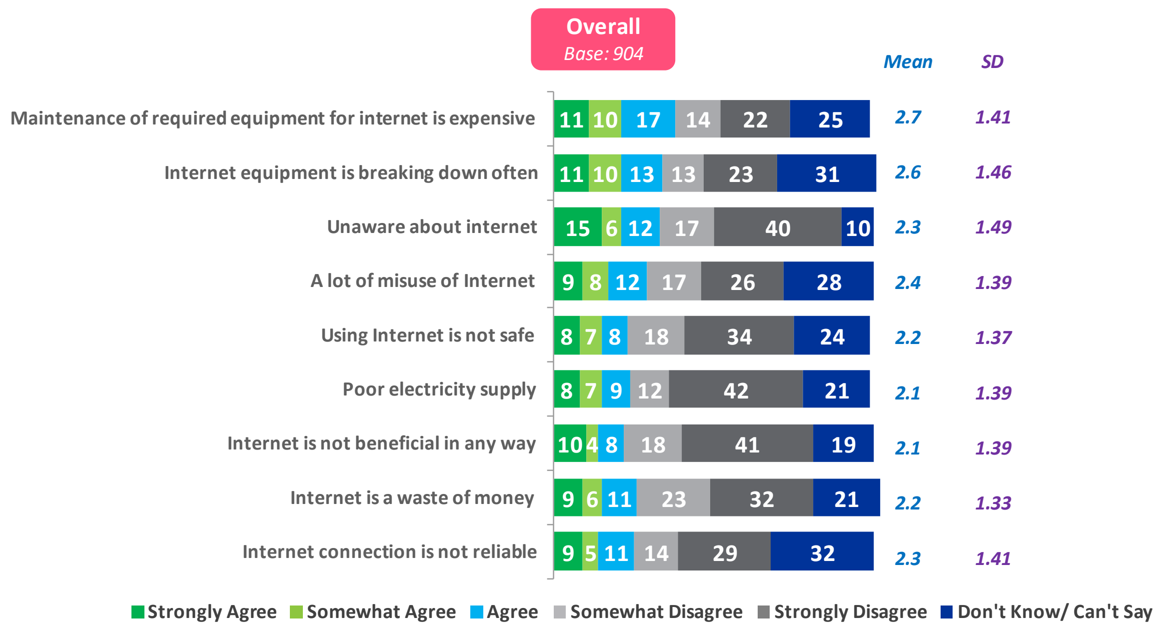


Figure 35: Barriers to personal use of Internet - II

At a personal level, users surveyed from public and private organizations displayed the same order of barriers with “can continue existing work without the Internet” followed by “do not have the required devices to access the Internet” and “do not know how to use the Internet” being the top three barriers. While in public organizations these 3 barriers saw 73%, 71% and 74% respectively in agreement, in private organizations these percentages stood at 71%, 64% and 58% respectively. In both public and private organizations, more than 45% of the users surveyed agreed that using the Internet being complicated as it is did deter its uptake at a personal level. 47% of users from public organizations and the same percentage from private organizations disagreed that friends and family not using the Internet was a barrier. 37% of the users surveyed from public organizations and 38% of the users surveyed from private organizations were unsure if the slow Internet speeds were indeed a barrier (Figure 36).

Of the other reasons, “maintenance of required equipment for Internet is expensive” still remains the biggest barrier even at a personal level with 36% from public organizations and 41% from private organizations agreeing to the same, followed closely by “Internet equipment breaks down often” with 38% from public organizations and 33% from private organizations in agreement and “unaware about the Internet” with 34% from public organizations and 33% from private organizations in agreement. Again 56% from public organizations and 54% from private organizations did not agree that “poor electricity supply” was a barrier as also 64% from public organizations and 54% disagreed that the belief that the Internet was not beneficial in any way was a barrier. 60% from public organizations and 53% from private organizations disagreed that the Internet was a waste of money (Figure 37).

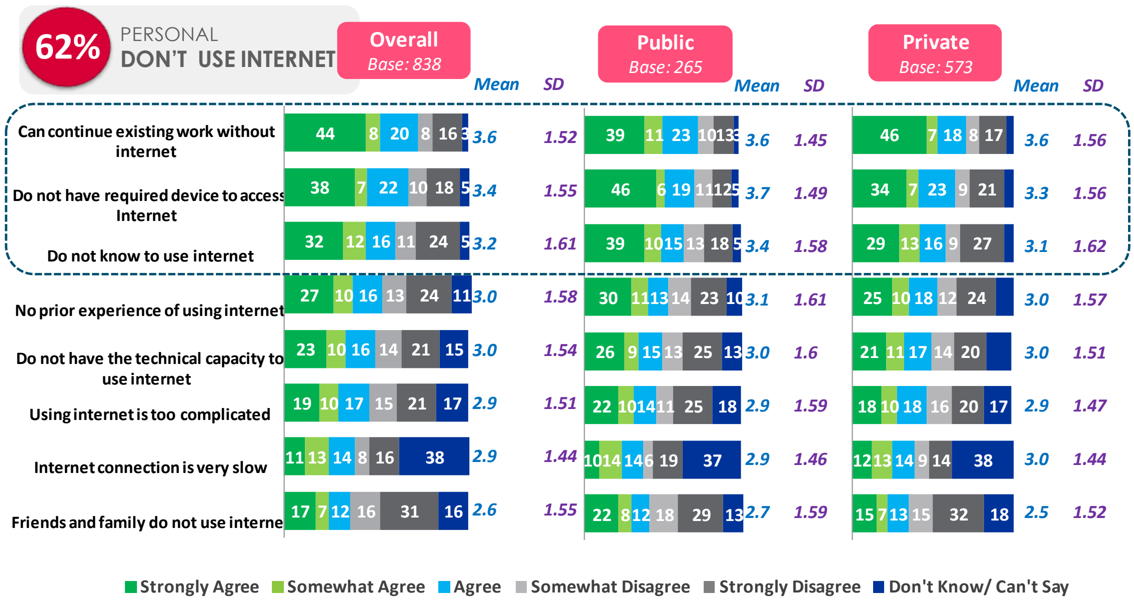


Figure 36: Barriers to personal use of Internet across organizations - I

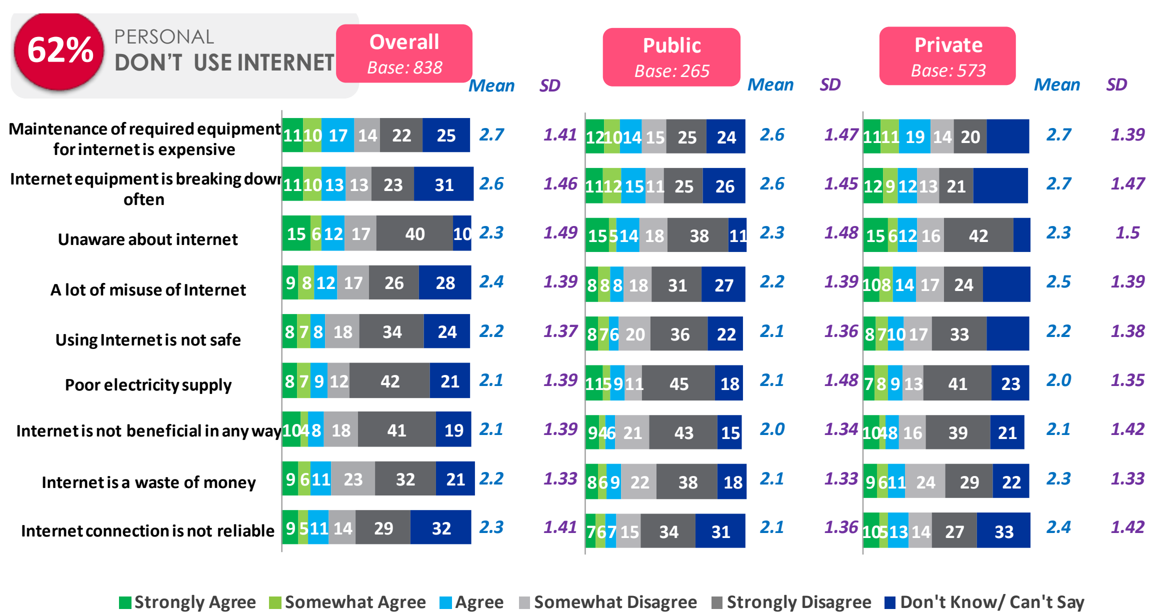


Figure 37: Barriers to personal use of Internet across organizations - II

4. BharatNet / NOFN Awareness, Perceived Benefits & Challenges

This chapter focuses on whether institutional users knew about BharatNet / NOFN, how much and their perceptions about the benefits and challenges it likely to face in diffusion.

4.1 Awareness about BharatNet / NOFN: Nature and Sources

Before asking about BharatNet / NOFN related questions, the study asked the institutional users about the technologies that are related to get the context of ICT ecosystem. Overall, awareness about Wireless Internet was fairly high with 45%. However, in a very sharp contrast, over 83% claimed they did not know about optic fibre and 76% were not aware of applications like Digilocker being publicized by Govt of India. However, users from state government and semi government organizations seemed to be among those who were aware about Optic Fibre. Even “Digital India”, a much publicized campaign of the Government of India had more that 68% of the respondents unaware about it (Figure 38).

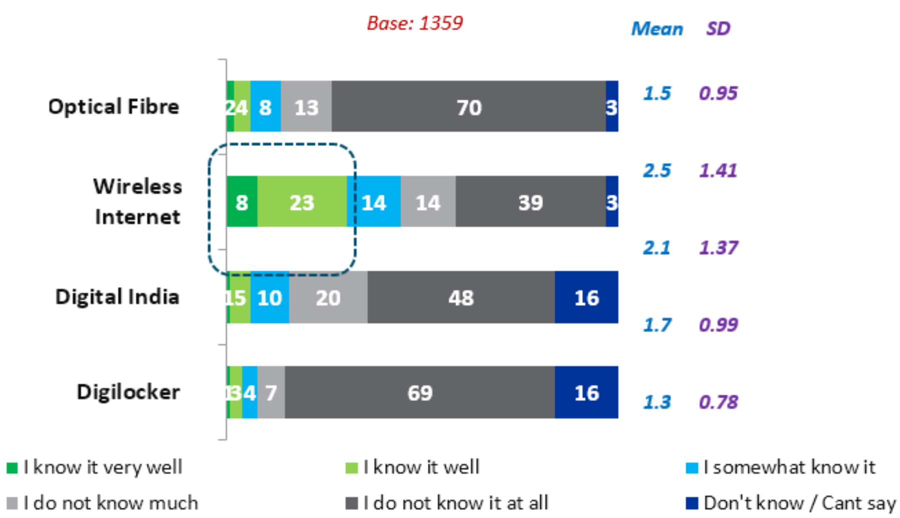


Figure 38: Awareness of technologies

Awareness of optic fibre was significantly higher among public organizations than private ones. Awareness regarding Wireless Internet was about the same in public organizations as in private organizations. Users from both public and private organizations seemed equally informed about the Digital India campaign. Compared to public organizations, private organizations showed significantly higher awareness with regard to “Digilocker” (Figure 39).

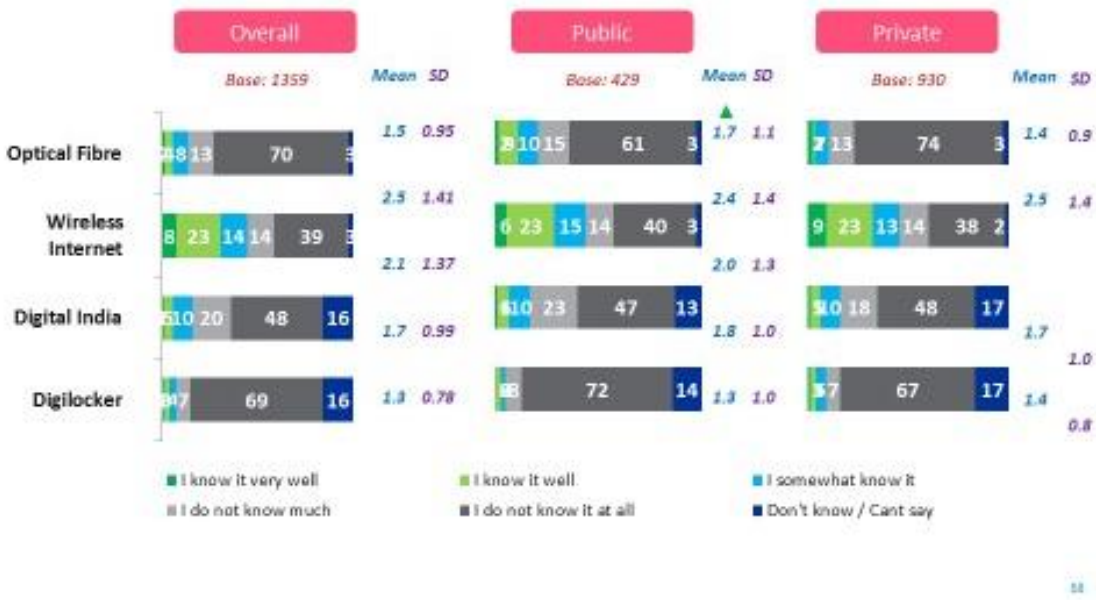


Figure 39: Awareness of technologies across organizations – I

Users from government and semi government organizations who were surveyed showed a significantly higher awareness of optical fibre as opposed to other groups. Amongst private organizations, users surveyed from the private salaried organizations exhibited a significantly higher level of awareness across all technologies when compared to users from other segments. Users from the segment private-1 + employee showed significant awareness of all technologies except optic fibre. Users using the Internet at a personal level, users from organizations already using the Internet and those that were in the segment NOFN-Aware, were all better informed about various technologies than others (Table 6).

In response to questions on the presence of technologies in their societies / villages / neighborhoods, the findings are surprising. Over 60% of the users surveyed indicated the presence of wireless Internet. Whether it was Digital India or Digilocker, the claim of the presence of technologies was significantly higher in private organizations, whatever the nature of these organizations (Figure 40).

Table 6: Awareness of technologies across organizations – II[13]

	Overall	State Govt	Centrral Govt	Semi Govt	Pvt- 0 Emp	Pvt- 1+ Emp	Pvt - Salaried
Base	*1359*	*308*	*27**	*89*	*594*	*276*	*55*
Optical Fibre	1.5	1.7	1.9	1.8	1.3	1.5	1.8
Wireless Internet	2.5	2.3	2.4	2.7	2.1	3.1	3.9
Digital India	1.7	1.8	1.8	1.8	1.5	2.6	2.3
Digilocker	1.3	1.2	1.4	1.3	1.13	1.9	1.6

	Overall	NOFN Aware	Likely to use NOFN	Org - Using Internet	Org - Using NOFN	Personal - Using Internet
Base	*1359*	*308*	*27**	*89*	*594*	*276*
Optical Fibre	1.5	2.4	1.6	1.9	1.5	1.8
Wireless Internet	2.5	3.1	2.7	2.9	2.5	2.9
Digital India	1.7	2.3	1.8	2.1	1.7	2.0
Digilocker	1.3	1.7	1.5	1.5	1.3	1.5

Note: 1 = I do not know at all; 2 – I do not know much; 5 – I know it very well.

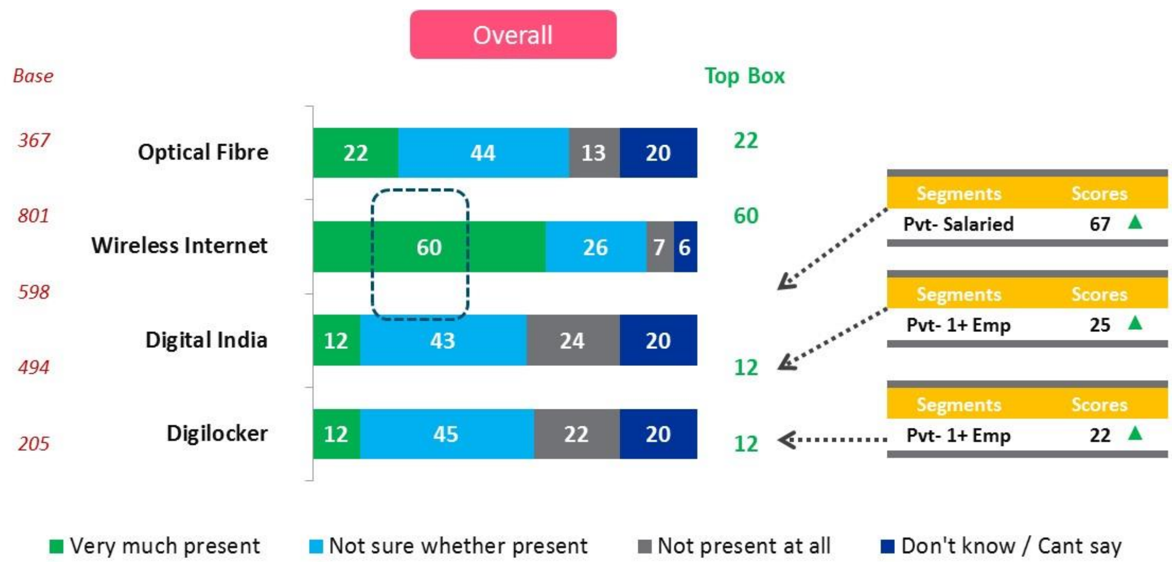


Figure 40: Awareness about presence of technologies in society

Public organizations attributed more presence to “Optical Fibre” with 27% claiming that was very much present. A very high portion of users in both public and private organizations seemed to be certain of the presence of wireless Internet in their villages. With 14% and 16% respectively, users from private organizations seemed more certain of the existence of “Digital India” and “Digilocker”. Except in the

[13] During the study, NOFN was just rechristened as BharatNet. It is actually replacement of NOFN. In the questionnaire, in one more place, there were questions related to NOFN used in tandem with BBNL which is more accurate depiction of awareness about the NOFN / BharatNet.

case of “Optic Fibre”, there existed a higher portion of lack of clarity in public organizations vis-à-vis most of the technologies as compared to private organizations (Figure 41).

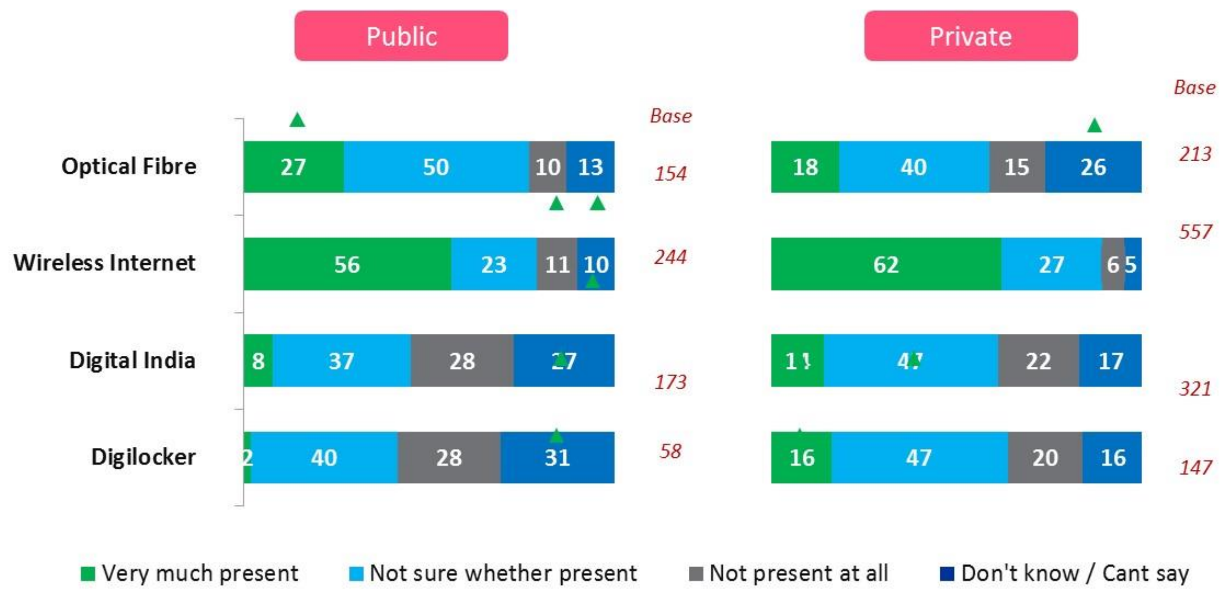


Figure 41: Awareness of presence of technologies in society in organizations

Users from state government organizations were very certain of the presence of wireless Internet (53%) while with 65% each semi government organization users were very sure of the presence of wireless Internet. Similarly, users from private organizations with no employees were very certain of the presence of wireless Internet (58%) while with 67% users from private organizations with 1 or more employees were very sure of the presence of Wireless Internet. However, users from private salaried organizations awareness about wireless Internet is very high, 82%. Those “Familiar with NOFN” or in the segment which had a “Likelihood to use NOFN” claimed in higher proportions to the presence of wireless Internet. This was the case with users in organizations using the Internet as also with private individuals using the Internet. Users from organizations using the NOFN were well aware of the presence of Optic Fibre in their societies (Table 7).

In overall, 30% of the users surveyed claimed that they are aware of the BharatNet / NOFN of which 8% claimed to know it very well. Users in public organizations were significantly more aware of NOFN at 38% than those in private organizations at 25%. Individuals and organizations using the Internet showed notably higher awareness of BhartNet / NOFN than those that did not use the Internet. Users from both state and central government organizations at 41% and Semi Government organizations at 41% exhibited a significantly higher awareness compared to other segments. Private organizations with salaried individuals exhibited the highest level of awareness (52%) amongst all organizations surveyed (Figure 42).

Table 7: Awareness of presence of technologies by different organizations

	State Govt	Semi Govt	Private Org- 0 Employees	Private- 1 or more Employees	Private- Salaried
	Top box	Top box	Top box	Top box	Top box
Optical Fibre	29	21	17	8	--*
Wireless Internet	53	65	58	67	82
Digital India	6	10	17	12	11
Digilocker	0	--*	19	14	--*

	Familiar with NOFN	Likelihood to use NOFN	Org level- Using Internet	Org level- Using NOFN	Personal level- Using Internet
	Top box	Top box	Top box	Top box	Top box
Optical Fibre	29	20	27	74	25
Wireless Internet	62	64	64	--*	64
Digital India	12	16	8	--*	15
Digilocker	9	15	5	--*	14

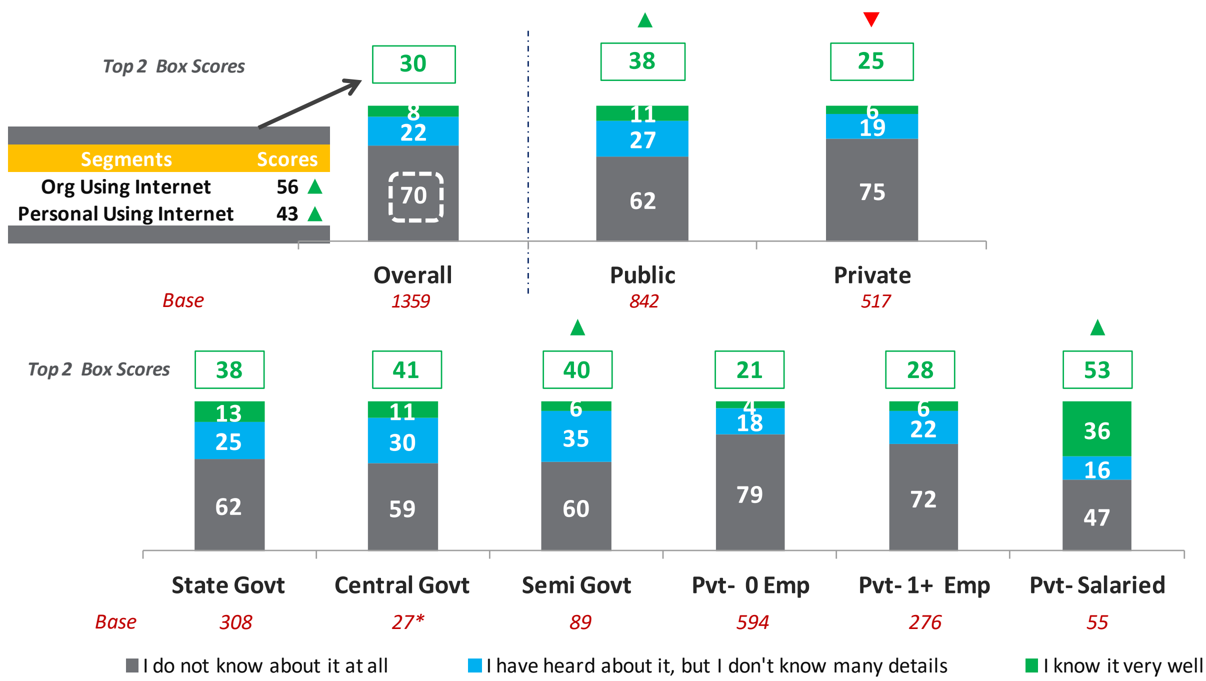


Figure 42: Awareness of BharatNet / NOFN

The study wanted to understand the source of information about BharatNet / NOFN. “Newspapers” at 39%, “Friends and Family” at 37% and “Televisions” at 30% were the top three sources accredited with spreading the word about BharatNet / NOFN. Private organizations with 1 or more employees claimed that the top source of awareness on BharatNet / NOFN were “Newspaper publications” while state government organizations claimed that considerable awareness of BharatNet / NOFN was built thanks to "People at office or business". As compared to other segments, state government organizations felt that this was the top source of BharatNet / NOFN awareness building. At 22%, 15% and 8% respectively," Internet", "Internal Official Communications" and "Radio" were the other channels that had helped to spread the word about BharatNet / NOFN (Figure 43).

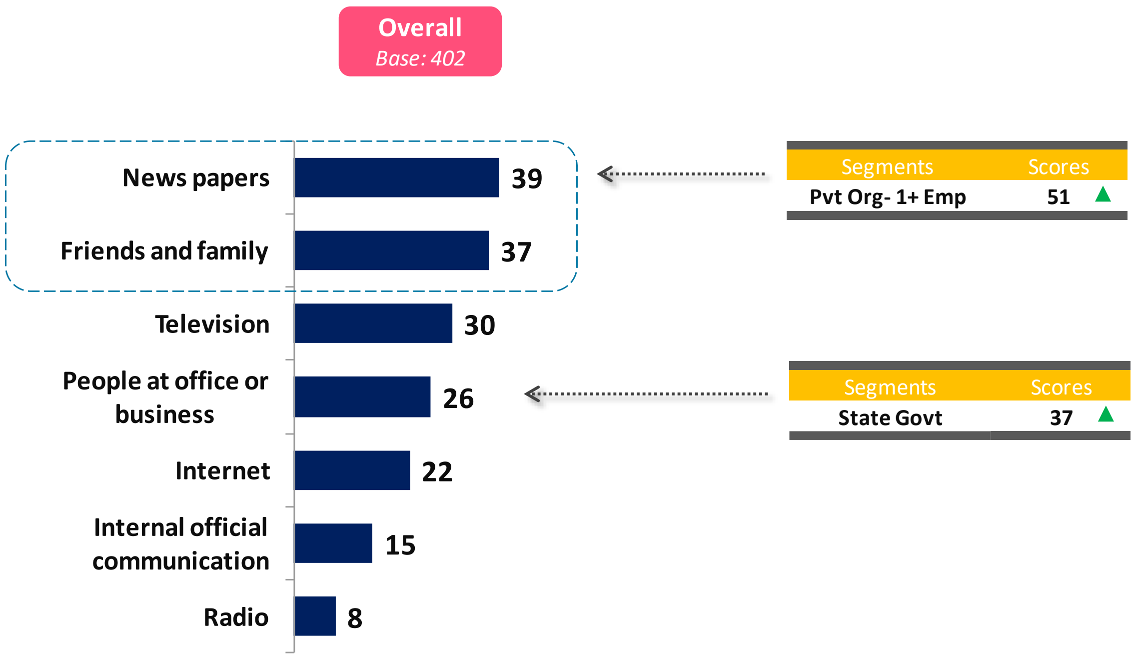


Figure 43: Sources of awareness about BharatNet / NOFN

Private organizations at 44% and 43% respectively, claimed a significantly higher BharatNet / NOFN awareness from 'Newspaper publications' and 'Friends and family' as compared to public organizations where these percentages stood at 31% and 29% respectively. On the other hand, users from public organizations claimed significantly higher information availability from "People at office or business"(36%) and "Internal official communication"(21%) on BharatNet / NOFN as compared to private organizations where these numbers stood at 20% and 10% respectively. Interestingly, users from private organizations cited the "Internet" among the top sources of information on the NOFN at 25% as compared to public organizations at 13% (Figure 44).

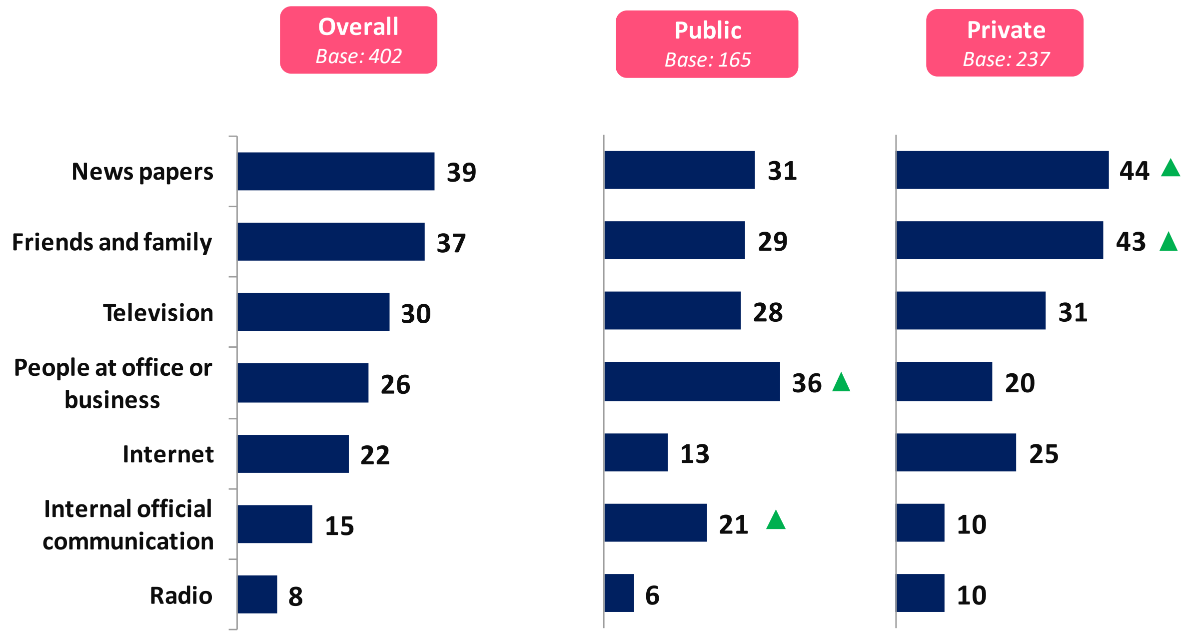


Figure 44: Sources of information about BharatNet / NOFN across organizations

4.2 Perceptions about BharatNet / NOFN

The study gather users' perception about BharatNet / NOFN. When asked, users were fairly well informed on the BharatNet / NOFN with 67% agreeing, in some measure, that the BharatNet / NOFN was "fully owned by the Government", with 31% strongly agreeing to the same. That the BharatNet / NOFN "will connect 250,000 Gram Panchayats (village administrative) bodies in the entire country had 66% agreeing in some measure and 64% seemed to know that the BharatNet / NOFN would "provide 100 Mbps speed Internet". 51% felt that BharatNet / NOFN would be more beneficial for personal use than business and 54% were in agreement that BharatNet / NOFN was working properly in their locality. However, it was interesting to note that nearly 50% of those surveyed thought the BharatNet / NOFN would provide free Internet to people. 44% of the people did believe that BharatNet / NOFN would be affected by poor electricity supply. 29% were unsure if BharatNet / NOFN was known to everyone in their locality and 57% of those surveyed were unsure if Internet from the BharatNet / NOFN could be resold by private businesses (Figure 45).

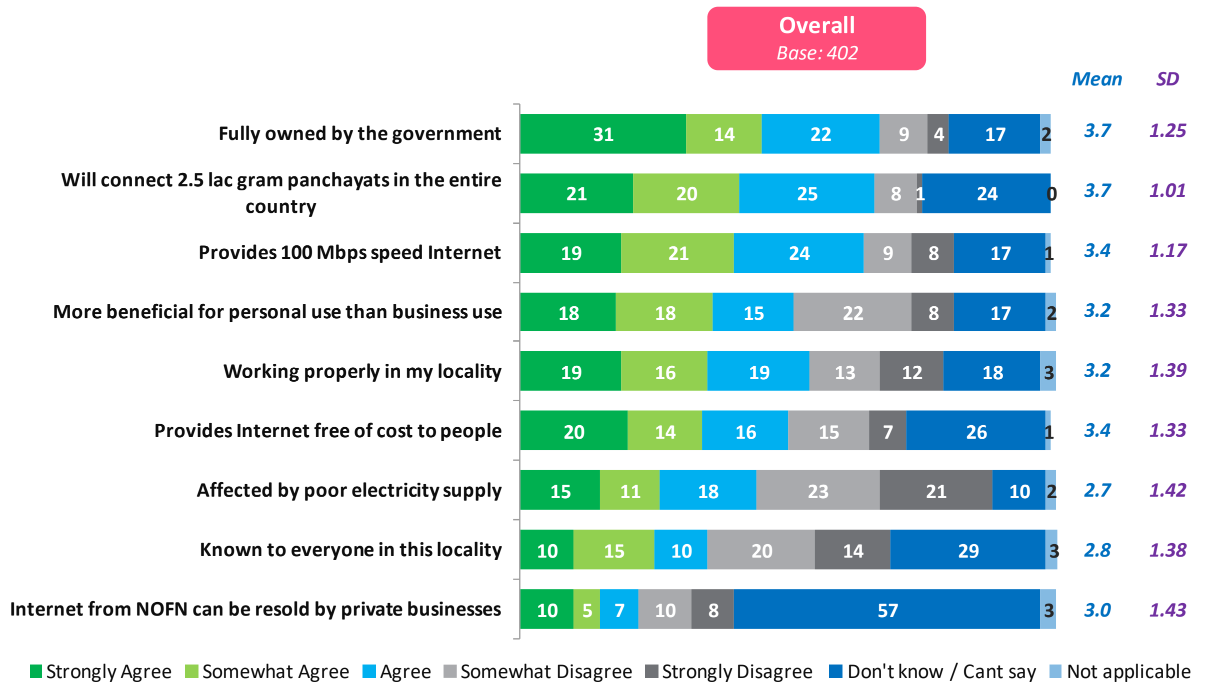


Figure 45: Prevailing perceptions about BharatNet / NOFN

When asked for their perceptions on the NOFN, the entire sample was fairly well informed on the NOFN with 67% agreeing , in some measure, that the NOFN was "fully owned by the Government" with 31% strongly agreeing to the same. Amongst users surveyed from public organizations, these percentages stood at 62% and 34% respectively and in private organizations these percentages stood at 64% and 29% respectively. Again while at the NOFN "will connect 250,000 Gram Panchayats (village administrative) bodies in the entire country had 66% agreeing in some measure and 64% seemed to know that the NOFN would "provide 100 Mbps speed Internet", in public organizations these percentages are 72% and 66% respectively in private organizations these percentages were 63% and 62% respectively . 49% in public organizations and 52% in private organizations felt that NOFN would be more beneficial for personal use than business and 58% in public organizations and 50% from private organizations were in agreement that NOFN was working properly in their locality. However, nearly 55% of those surveyed in public organizations and 48% in private organizations thought the NOFN would provide free Internet to people. 45% of those surveyed in public organizations felt that poor electricity supply would affect the NOFN and this percentage was 43% in private organizations. As at the Overall Level, in public organizations 53% of those surveyed were unsure if Internet from the NOFN could be resold by private businesses and this percentage was 59% in private organizations (Figure 46).

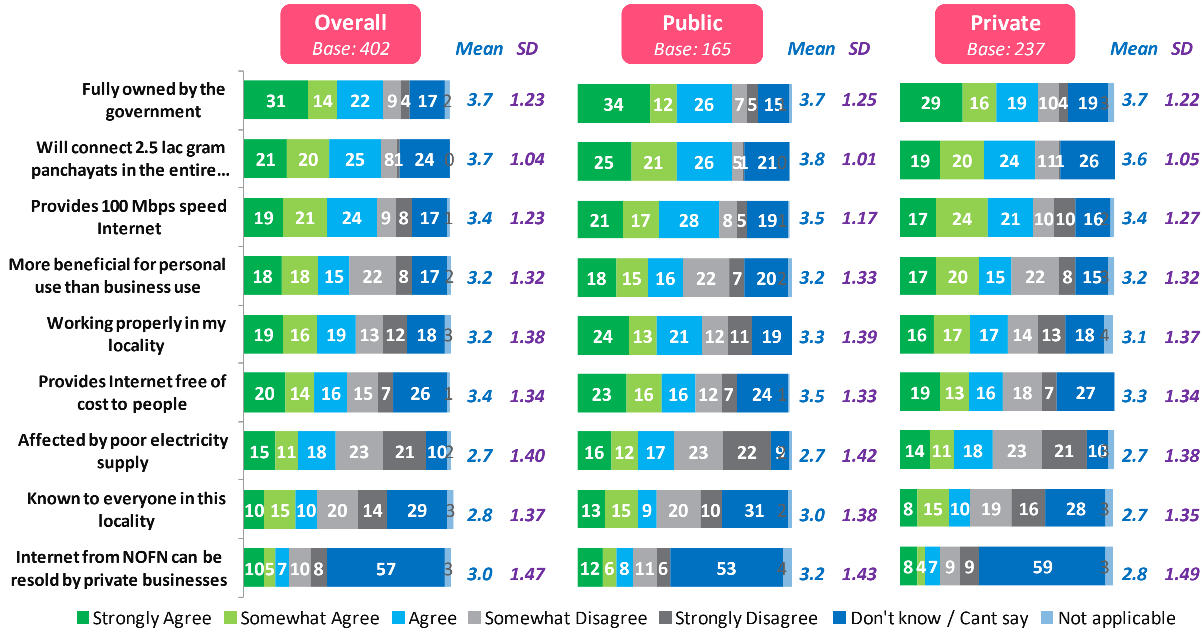


Figure 46: Prevailing perceptions about BharatNet / NOFN by organizations

BBNL needs to work on modifying incorrect perceptions about the BharatNet as there are few misconceptions like being free and more beneficial for personal use etc. The accurate information about BharatNet along with possibilities of participation needs to be disseminated widely through a systematic campaign.

4.3 Barriers to Potential Use of BharatNet / NOFN

Despite the pilot implementation few years ago, BharatNet / NOFN is not visible in the study sites. Among those surveyed 93% were not using the NOFN. With 54%, 53% and 54% respectively in agreement, “Equipment is breaking down often”, “NOFN connection is very slow” and “Already having internet” emerged as the top three barriers to using NOFN. In state government organizations, “Lack of manpower/technical support” was cited as the biggest barrier to using BharatNet / NOFN while users from semi government organizations said that the main reasons for not using BharatNet / NOFN are “Expensive maintenance of equipment” and “No clarity on who would pay for the connection”. 50% of the users surveyed felt that they “can continue existing work without the Internet”. While 38% felt that BharatNet / NOFN connection is not reliable, the same percentage claimed that not having the required devices to access the Internet was a barrier. 53% disagreed that already having Internet from a BSNL land line would be a barrier and 54% disagreed that “a lot of misuse of the Internet was a barrier”. “Customers do not use the NOFN” saw 33% agreeing that it was barrier while 52% disagreed with the same. Further, overall Level, users surveyed from private organizations that had salaried employees claimed that “can continue existing work without the Internet” was among the top barriers to using the NOFN. Added to this the perceived lack of reliability of the NOFN was also a major barrier when it came to BharatNet / NOFN uptake (Figure 47).

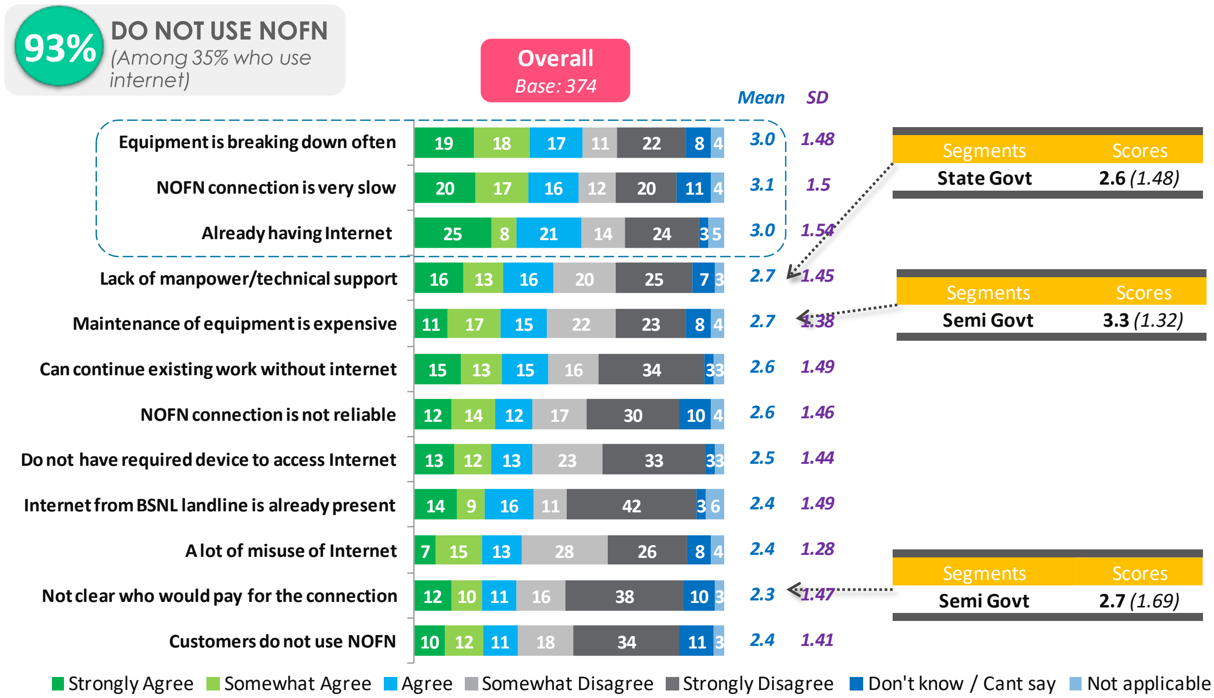


Figure 47: Barriers for using NOFN - I

The study further probed with more questions on non use of BharatNet / NOFN. Overall, 59% disagreed that "Not aware of how to use the NOFN" was a barrier, 64% did not believe that the absence of requisite funds was a barrier, 56% disagreed that absence of technical capacity to use the BharatNet / NOFN could pose as a barrier and 72% disagreed that perceiving the Internet as a waste of money was a valid reason that could be cited for not using the BharatNet / NOFN. Similarly 60% disagreed that "no prior experience of using the NOFN" was a barrier, 61% disagreed that "not aware of how to get the connection/operate it/use it" was a deterrent and 60% disagreed that perceiving the NOFN to be too complicated was indeed a barrier. At 71%, users surveyed were quite opposed to regarding "the Internet not being safe" as an obstacle to NOFN uptake and an equal proportion were in disagreement that "the Internet being not beneficial in any way" could be cited as a reason for BharatNet / NOFN not to be adopted (Figure 48).

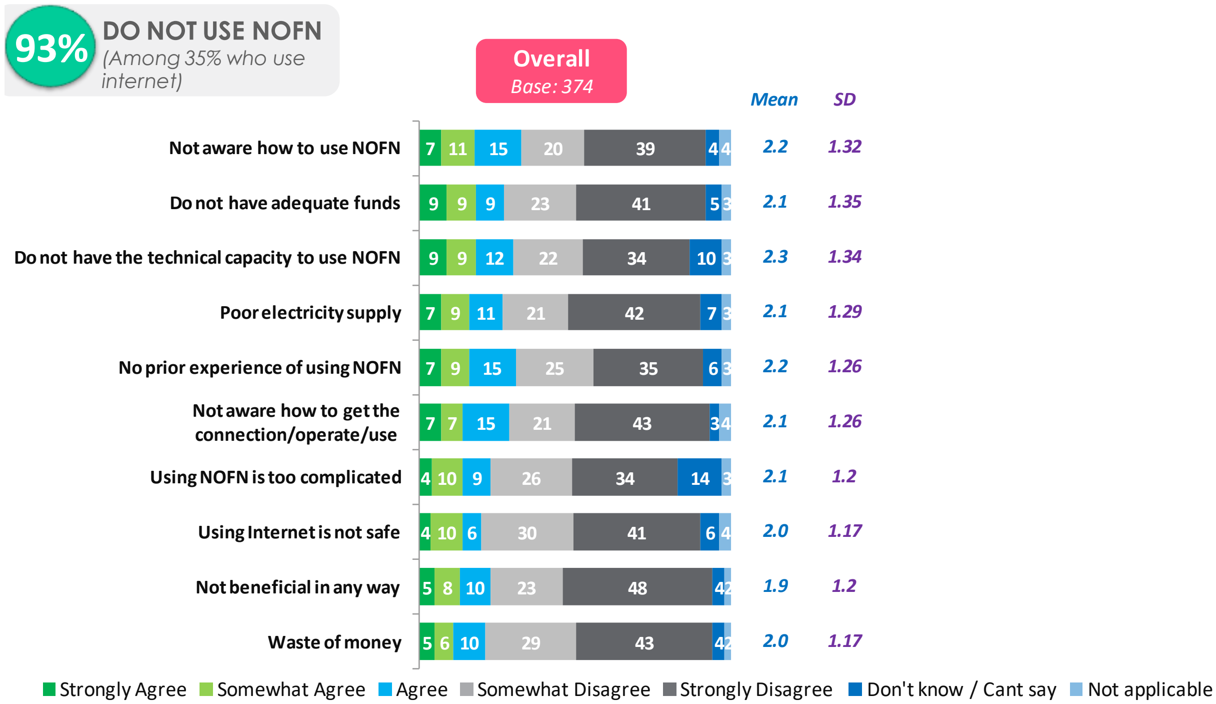


Figure 48: Barriers for using NOFN - II

In private organizations the first 7 major barriers listed were responded to with various degrees of agreement. "Equipment breaking down often" saw 71% agreement. "NOFN connection is slow" saw 69% in agreement. "Internet from other service provider is already present" saw 64% agreement. "Lack of manpower/technical support" saw 54% agreement. "Maintenance of required equipment is expensive" saw 59% agreement. "Can continue existing work without internet" saw 53% in agreement and "NOFN connection is not reliable" saw 55% in agreement. "Slow NOFN connection" and "Internet already present" appear as the most significant barriers among private organizations. Additionally, "Can continue existing work without internet", "NOFN connection is not reliable" and "A lot of misuse of internet" emerge as other significant reasons among private organizations. In contrast, for public organizations these percentages were 38%, 35%, 43%, 34%, 27%, 34% and 20% respectively. However, users in private organizations disagreed fairly significantly that "do not have required device to access the Internet", "Internet from BSNL landline is already present", "a lot of misuse of Internet", "not clear who would pay for the connection" and "customers do not use the NOFN" were indeed barriers. The percentages against these disagreements were 60%, 54%, 48%, 53% and 56% respectively. For public organizations the percentages associated with these disagreements were 42%, 50%, 49%, 45% and 45% respectively (Figure 49).

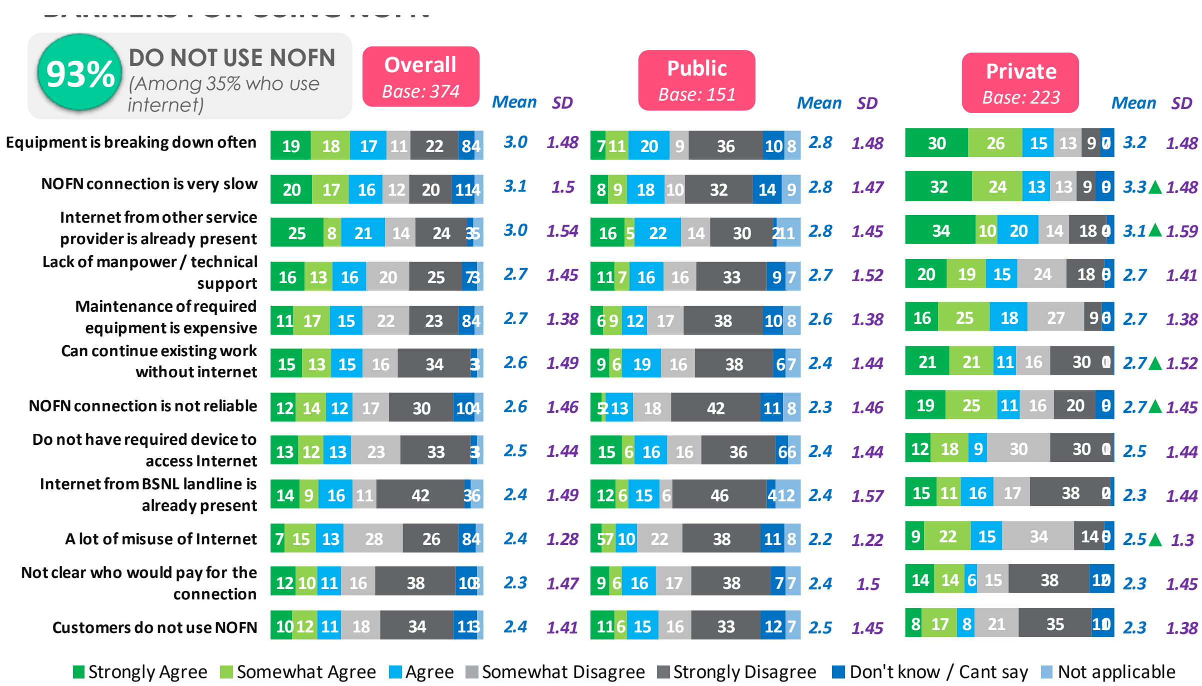


Figure 49: Barriers for using BharatNet / NOFN across organizations - I

Overall, 59% disagreed that “Not aware of how to use the NOFN” was a barrier, 64% did not believe that the absence of requisite funds was a barrier, 56% disagreed that absence of technical capacity to use the NOFN could pose as a barrier and 72% disagreed that perceiving the Internet as a waste of money was a valid reason that could be cited for not using the BharatNet / NOFN. Barriers for using BharatNet / NOFN among private organizations more or less mirrored the Overall Level scores with percentages of 50%, 64% and 55% respectively for public organizations and percentages of 67%, 65% and 58% respectively for private organizations. Similarly 60% disagreed that “no prior experience of using the NOFN” was a barrier, 61% disagreed that “not aware of how to get the connection/operate it/use it” and 60% disagreed that perceiving the BharatNet / NOFN to be too complicated was indeed a barrier. Again, similar levels of disagreements were seen in public and private organizations where these percentages were 55%, 49% and 63% respectively for the former and 64%, 77% and 68% respectively for the latter. At 71%, users surveyed were quite opposed to regarding “the Internet not being safe” as a deterrent to a BharatNet / NOFN uptake and an equal proportion were in disagreement that “the Internet being not beneficial in any way” could be cited as a reason for BharatNet / NOFN not be adopted. In public and private organizations these disagreements stood at 70%, 69% and 71% respectively for public organizations and 71%, 72% and 74% respectively for private organizations. All in all, a sizeable proportions of those surveyed in both kinds of organizations disagreed to varying degrees that the reasons presented could actually be barriers to BharatNet / NOFN uptake (Figure 50).

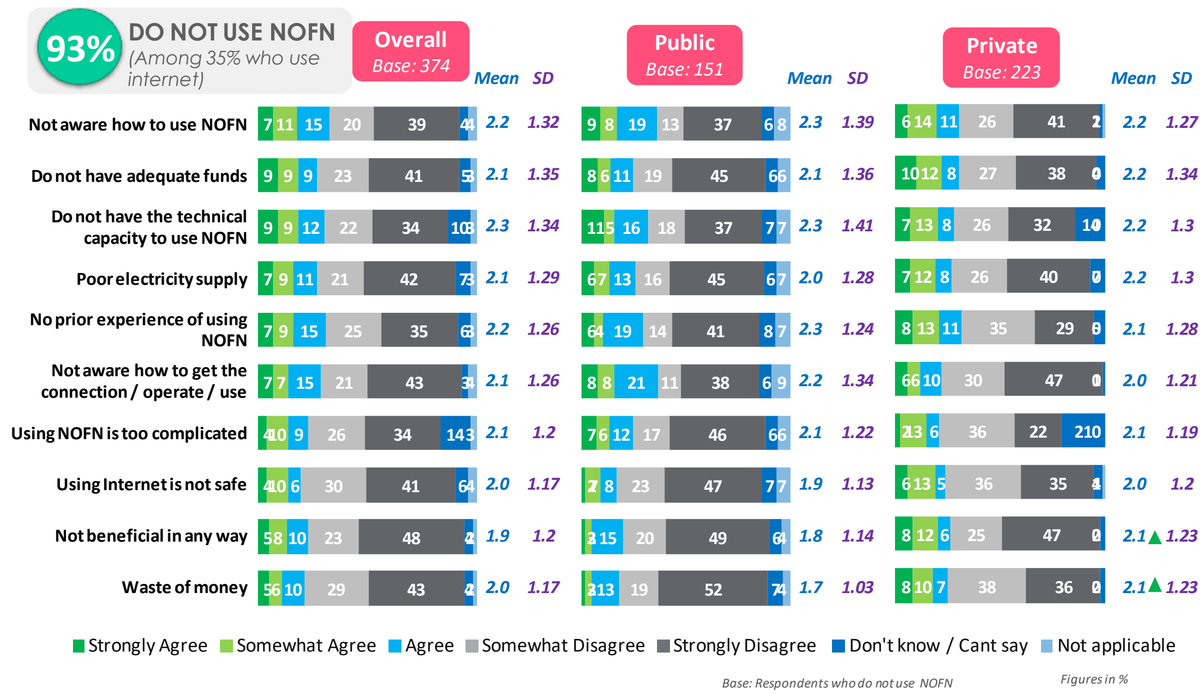


Figure 50: Barriers for using BharatNet / NOFN across organizations - II

Apart from understanding the barriers, the users were asked about the potential uses of BharatNet / NOFN. Majority of the users believed that “Learn new skills for personal use”, “Access to better hospitals” and “Finding new business opportunities” were ways in which BharatNet / NOFN could help people in the future. With 65%, 66% and 63% respectively in agreement, users saw these as activities with maximum potential vis-à-vis NOFN use. Other activities suggested were also perceived as being of high potential. “Access to Internet Banking” at 70%, “expansion of existing business” at 62%, “finding new job opportunities” at 66%, “getting information about Government Schemes at 76%, “learning new things through online videos” at 78%, “learning new skills for employment” at 68% and “receiving required latest information” at 67% all saw a majority proportion of users surveyed in agreement. However, the activity that saw the maximum percentage of users surveyed in strong agreement at 36% was “getting information about Government schemes” thus emphasizing the urgent need for strengthening back end e-governance systems in the country in order to meet the expectations of citizens (Figure 51). As per the Technology Acceptance Model (Viswanath, Morris, Davis, & Davis, 2003), actual use of ICTs is an outcome of perceived usefulness or benefits. As the large size of the sample perceives the BharatNet / NOFN beneficial, the actual use might happen.

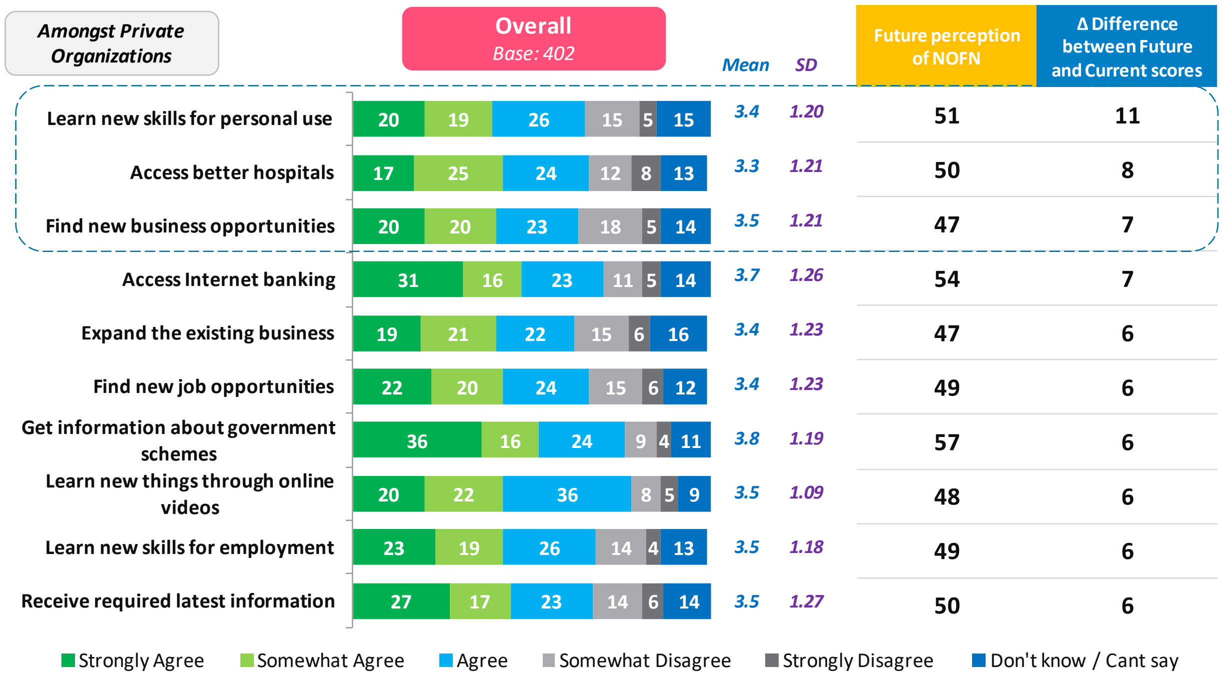


Figure 51: Top ten potential activities with BharatNet / NOFN

5. Implications & Policy Suggestions

The present section presents the implications and policy suggestions emerging from the findings of the study. The main findings of the study are:

ICT Ownership & Access

- Out of 1329 contacted, only 32 institutional users access BharatNet.
- 65% organizations do not use Internet from any source.
- 62% of the institutional users do not use Internet at the personal level as well.
- Among non-users, intention to use Internet in future is about only 16%. Half of them do not intend to use Internet.
- In terms of usage, on an average 3.4 years, Internet has been used. Number of public organizations are slightly higher and are shade better in openess to likely use BharatNet in future.
- One third of organizations reported that they are computerized. Inter-office connectivity is better among public organizations.
- Mobile Internet is the predominant form of access, ~43% and wirline access is around 10% in organziations.
- The Internet expenses including all mediums is: median - Rs. 300; average / mean - Rs 799 (Std Dev 1777). For the institutional users, this amount is perceived as expensive.
- Private telecom service provider, Airtel is the distinct market leader in all forms of Internet access among the users.
- In nearly 2/3 of the organizations, the respondents do not have additional manpower to handle the ICT related infrastructure. This is not surprising as most of them are very small organizations.

ICT Usage: Present & Future

- The Internet is used 3-5 hours per day by the organizations.
- The top three activities done at the personal level are: Reading Info Online, listening to music, radio online, and video.
- Use of private programs like accessing Google for information, using Whatapp and Facebook are done very frequently and higher than accessing governmental portals.
- Among Internet users, intercation with suppliers (33%), contacting potential custoemrs (33%) and interaction with customers (26%) and done 'somewhat frequently' or more.
- Only 8% of users are open to provide internet as product or services to external people, if permitted.

Triggers and Barriers of Internet Use and Access

- The top three triggers for Internet use are: 'to get instant information access' (69%), 'can do many things at once using Internet' (58%) and 'everyone around is using Internet' (51%).
- The top three barriers are: 'can continue work without internet' (75%), 'do not have required devices to access the Internet' (73%), 'no prior experience of using the Internet' (52%).
- The other barriers included: 'inadequate technical capacity', employees do not know how to use Internet', and 'using Internet is too complicated'.
- There are not much difference between personal and organizational use of Internet in terms of triggers and barriers.

Awareness about BharatNet / NOFN: Nature and Sources

- Awareness about wireless Internet is fairly high with 45%.

- Awareness about ICT related programmes appears to be poor: 83% did not know about optic fibre, 76% about Digilocker and 68% about Digital India.
- In overall, 30% of the responents claimed that they are aware of the BharatNet / NOFN of which 8% claimed to know it very well.
- “Newspapers” at 39%, “Friends and Family” at 37% and “Televisions” at 30% are top three sources of information about BharatNet / NOFN. People at office or business, 26%, is the next big source of information which is also the biggest source of information for public organizations.
- Of the perceptions, 67% agreed that BharatNet / NOFN is fully owned by the government and almost equal about connecting 250000 GPs in the country.
- Half of the sample felt that BharatNet / NOFN provides free Internet to people.
- Slightly less than half felt that poor electricity supply will affect BharatNet /NOFN.
- Among the Internet users, the top reasons for not using BharatNet / NOFN are: ‘Equipment breaking down’ (54%), ‘Slow Internet connectivity’ (53%), and ‘Already having internet’ (54%).
- The respondnets are optimistc about the potential uses of BharatNet / NOFN. Following are some of them: ‘Learn new skills for personal use (65%), ‘Access to better hospitals’ (66%), ‘Finding new business opportunities’(63%), ‘Access Internet banking’’ (70%), “finding new job opportunities” (66%), “getting information about Government Schemes (76%), “learning new things through online videos” (78%), “learning new skills for employment” (68%) and “receiving required latest information” (67%).

As a part of the project[14], we had also conducted 28 in-depth qualitative interviews with representatives from the private sector, government, trade associations, NGOs, and academia. The interviews attempted to explore why private sector firms are not participating in the pilot projects, what are the challenges and possible solutions. The insights from the interviews are incorporated in appropriate places in this section.

The findings were presented in front of variety of audiences (officials from Ministry of Electronics and Information Technology, Telecom Regulatory Authority of India, participants in four days residential course on How to Engage in Broadband Policy and Regulatory Processes[15] which had also civil society members and policy makers, and members of a New Delhi based NGO which works on the broadband access area, Digital Empowerment Foundation). The findings are also presented in a peer reviewed international conference, Communication Policy South 2016, Zanzibar.

Technology adoption strategy
Theories on technology adoption highlights need for presence of following things for wide spread adoption among the users: perceived usefulness, perceived ease of use, which influences attitude towards using technology which result in behavioral intention to use and then actual use. There are other factor that affect the linkages to actual use like facilitating conditions, social influence, voluntariness of use and experience (Viswanath et al., 2003).

The usual list of problems like electricity, road and network connectivity continue to result in weak eco-system for adoption of BharatNet. Improving digital literacy among the rural populace can accelerate

[14] Though original plan was to undertake a full-fledged qualitative study, we could not take conduct adequate number of interviews to reach the content maturation stage. Hence only partial data are available for analysis. Rather than treating as a mixed design study (Creswell, J, 2013), qualitative data are used in the implications section.
[15] For further details, please see http://lirneasia.net/capacity-building/ford-broadband-policy-course/

the adoption. At present Govt. of India has undertaken a programme, DISHA or National Digital Literacy Mission[16], wherein 5.6 million persons, one each from a non ICT literate household is trained for 28hours through CSCs. The training includes using computers, mobile phones and accessing portals for ecommerce and government services. Digital financial literacy program is also added to this initiative. Also, availability of appropriate and consumable content is important for usage of broadband access. There has been a growth in content meant for rural India in terms of regional languages[17], but most of them related to messaging, digital entertainment, social media and online news[18]. There is a need for content in other areas like education, health, retail, skills training and agriculture etc. Demand for this content appears to be present which needs to be conveyed to the third party content providers.

Public information campaigns

The study showed that awareness about the BhartNet is low among the potential institutional users. The users are capable people in terms of age, educational qualification and access to documents like unique ID card (UID) also called as Aadhaar) and some of them are already using mobile Internet for personal use. There is a need for running a campaign for spreading awareness of BharatNet.

The awareness campaign can cover the potential benefits of BharatNet and how both private and public service providers can use them to think of new services to be made available for the rural populace. On the basis of 100 different public information campaigns (PICs) (Weiss, J & Tschirhart, 2014), it was found that effectiveness is dependent on the following: (i) to capture the attention of the right audience; (2) to deliver an understandable and credible message; (3) to deliver a message that influences the beliefs or understanding of the audience; and (4) to create social contexts that lead toward desired outcomes. This can be achieved by defining the target audience (institutional users, in this case), choosing the right channels (TV and newspapers seem to be dominant sources of information) and attracting attention (private entrepreneurs have an option of generating extra income or public officials can deliver the services in less time).

The campaign should come from a credible source. Nandan Nilekani, founder of India's one of the largest software service companies became the face of UID[19] and served as a rallying point in implementation. The other needed activities (Weiss & Tschirhart, 2014) include providing the right information, directing attention of the people to the selected factors (for instance possibilities of accessing quality education through acceding videos for school children through broadband) and triggering the norms (an example can be how a Brazilian breast feeding campaign evoked parental responsibility). As a government body, BharatNet can also push the PICs in the line of political processes – how these access to broadband could lead to development in the rural regions through better education, health and employment opportunities. The political leaders seem to be apathetic to the BharatNet when compared to other schemes, despite the large cost of the project. They can be a big catalyst in spreading the required awareness.

The qualitative interviews had showed that only govt stakeholders, trade associations and some in academia were familiar with latest debates & nuances around BharatNet. There seems to be disinterest

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[16] http://beta.nielit.gov.in/calicut/content/national-digital-literacy-mission-ndlm

[17] For instance, http://timesofindia.indiatimes.com/business/india-business/Online-regional-language-courses-gain-traction/articleshow/52333642.cms

[18] http://timesofindia.indiatimes.com/business/india-business/90-of-new-net-users-non-english/articleshow/58371769.cms

[19] https://qz.com/957607/nandan-nilekani-aadhaar-is-being-demonised-because-its-so-transparent/

or lack of awareness among the private players. Hence PICs should focus not only for the small institutional users at the GP level, but also at the corporate houses. They are expected to play a larger role in connecting the last mile.

Private players & Telecom service providers
Mediating institutions like private telecom service providers, trade associations, NGOs and local governments are important for success of the PICs (Weiss, J & Tschirhart, 2014). Private sector players feel it is too premature to comment on participation in BharatNet as service provider, as the entire backbone itself is not complete. According to private industry representatives they had shared the data about their existing fibre network coverage with the BBNL for possible usage in BharatNet, but was not able to engage further. They feel that the overall functioning of the plan is opaque. They also added that post implementation strategy for the final mile was not clearly laid out and maintenance related activities are not accounted for.

The three major concerns of the private players are, commercial viability and profitability, ease of doing business, and clarity of terms and costs. It should be noted that private players are yet to maximize revenues in the urban broadband access domain, which has been the priority than rural. However, a viable commercial business model in rural areas will make it attractive. It is also suggested that BBNL should focus more on utilization, rather than monetization. The investment for the BharatNet has indirectly come from the industry through USO, hence the infrastructure should be made available at an attractive cost.

Industry representatives opined that consultation with them was inadequate while designing and implementing the BharatNet. They do not want to participate as a private service provider at the GP level, due to multiple reasons. They are reluctant to be dependent on BSNL for backhaul connectivity for which service level agreements are also not clear. For instance, a private service player might offer a service level agreement (SLA) to an end user while offering broadband services, but not sure of keeping up similar (SLA) with the primary provider, BSNL. An assurance of uninterrupted connectivity at a backhaul level shall help the cause. The detailed terms and conditions related to access and tariff is not available to those who are interested. The mode of functioning of BharatNet is predominantly of an infrastructure builder, not a service provider. This lack of clarity results on low confidence among the potential services providers. BharatNet can think of implementing single window clearance for access with necessary SLA details.

Also, in order to provide Internet to end users, one needs to have Unified License under which Internet Service Provider (ISP) license is covered[20]. Though most of the telecom service providers have the ISP license, they are reluctant to enter new broadband access business. Despite having 244 license holders[21], number of active players in rural areas seems to be less. Recently Common Service Centers (CSCs) have been given the license for ISP services[22]. CSCs are considered to be the backbone of the Digital India programme in connecting government and the citizens, and all possible efforts are being made to make them sustainable. For instance, CSCs are roped in to provide training on digital financial literacy or Goods and service tax (GST)[23]. Though CSCs are present in all the GPs, it is too early to gauge

[20] http://pib.nic.in/focus/fomore/telecom1.html
[21] http://www.dot.gov.in/sites/default/files/2016_08_24%20ISP-DS_0.pdf?download=1
[22] http://computer.expressbpd.com/news/cscs-are-vehicles-of-digital-india/18690/
[23] http://timesofindia.indiatimes.com/good-governance/centre/common-services-centers-to-function-as-gst-suvidha-providers/articleshow/58893273.cms

the impact of the same. Interestingly, govt services related traffic is one of the important revenue generators in the data flow at the GP level. This part is not permissible to the private players, thus reducing the overall attractiveness for investment.

At present, wifi hotspots in rural locations do not appear to be a viable business idea, despite data showing that rural India is spending more money on mobiles and cars, and other aspirational goods.[24] Two other reasons are also emerged during qualitative interviews – private firms are following 'wait and watch' approach to see success of the others' initiatives, before start making their own investments, and telecom service firms are generating adequate from the mobile internet segment.

Trade associations
Trade associations should conduct activities to spur entrepreneurship in the rural digital entrepreneurship space. The Indian ecommerce industry is expected to touch USD 55 billion 2018.[25] The sector is seen with firms operating or experimenting with all domains, but predominantly in urban India. Rural India stands an unexplored territory and the process of diffusion has been slow. Some of the retail ecommerce players like Flipkart or Shopclues have been entering tier II towns. Taobao villages of Alibaba (Leong, Pan, & Newell, 2016) serves as a model where Alibaba helps in creating an ecosystem in making Chinese villages ecommerce friendly by building infrastructure in collaboration with local bodies. This model could be emulated by the Indian firms. There are other ecommerce firms that meet the demand for quality education (BYJU) or entertainment (Hotstar) through mobile applications, but we do not know about rural consumption due to unavailability of data. Any user with a device and broadband access shall be able to access the content provided by these firms. The broadband access for these initiatives shall come from the BharatNet.

Trade associations can conduct innovation hackathon meets to cater to the rural needs. An earlier research indicates how hackathon meets where programmers, designers, entrepreneurs and funders come together to find techno-business solutions to societal problems, are successful in creating mhealth applications for low and middle income countries (Angelidis et al., 2016). As the startup ecosystem is being strengthened by funding from the Govt of India and private investors, efforts should be made to focus in the exploit the potential of rural India. Bottom of the Pyramid (Prahalad & Hart, 2002) strategies very well fit into this space as well. The hackathon meets shall produce digital intermediaries who would connect funds, capabilities and demand, and can also deliver the developmental outcomes.

Non-governmental organizations
At present, Govt of India stipulates that firms with annual revenue of USD 75 million should spend xx% of their 2% of net profit on charity or corporate social responsibility (CSR) activities. These CSR funds are tapped by NGOs like eVidyaloka.[26] It maintains digital class rooms in rural schools with the help of partnership with CSR funds of private firms. This model seems to be sustainable, as the NGOs continue to make use of CSR funds which need to be spent. However, the broadband access is not from BharatNet. Digital intermediaries like eVidyaloka or those who are locals should be encouraged by the trade associations to explore the possibilities of using BharatNet.

Private entrepreneurship

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[24] http://indiatoday.intoday.in/story/rural-india-technonology-mobile-phones-national-survey/1/710883.html
[25] https://www.ibef.org/news/indian-ecommerce-sales-to-reach-us-55-billion-by-2018-report
[26] http://www.evidyaloka.org/about

Indian villages have private entrepreneurs who have access to capital, and do not really look at BharatNet as a viable business proposition. A contact center, room with few networked computers can be built and rented out to various entities. For instance, Arvind hospitals use local infrastructure as make shift clinics during its camps and connect with headquarters through its own ICT infrastructure. This service innovation is able to overcome infrastructure inadequacies successfully (Srivastava & Shainesh, 2015). These contact centers can be used by hospitals, private education service providers, and skill training providers on time share basis. Training partners of National Skill Development Corporation, a private public partnership initiative under Ministry of Skill Development Entrepreneurship can be one of the potential users of the contact centers. Business process outsourcing for domestic companies can also be tried at these contact centers.

State government and other government organizations
At present, the BharatNet is centrally managed. Involvement of state governments by parting USOF shall help them in taking ownership and exploring appropriate models at the state level. Having a better role to play, state governments would evolve viable models in a nimble fashion and knowledge on local needs, routes, and existing infrastructure at the state level can be leveraged. Similar arguments can be raised in favor of GPs as well. However, inadequate capacities at the GPs to handle technological infrastructure shall be a barrier.

In qualitative interviews, the representatives of the public organizations highlighted the lack of coordination between different organizations, BSNL, BBNL and the Ministry of Finance, for the delay even in implementation. Given the weak clarity of the roles related to implementation, services and maintenances, there is also lack of motivation among the staff to complete the project on time. The interconnection agreements, where BSNL is assumed to have a monopolistic role, between different units are important for smooth implementation and sustenance of the project.

The post implementation scenario can handled in three major models: Government owned – Govt. shall own the network, leases it out after building the network. The private player who is maintaining has the freedom to generate revenues. The govt. receives only the auction value. This will ensure that the network is operational and last mile connectivity is ensured, as the private players shall continue to innovate for revenue generation. The market shall decide the cost of the access. If needed, govt. Can intervene in terms of supporting the citizens in accessing, but without interfering in the private management.

In the second model, private players are roped in to maintain the network for a fee and are given a part of revenues generated. There is assured minimum revenue for the private players who would work to improve the revenue of the network in private public partnership.

In the third model, a unified fibre company in SPV mode can be established where private players are partners. The service providers shall monetize the network by paying access fee, and there is equality of access to all. British Telecom's OpenReach[27] model (Sidak & Vassallo, 2015) can be studied to explore the possibilities.

[27] Please see here for further details: https://www.openreach.co.uk/orpg/home/index.do

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Annexure A

Qa	FW Location	Code	Route
	Ajmer	1	
	Vishakapatnnam	2	

Qb	Type of Survey	Code	Route
	Pilot	1	
	Main	2	

Qc	GP Name	Code	Route
	Ajgara	1	
	Arain	2	
	Bhagwanpura	3	
	Bhogadeet	4	
	Birla	5	
	Dadiya	6	
	Deopuri	7	
	Fatehgarh	8	
	Gothiyana	9	
	Hingoniyan	10	
	Jheerota	11	
	Kasheer	12	
	Lallai	13	
	Manoharpura	14	
	Sapla	15	
	Syar (Pilot)	16	
	Edulapaka Bonangi	17	
	Gorlivani Palem	18	
	Kunnuru	19	
	Mutyalammapalem	20	
	Paravada	21	
	Thadi	22	
	Vennelapalem	23	
	Pedamusidivada (Pilot)	24	

SPEAK TO A DECISION MAKER INVOLVED IN INTERNET RELATED/ INFREASTRUCTURE RELATED ACTIVITIES IN THE ORGANIZATION

Good morning/afternoon/evening. My name is ....I am an interviewer from The Nielsen Company. which is a market research company. We are conducting a survey and would appreciate if you could spare a few minutes to answer our questions. Please be assured that all your answers will be kept strictly confidential. Also, in order to ensure that we are conducting interview at the correct geographical location we would be capturing the GPS location of this place.

Q5	Have you been interviewed by any Market Research company in the past 6 months? [SA]	Code	Route
	Yes	1	CLOSE
	No	2	

Q10	What is the name of the business / organization you are representing? [SA]	Code	Route
	Organization name: _______________________	1	

Q10.1	**SHOWCARD** With the help of this showcard can you please tell me which category does your organization / business belong to? [SA]	Code	Route
	Cable Operators	1	
	Bank	2	
	Private Hospital / clinic	3	
	Primary health center (govt.)	4	
	Post Office	5	
	School	6	
	Movie theatre	7	
	SMEs	8	
	Agent of Telecom Operator	9	
	Talk time seller	10	
	Telephone exchange	11	
	Public distribution shops / Ration shops	12	
	Panchayat Office - GS leader/Sarpanch	13	
	Electricity Supply Office	14	
	Public Employment programmers	15	
	Ex Sarpanch	17	
	Political Activist	18	
	Libraries	19	
	Courier Agency	20	
	Extension Office	21	

Common service center Kisok - ie. A govt. center offering services from a private owner	22
Local Trade Market Enterpreneur	24
Cooperative Society	25
NGO	26
Cyber café	27
Manufacturing plant / Refinery / Factory	28
Others: please specify _______________ If you come across any other such group / institution that is not mentioned in the above list, please capture those details as well	29
Primary health center (govt.) – Sub-center	30
Block Education office (BPO)	31
Tehsil/Block panchayat office (BDO)	32
Police station	33
Hostel	34
College	35
Anganwadi	36
Irrigation office	37
Ground Water Department	38
Public health engineering department	39
Watershed development office	40
Child development programme office (CDPO)	41
Veterinary Hospital / Dispensary	42
Gas agencies	43
Petrol pump	44
Warehouse	45
Tutorials Canter	46
Convention hall/ function halls /Marriage Garden	47
Travel Agency	48
Mandal Education office	49
Mandal Parishad Development office	50
Mandal Revenue office	51
IKP office (Indira Kranti Patham)	52
E Seva	53
Mee Seva	54
Training centre (Industrial training centre, agriculture training centre etc)	55
Other self employed (Person owning a shop - the shop can be Any petty trader OR local pan bidi shop OR local grocery shop OR repairing shop etc)	56

ASK ALL

Q10.a		Code	Route
	Additional information about the organization: ___________________________________		

ASK ALL

Q10.2	**SHOWCARD** With the help of this card can you please tell me your current occupation? [SA]	Code	Route
	Service / Salaried employee	1	Q6
	Self employed (having your own business set up – with no employees under me – neither full time nor part time)	2	Q6
	Self employed (having your own business set up – with 1 or more employees under me, either full time or part time)	3	Q6
	Currently unemployed	4	CLOSE

SHOWCARD
DO NOT ASK IF CODED 56 (petty trader) IN Q10.1

Q6	With the help of this showcard please tell me are you the main person who is involved in the decision making for the internet related/ infrastructure related activities in the organization? [SA]	Code	Route
	I am the sole decision maker for the internet related/ infrastructure related activities in the organization..	1	GOTO Q7
	I am one of the decision makers for the internet related/ infrastructure related activities in the organization	2	GOTO Q7
	I am the influencer but not the decision maker for the internet related/ infrastructure related activities in the organization	3	GOTO Q6.a
	I am not at all involved in the decision making process for the internet related/ infrastructure related activities in the organization	4	GOTO Q6.a

Q6.a	Please let me know whether you are the senior most person for this branch / business / organization? [SA]	Code	Route
	Yes	1	GOTO Q7
	No	2	GOTO Q6.1

ASK IF CODED 56 (petty trader) IN Q10.1

Q6.b	Are you the main person who is responsible for taking all kinds of decision that are required for your shop / business / organization? [SA]	Code	Route
	Yes	1	GOTO Q7
	No	2	GOTO Q6.1

IF CODED 2 in Q6a OR IF CODED 2 in Q6b
Q6.1 IF CODED 2 IN Q6.a SHOW BELOW TEXT
Can you please help in letting me know the main person who is involved in the decision making for the internet related/ infrastructure related activities in the organization?

IF CODED 2 IN Q6.b SHOW BELOW TEXT
Can you please help in letting me know the main person who is involved in the decision making for all the activities of this shop / business / organization?

INTERVIEWER TO IDENTIFY THE CORRECT PERSON ie. THE key person who is involved in decision making for the internet related/ infrastructure related activities in the organization

Details of the correct contact person RECEIVED …………………………………………….. 1
Details of the correct contact person NOT received ………………………………………… 2

If coded 1 … capture below details AND GOTO Q6.2
If coded 2 … THANK AND CLOSE THE INTERVIEW

NAME AND CONTACT NUMBER OF CORRECT CONTACT PERSON
NAME: ___________________________________
DESIGNATION: ____
CONTACT NUMBER:____

Q6.2 Is the correct contact person available for interview right now?

Yes …….. 1 ……………… GOTO Q7
No……… 2 …………… IF CORRECT PERSON IS NOT AVAILABLE THEN ASK FOR AN APPROPRIATE TIME WHEN HE/SHE CAN BE CONTACTED. THANK AND CLOSE THE INTERVIEW

Q7	Can you please let me know your contact number? Also, do let me know an alternate contact number that can be used to contact you. **PLEASE MENTION YOUR AREA STD CODE ALONG WITH THE PRIMARY/ALTERNATE CONTACT NUMBER** **[MA , however 'Refused' will be mutually exclusive]**	Code	Route
	Primary contact number:_______________________________	1	Q8
	Alternate contact number: _____________________________	2	Q8
	Refused to give contact number	3	CLOSE

IF CODED 56 (petty trader) IN Q10.1 THEN ASK Q27 AND THEN ROUTE IT AGAIN TO Q8
IF CODED 56 (petty trader) IN Q10.1 AND CODED NONE in Q27, TERMINATE

Q8	For research purpose, we would require to capture a couple of photographs of the premises and yourself. We need to capture these photographs in order to have a better understanding of the geographical ambience of the organization / setup. Please be assured that this will be used purely for research purpose and will not be published or presented in any forum. Do you grant us the permission for the same? [SA]	Code	Route
	Photograph of premises:	1	
	Yes	2	
	No	3	
	Photograph of self	4	
	Yes	5	
	No	6	

IF CODED 1 OR 2 IN Q6, ONLY VALID OPTION IN Q9 IS OPTION 1

IF CODED 56 (petty trader) IN Q10.1, ONLY VALID OPTION IN Q9 IS OPTION 1

Q9	Can you please tell me if the financial decision making for the internet related/ infrastructure related activities are taken by this office itself or at is decided by the head office / main corporate office?[SA]	Code	Route
	It is decided at this branch office	1	
	It is decided at the regional office	2	
	It is decided at the zonal office	3	

B. Use of Internet in work / government organizations / private businesses

Thank you for participating in the surveyFrom here onwards please give all your responses keeping in mind this business / organization only. Please answer with respect to only this branch or this unit that you are responsible for or that you are working with. We would like to know some details about how the Internet connectivity has helped or can help your business / organization. Then we follow it up with questions related to your personal internet usage

Q11	**SHOW CARD** What is the type of your business / organization? [SA]	Code	Route
	State Government Organization	1	
	Central Government Organization	2	
	Private Organization	3	
	Non-governmental Organisation (Public owned)	4	
	Non-governmental Organisation (Private owned)	5	
	Semi-governmental Organization	6	

Q12	Does your business / organization offer services for free? [SA]	Code	Route
	Yes	1	
	No	2	

Q14	What is the average annual turnover of your business / organization? [SA] By turnover I mean the total revenue that you generate from all kinds of sales / activities in a year **IF CODED 6 (School) or CODED 3 (Hospital) in Q10.1 AND CODED 1 or 2 or 6 in Q11 OR OR IF CODED 4 or 5 (NGO) in Q11 OR IF CODED 19 (Library) in Q10.1 SHOW BELOW TEXT** While calculate turnover, please also include all funding that you receive from any sources in a year	Code	Route
	Rs.________________________	1	
	Not disclosed / Refused	2	
	Not Applicable	3	

Q13	Can you please tell me, What is the annual net profit of your business / organization ie. Profit after tax (PAT)? Please answer with respect to only this branch or this unit that you are responsible for or that you are working with [SA] Here, by net profit (Profit after tax) I mean the final income earned after deducting all the expenses incurred	Code	Route
	Rs.________________________	1	

Don't know	....	2
Not disclosed / Refused	....	3
Not Applicable	....	4

Q15 **POST CODE RESPONSE IN THE BELOW GRID**

	Q13 - Net profit	Q14 - Annual turnover
(R1) Upto 1 lakh	1	1
(R2) 1 to 2 lakh	2	2
(R3) 2.1 to 3 lakh	3	3
(R4) 3.1 to 5 lakh	4	4
(R5) 5.1 to 7 lakh	5	5
(R6) 7.1 to 10 lakh	6	6
(R7) 10.1 to 15 lakh	7	7
(R8) More than 15 lakh	8	8
Not disclosed / Refused		
Not Applicable		

Q16	Can you please tell me, at present how many people are working (both full time and part time) in the business / organization, including you? . Please answer with respect to only this branch or this unit that you are responsible for or that you are working with. [SA]	Code	Route
	No. of people__________________________	1	
	Not disclosed / Refused	2	

Q17 **POST CODE RESPONSE Q16**

	Code
(R1) More than 1000	1
(R2) 701 to 1000	2
(R3) 501 to 700	3
(R4) 301 to 500	4
(R5) 201 to 300	5
(R6) 101 to 200	6
(R7) 51 to 100	7
(R8) 50 and Less than 50	8
Not disclosed / Refused	

Q18	**SHOWCARD** Can you please tell me, when was this business / organization started? Please answer with respect to only this branch or this unit that you are responsible for or that you are working with [SA]	Code	Route

	Less than a year ago	1	
	1 year to 2 years ago	2	
	2.1 to 3 years ago	3	
	3.1 to 5 years ago	4	
	5.1 years to 7 years ago	5	
	More than 7 years ago	6	
	Not disclosed / Refused	7	
	Don't remember	8	

Q19	**ASK Q19.1 IF CODED 1/3/4/5/7/10/17/19/20/22/27/30/33/36/41/42/44/47/48/53/54/29 in Q10.1 ELSE ASK Q19.2** Q19.1 Can you please tell me what is the average number of customers of your business / organization that you serve in a month, at present? **[Customers are who buy products or services from you or receiving services from you]** [SA] Q19.2 Can you please tell me what is the total number of customers of your business / organization, at present? **[Customers are who buy products or services from you or receiving services from you]** [SA]	Code	Route
	No. of customers_________________________	1	
	Not disclosed / Refused	2	
	Not Applicable	3	

Q20	**SHOWCARD** Please take a look at this showcard and tell me if, the larger part of your customers are__________________ [SA]	Code	Route
	People from the same locality	1	
	People from the neighbouring locality	2	
	People from far away places	3	
	Others please specify:________________________	4	
	Don't know / Can't say	5	

Q21	Please tell me, how many hours every day (i.e., out of 24 hours) does your organization get electricity on average? [SA]	Code	Route
	Hours of electricity:_________________________	1	
	Not disclosed / Refused	2	
	Not Applicable	3	

Q22	**POST CODE RESPONSE Q21**	Code	Route
	More than 4 hours	1	
	2.1 hours to 4 hours	2	
	1 hour to 2 hours	3	
	Less than 1 hour	4	

	Not disclosed / Refused		
	Not Applicable		

Q23	Please tell me how many hours in the daytime (ie. Between 6AM to 6PM)does your organization get electricity? [SA]	Code	Route
	Hours of electricity:_________________________	1	
	Not disclosed / Refused	2	
	Not Applicable	3	

Q24	**POST CODE RESPONSE Q23**	Code	Route
	More than 4 hours	1	
	2.1 hours to 4 hours	2	
	1 hour to 2 hours	3	
	Less than 1 hour	4	

Q25	Does your organisation have a generator?[SA]	Code	Route
	Yes	1	
	No	2	

Q26	Does your organisation have an inverter? [SA]	Code	Route
	Yes	1	
	No	2	

Q27	**SHOWCARD** Can you please tell me which of these devices does your business or organization own? [MA]	Code	Route
	Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	01	
	Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	02	
	Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	03	
	Landline connection		
	Personal computer / desktop / laptop	04	
	Tablet	05	
	Speakers or headphone or both	06	
	Web cam (allowed to code only if owns a personal computer / desktop)	07	
	Prepaid connection for mobile	08	
	Postpaid connection for mobile	09	
	Mobile Internet through 2G	10	

	Mobile Internet through 3G	11	
	Broadband / wireline access without wifi	12	
	Broadband / wireline access with wifi	13	
	Data card / Dongle	14	
	Dongles with a built-in Wi-Fi hotspot to create Wifi zone	15	
	NONE (THIS OPTION IS VISIBLE ONLY IF CODED petty trader in Q10.1)	99	

Q28	**ASK ONLY FOR THE DEVICES OWNED ie. CODED IN Q27** Of all the devices owned by the business or organization, which all devices are shared by more than one person in your business or organization? [MA]	Code	Route
	Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	01	
	Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	02	
	Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	03	
	Landline connection		
	Personal computer / desktop / laptop	04	
	Tablet	05	
	Speakers or headphone or both	06	
	Web cam (allowed to code only if owns a personal computer / desktop)	07	
	Prepaid connection for mobile	08	
	Postpaid connection for mobile	09	
	Mobile Internet through 2G	10	
	Mobile Internet through 3G	11	
	Broadband / wireline access without wifi	12	
	Broadband / wireline access with wifi	13	
	Data card / Dongle	14	
	Dongles with a built-in Wi-Fi hotspot to create Wifi zone	15	
	None	99	

Q29	**ASK ONLY FOR THE DEVICES OWNED ie. CODED IN Q27** Of all the devices owned by the business or organization, can you please tell me which all devices are your personal? [MA]	Code	Route
	Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	01	
	Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	02	

	Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	03	
	Landline connection		
	Personal computer / desktop / laptop	04	
	Tablet	05	
	Speakers or headphone or both	06	
	Web cam (allowed to code only if owns a personal computer / desktop)	07	
	Prepaid connection for mobile	08	
	Postpaid connection for mobile	09	
	Mobile Internet through 2G	10	
	Mobile Internet through 3G	11	
	Broadband / wireline access without wifi	12	
	Broadband / wireline access with wifi	13	
	Data card / Dongle	14	
	Dongles with a built-in Wi-Fi hotspot to create Wifi zone	15	
	None	99	

Q30	**ASK ONLY FOR THE DEVICES NOT OWNED ie. NOT CODED IN Q27** Among all these devices which are currently not owned by your business or organization, can you please tell me which devices are you likely to use in near future for your business or organization? [MA]	Code	Route
	Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	01	
	Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	02	
	Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	03	
	Landline connection		
	Personal computer / desktop / laptop	04	
	Tablet	05	
	Speakers or headphone or both	06	
	Web cam (allowed to code only if owns a personal computer / desktop)	07	
	Prepaid connection for mobile	08	
	Postpaid connection for mobile	09	
	Mobile Internet through 2G	10	
	Mobile Internet through 3G	11	
	Broadband / wireline access without wifi	12	
	Broadband / wireline access with wifi	13	

Data card / Dongle	14
Dongles with a built-in Wi-Fi hotspot to create Wifi zone	15
None	99

Q31 **SHOWCARD**

Can you please tell me since how long you have been using each of this device in your business or organization: [SA]

SHOW ONLY THE DEVICES OWNED ie. ALL CODED IN Q27

INTERVIEWER TO READ OUT DEVICES ONE BY ONE

		Since more than 5 year5	Since 3.1 years to 5 years	Since 2.1 years to 3 years	Since 1.1 years to 2 years	Since 6.1 months to 1 year	Since 3 months to 6 months	Since Less than 3 months ago
(R1)	Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	1	2	3	4	5	6	7
(R2)	Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	3	4	5	6	7
(R3)	Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	3	4	5	6	7
	Landline connection							
(R4)	Personal computer / desktop / laptop	1	2	3	4	5	6	7
(R5)	Tablet	1	2	3	4	5	6	7
(R6)	Speakers or headphone or both	1	2	3	4	5	6	7
(R7)	Web cam (allowed to code only if owns a personal computer / desktop)	1	2	3	4	5	6	7
(R8)	Prepaid connection for mobile	1	2	3	4	5	6	7
(R9)	Postpaid connection for mobile	1	2	3	4	5	6	7
(R10)	Mobile Internet through 2G	1	2	3	4	5	6	7
(R11)	Mobile Internet through 3G	1	2	3	4	5	6	7

(R12) Broadband / wireline access without wifi	1	2	3	4	5	6	7
(R13) Broadband / wireline access with wifi	1	2	3	4	5	6	7
(R14) Data card / Dongle	1	2	3	4	5	6	7
(R15) Dongles with a built-in Wi-Fi hotspot to create Wifi zone	1	2	3	4	5	6	7

Q32 **SHOWCARD**
Can you please let me know, how many days in a month does the business or organization use each of these devices? [SA]
SHOW ONLY THE DEVICES USED ie. CODED IN Q27
INTERVIEWER TO READ OUT DEVICES ONE BY ONE

	Daily	2 to 3 days in a week	Once in a week	Once in two weeks	Once a month	Rarely ie. Less often than once a month
(R1) Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	1	2	3	4	5	6
(R2) Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	3	4	5	6
(R3) Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	3	4	5	6
Landline connection						
(R4) Personal computer / desktop / laptop	1	2	3	4	5	6
(R5) Tablet	1	2	3	4	5	6
(R6) Speakers or headphone or both	1	2	3	4	5	6
(R7) Web cam (allowed to code only if owns a personal computer / desktop)	1	2	3	4	5	6
(R8) Prepaid connection for mobile ..	1	2	3	4	5	6
(R9) Postpaid connection for mobile	1	2	3	4	5	6

ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET

Q33	Can you please tell me, in the last month how much did your organization spend on internet in total? [SA]	Code	Route

	Total spend on internet: Rs________________________	1	
	Not disclosed / Refused	2	
	Not Applicable	3	

Q34	**POST CODE FROM Q33**	Code	Route
	Upto Rs. 5000	01	
	Rs 5000 - Rs 10,000	02	
	Rs. 10,001 - Rs. 15,000	03	
	Rs. 15,001 - Rs. 20,000	04	
	Rs.20,001 - Rs. 25,000	05	
	Rs. 25,001 - Rs. 35,000	06	
	Rs. 35,001 - Rs. 50,000	07	
	Rs. 50,001 - Rs.75,000	08	
	Rs. 75,001 - Rs. 1 lakh	09	
	Rs. 1.1 lakh - Rs. 2lakh	10	
	More than 2lakh	11	
	Not disclosed / Refused		
	Not Applicable		

Q35	According to you, what can an organization / business like yours can do using the Internet? [RECORD VERBATIM] PROBE TO THE FULLEST ____ ____

Q36	**SHOWCARD** **ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET** Can you please tell me, Why did your organization / business get the Internet connection?? [MA]	Code	Route
	Everyone around is now using internet	01	
	To Stay connected with clients / vendors	02	
	Saw/ got influenced by friends/colleagues/competitor using it	03	
	To get instant information access / knowledge gain/	04	
	For Online Transactions (like Ticket booking, Trading, bill payments etc.)	05	
	For activities like social networking (Facebook, linkedin, Twitter) on behalf of the organization	06	
	I can do many things at the same time with the help of internet	07	
	An attractive deal (low internet tariffs, cheap internet packs etc)	08	
	Useful for Video calling (Skype, Facetime, Tango etc) wherein the person is also able to see the person being called	09	
	Video streaming is faster/ less or no buffering of videos	11	

To do voice chatting though apps/ applications (Viber/ We Chat etc) Wherein there is no need to type and chatting is done through talking	....	12
Others (Please Specify) _____________	....	13

Q37a **SHOWCARD**

ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET

Can you please tell me the service provider that you use for each of the modes of internet access your organization currently owns? [SA]

SHOW THE MODES OF INTERNET ACCESS OWNED ie. CODED IN Q27

INTERVIEWER TO ASK ONE BY ONE FOR EACH MODE OF INTERNET

	Q37a					
	(H1) Mobile Internet through 2G	(H2) Mobile Internet through 3G	(H3) Broadband / wireline access without wifi	(H4) Broadban d / wireline access with wifi	(H5) Data card / Dongle	(H6) Dongles with a built-in Wi-Fi hotspot to create Wifi zone
(R1) Airtel	01	01	01	01	01	01
(R2) BSNL/MTNL	02	02	02	02	02	02
(R3) Connect / Videocon / Ping	03	03	03	03	03	03
(R4) Idea	04	04	04	04	04	04
(R5) Loop Mobile	05	05	05	05	05	05
(R6) MTS	06	06	06	06	06	06
(R7) Reliance	07	07	07	07	07	07
(R8) Tata Docomo / Tata Indicom	08	08	08	08	08	08
(R9) Uninor ...	09	09	09	09	09	09
(R10) Vodafone .	10	10	10	10	10	10
(R11) Aircel ...	11	11	11	11	11	11
(R12) BBNL	12	12	12	12	12	12
(R13) NOFN (National Optical Fibre Network)	13	13	13	13	13	13
(R14) Local broadband service provider	14	14	14	14	14	14
(R15) Others specify	15	15	15	15	15	15

Q38 **SHOWCARD** Code Route

ASK IF CODE 13 IS NOT CODED IN ANY OPTION IN Q37 ie. IF NOT USING NOFN

If available, how likely are you to shift from your current internet service provider to National Optical Fibre Network (NOFN) for your organization or business? Please rate on a scale of 1 to 5 where 5 means “Most unlikely to shift” and 1 means “Most likely to shift”, you can rate anything between 1 to 5 [SA]

Most likely to shift	....	1

Likely to shift	2
Somewhat unlikely to shift	3
Unlikely to shift	4
Most unlikely to shift	5
Don't know / Can't say	6

Q39 **ASK ALL**

You mentioned that you are ___________(MENTION THE RESPONSE CODED IN **Q38**) to using NOFN for your organization. Why do you say so?

[RECORD VERBATIM]

PROBE TO THE FULLEST

____

____

Q40	In future, if given an opportunity, is your organization / business willing to sell any products or services for a fee? [SA]	Code	Route
	Yes	1	
	No	2	

Q52 **ASK ALL**

Why do you say so?

RECORD VERBATIM

____

____

Q41 **SHOWCARD**

ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET

Can you please tell me how satisfied is the organization with the internet speed / downloading time of each of the modes of internet access that the organization uses?

Please rate on a scale of 1 to 5 where 5 means 'Fully satisfied' and 1 means 'Fully dissatisfied', you can rate anything between 5 to 1 [SA]

SHOW THE MODES OF INTERNET ACCESS OWNED ie. CODED IN Q27

INTERVIEWER TO ASK ONE BY ONE FOR EACH MODE OF INTERNET

		Fully Dissatisfied	Dissatisfied	Satisfied	Very Satisfied	Fully Satisfied	Don't know / Cant say
(R1)	Mobile Internet through 2G .	1	2	3	4	5	6
(R2)	Mobile Internet through 3G ...	1	2	3	4	5	6
(R3)	Broadband / wireline access without wifi	1	2	3	4	5	6
(R4)	Broadband / wireline access with wifi	1	2	3	4	5	6
(R5)	Data card / Dongle	1	2	3	4	5	6
(R6)	Dongles with a built-in Wi-Fi hotspot to create Wifi zone	1	2	3	4	5	6

Q42	**ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET** Can you please tell what is the speed of internet for each of the modes of internet access that the organization is using? [SA] **SHOW THE MODES OF INTERNET ACCESS OWNED ie. CODED IN Q27** **INTERVIEWER TO ASK ONE BY ONE FOR EACH MODE OF INTERNET**	Speed(Write either ___kbps or ___Mbps)	Don't know / Cant say
	(R1) Mobile Internet through 2G	1	2
	(R2) Mobile Internet through 3G	1	2
	(R3) Broadband / wireline access without wifi	1	2
	(R4) Broadband / wireline access with wifi	1	2
	(R5) Data card / Dongle	1	2
	(R6) Dongles with a built-in Wi-Fi hotspot to create Wifi zone	1	2

Q43	**ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET** On an average, how much money does your organization spend for Internet, including all mediums, in a month? [SA]	Code	Route
	Rs. ____________	1	
	Not Disclosed	2	

Q44	**SHOWCARD** **ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET** With the help of this showcard can you please tell me, according to you, internet expense for your organization is … [SA]	Code	Route
	Very expensive	1	
	Somewhat expensive	2	
	Just right	3	
	Somewhat economical	4	
	Very economical	5	
	Don't know / Cant say	6	

Q45	**ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET** On an average, how many hours in a typical day, does your organization use internet? [SA]	Code	Route
	Hours in a day: ____________	1	
	Not Disclosed	2	
	Don't know / Cant say	3	

Q46	**ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET** Can you please tell how much data is used by your organization in a month? [SA]	Data (Amount)	Data(MB/GB dropdown)	Don't Know/Can't Say

Data usage in a month: ______________________________			
(R1)	1	2	3
(R2) Don't know / Cant say	1	2	3
(R3) Not disclosed / Refused	1	2	3

POSTCODE IN THE BELOW GRID

Q47

	Data usage
(R1) Under 500 MB	1
(R2) 500 MB to 1 GB	2
(R3) 1.1 GB to 2 GB	3
(R4) 2.1 GB to 3 GB	4
(R5) 3.1 GB to 5 GB	5
(R6) 5,1 GB to 7 GB	6
(R7) 7.1 GB to 10 GB	7
(R8) More than 10 GB	8

Q48a **SHOWCARD**

ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET

Can you please tell me how frequently does your organization use or access the following on internet? As I read out each option, please rate your response on a scale of 1 to 5 where 5 means 'Very frequently' and 1 means 'Never' [MA]

	Q48a					
	Never	Less frequently	Somewhat frequently	Frequently	Very Frequently	Don't know / Cant say
(R1) Email	1	2	3	4	5	6
(R2) Face book	1	2	3	4	5	6
(R3) You tube	1	2	3	4	5	6
(R4) Instagram	1	2	3	4	5	6
(R5) Whatsapp	1	2	3	4	5	6
(R6) Skype	1	2	3	4	5	6
(R7) We chat	1	2	3	4	5	6
(R8) Google	1	2	3	4	5	6
(R9) Online Newspapers	1	2	3	4	5	6
(R10) Online games	1	2	3	4	5	6
(R11) LinkedIn	1	2	3	4	5	6
(R12) Twitter	1	2	3	4	5	6
(R13) Government portals	1	2	3	4	5	6
(R14) Other custom developed applications or portals	1	2	3	4	5	6
(R15) Others please specify:_______	1	2	3	4	5	6

Others please specify:_________ (R16)	1	2	3	4	5	6

		Code	Route
Q49	**ASK IF ANY OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. USE INTERNET** Who takes care of your internet related devices in your organization? [SA]		
	Myself	1	
	Dedicated technical person	2	
	A person who also does non computer related work	3	
	An external contractor	4	
	Others please specify	5	

Q50 **ASK IF CODED 2/3/4/5/in Q49**

You mentioned that _________________-takes care of your internet related devices in your organization. Can you please tell me his technical qualification?

RECORD VERBATIM

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Q51 **SHOWCARD**

ASK IF NONE OF THE OPTIONS 10 to 15 ARE CODED IN Q27 ie. DOES NOT USE INTERNET

As we understand that your organization is currently not using internet, we would like to know the reason behind not using internet.

As I read out each option, please share your level of agreement or disagreement on a scale of 1 to 5 where 5 means "Strongly agree" and 1 means "Strongly disagree" [SA]

	Strongly Disagree	Somewhat Disagree	Agree	Somewhat Agree	Strongly Agree	Don't know / Cant say
(R1) Without Internet also, my organisation can continue with what we are doing	1	2	3	4	5	6
(R2) Our customers do not use it	1	2	3	4	5	6
(R3) Our organization doesn't have the required device to access Internet	1	2	3	4	5	6
(R4) Our employees do not know how to operate / use internet	1	2	3	4	5	6
(R5) Our competitors do not use internet	1	2	3	4	5	6
(R6) Internet is not beneficial in any way for our organization	1	2	3	4	5	6
(R7) Internet is a waste of money as per the organization	1	2	3	4	5	6
(R8) Our organization believes that using Internet is not safe	1	2	3	4	5	6
(R9) Due to poor electricity supply .	1	2	3	4	5	6
(R10) Maintenance of required equipment for internet is expensive	1	2	3	4	5	6
(R11) The internet equipment is breaking	1	2	3	4	5	6

down often						
(R12) The Internet connection is very slow	1	2	3	4	5	6
(R13) The Internet connection is not reliable	1	2	3	4	5	6
(R14) Our organization thinks that there is a lot of misuse of Internet	1	2	3	4	5	6
(R15) Our organization doesn't have the technical capacity to use internet ...	1	2	3	4	5	6
(R16) Our organization believes that using Internet is too complicated	1	2	3	4	5	6
(R17) Our organization doesn't have prior experience of using internet...........	1	2	3	4	5	6

ASK IF CODED 3 IN Q11

Q53 **SHOWCARD**

ASK FOR PRIVATE BUSINESSES / ORGANIZATIONS

Can you please tell me how frequently does your business or organization use Internet based devices / applications (computers, Email, Whatsapp, Gchat, Wechat) to do the following?
As I read out each option, please rate your response on a scale of 1 to 5 where 5 means 'Very frequently' and 1 means 'Never'. You can rate anything between 1 to 5. [SA for each statement]

	Never	Less frequently	Somewhat frequently	Frequently	Very Frequently	Don't know / Cant say	Not Applicable
(R1) Interaction with suppliers	1	2	3	4	5	6	7
(R2) Interaction with business partners	1	2	3	4	5	6	7
(R3) Interaction with customers	1	2	3	4	5	6	7
(R4) Interaction with distributors	1	2	3	4	5	6	7
(R5) Reporting to head quarters	1	2	3	4	5	6	7
(R6) Reporting to other branches	1	2	3	4	5	6	7
(R7) Maintaining accounts	1	2	3	4	5	6	7
(R8) Keeping inventory	1	2	3	4	5	6	7
(R9) Keeping records of jobs/job orders	1	2	3	4	5	6	7
(R10) Contacting potential customers	1	2	3	4	5	6	7
(R11) Keeping record of customers	1	2	3	4	5	6	7
(R12) Searching for new information online	1	2	3	4	5	6	7
(R13) Money transactions with banks	1	2	3	4	5	6	7
(R14) Money transaction with other organizations	1	2	3	4	5	6	7
(R15) Paying utility bills (Gas, Electricity, property tax)	1	2	3	4	5	6	7
(R16) Keeping employee records	1	2	3	4	5	6	7

(R17) Interaction with employees	1	2	3	4	5	6	7
(R18) Post sales / service follow ups ...	1	2	3	4	5	6	7

ASK IF CODED 3 IN Q11

Q54 **SHOWCARD**

ASK FOR PRIVATE BUSINESSES / ORGANIZATIONS

Can you please tell me in future, how frequently will your business or organization use Internet based devices / applications (computers, Email, Whatsapp, Gchat, Wechat) to do the following? As I read out each option, please rate your response on a scale of 1 to 5 where 5 means 'Very frequently' and 1 means 'Never'. You can rate anything between 1 to 5. [SA for each statement]

	Never	Less frequently	Somewhat frequently	Frequently	Very Frequently	Don't know / Cant say	Not applicable
(R1) Interaction with suppliers	1	2	3	4	5	6	7
(R2) Interaction with business partners	1	2	3	4	5	6	7
(R3) Interaction with customers	1	2	3	4	5	6	7
(R4) Interaction with distributors	1	2	3	4	5	6	7
(R5) Reporting to head quarters	1	2	3	4	5	6	7
(R6) Reporting to other branches	1	2	3	4	5	6	7
(R7) Maintaining accounts	1	2	3	4	5	6	7
(R8) Keeping inventory	1	2	3	4	5	6	7
(R9) Keeping records of jobs/job orders	1	2	3	4	5	6	7
(R10) Contacting potential customers	1	2	3	4	5	6	7
(R11) Keeping record of customers	1	2	3	4	5	6	7
(R12) Searching for new information online	1	2	3	4	5	6	7
(R13) Money transactions with banks	1	2	3	4	5	6	7
(R14) Money transaction with other organizations	1	2	3	4	5	6	7
(R15) Paying utility bills (Gas, Electricity, property tax)	1	2	3	4	5	6	7
(R16) Keeping employee records	1	2	3	4	5	6	7
(R17) Interaction with employees	1	2	3	4	5	6	7
(R18) Post sales / service follow ups ...	1	2	3	4	5	6	7

Q55 **FOR ALL THE OPTIONS CODED 4 or 5 IN Q53 OR Q54**

You mentioned that you are using / will be using ___________________(MENTION OPTIONS CODED IN **Q51** and **Q52**) Can you please tell me the reason for the same?

RECORD VERBATIM

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ASK IF CODED 1/2/4/5/6 IN Q11

Q56a **SHOWCARD**

ASK FOR ALL PUBLIC, SEMI-PUBLIC AND NON-GOVERNMENTAL ORGANIZATIONS

Can you please tell me to what extent the following statements describe your organization?

As I read out each option, please rate your response on a scale of 1 to 5 where 5 means 'Completely agree' and 1 means 'Completely disagree'. You can rate anything between 1 to 5. [SA]

		Q56a						
		Completely Disagree	Disagree	Somewhat Agree	Agree	Completely Agree	Don't know / Cant say	Not applicable
(R1)	This office is computerized	1	2	3	4	5	6	7
(R2)	This office is connected with other offices elsewhere	1	2	3	4	5	6	7
(R3)	Most of the people in this office use touch smart phone	1	2	3	4	5	6	7
(R4)	Most of the people in this office know how to use Internet	1	2	3	4	5	6	7
(R5)	Everyone in this office has their own official email id	1	2	3	4	5	6	7
(R6)	Official email id of all relevant people is displayed in the office premises	1	2	3	4	5	6	7
(R7)	Any outside person can communicate with us in email. .	1	2	3	4	5	6	7
(R8)	This organization has an independent website	1	2	3	4	5	6	7
(R9)	This organization is part of a website maintained by a headquarters	1	2	3	4	5	6	7
(R10)	Details about this organization is available in a private website ..	1	2	3	4	5	6	7
(R11)	We have a person whose responsibility is to interact with outside people, online	1	2	3	4	5	6	7
(R12)	One can get all relevant information about this organization online	1	2	3	4	5	6	7
(R13)	Any one can have non-financial interactions with us online.	1	2	3	4	5	6	7
(R14)	Any citizen who communicates with us, shall be digitally authenticated by us	1	2	3	4	5	6	7
(R15)	One can do online financial transaction with us	1	2	3	4	5	6	7
(R16)	We are satisfied with our Internet based delivery of services	1	2	3	4	5	6	7
(R17)	We have an official page in social networking sites (Facebook, Twitter etc)	1	2	3	4	5	6	7
(R18)	We have an unofficial page in social	1	2	3	4	5	6	7

	networking sites (Facebook, Twitter etc)							
(R19)	Our online presence is known to the people whom we serve	1	2	3	4	5	6	7
(R20)	We have plans to improve our online presence	1	2	3	4	5	6	7
(R21)	In future, most of our interactions with our consumers / citizens shall be online	1	2	3	4	5	6	7

Q57	**ASK ALL**	Code	Route
	Currently, Is it possible to provide Internet access from your organization / business to outside people? [SA]		
	Yes	1	
	No	2	

Q58	**SHOWCARD**	Code	Route
	ASK IF CODED 1 IN Q57 ie IF POSSIBLE TO PROVIDE ACCESS		
	Please take a look at this card and tell me currently, how it is possible to provide Internet access from your organization / business to outside people? [MA]		
	By keeping computer terminals for Internet access	1	
	By providing wi-fi hotspots	2	
	By selling recharge coupons	3	
	By using a third party agency	4	
	Others specify 1____________________	5	
	Others specify 2_______________	6	

Q59	**SHOWCARD**	Code	Route
	ASK IF CODED 2 IN Q57 ie IF NOT POSSIBLE TO PROVIDE ACCESS		
	Please take a look at this card and tell me why currently it is not possible to provide Internet access from your organization / business to outside people? [MA]		
	We do not know about the procedures to do the same	1	
	We do not have technical manpower	2	
	This is not our primary activity	3	
	We will not make much money	4	
	Maintaining equipment is difficult	5	
	Internet connection is not stable	6	
	Electricity supply is bad	7	
	Nobody in this locality wants to use Internet	8	
	We do not have funds to start this	9	
	We are not willing to provide internet access to outside people		

C. Awareness about NOFN and Potential & Projected Benefits

Now we would want to know the details about National Fibre Optic Network (NOFN) connectivity in your area and how you are using or could be used

Q60 **SHOWCARD**

Can you please tell me how familiar are you with each of the following?

As I read out each option please rate on a scale of 1 to 5 where 5 means 'I know it very well' and 1 means 'I do not know it at all'. You can give any rating between 1 to 5. [SA]

INTERVIEWER TO ASK FOR EACH OPTION ONE BY ONE

	I do not know it at all	I do not know much	I somewhat know it	I know it well	I know it very well	Don't know / Cant say
(R1) Optical Fibre	1	2	3	4	5	6
(R2) Wireless Internet	1	2	3	4	5	6
(R3) BharatNet	1	2	3	4	5	6
(R4) Digital India	1	2	3	4	5	6
(R5) Digilocker	1	2	3	4	5	6

SHOWCARD

ASK IF CODED 2/3/4/5 IN Q60

Q61 Can you please tell me to what extent will you say that each of the following is present in your society / village / neighborhood?

As I read out each option please rate on a scale of 1 to 3 where 3 means 'Very much present' and 1 means 'Not present at all'. You can give any rating between 1 to 3. [SA]

INTERVIEWER TO ASK FOR EACH OPTION ONE BY ONE

	Not present at all	Not sure whether present	Very much present	Don't know / Cant say
(R1) Optical Fibre	1	2	3	4
(R2) Wireless Internet	1	2	3	4
(R3) BharatNet	1	2	3	4
(R4) Digital India	1	2	3	4
(R5) Digilocker	1	2	3	4

Q62	**SHOWCARD** Can you please tell me how familiar with National Optical Fiber Network (NOFN) / Bharat Broadband Network Ltd (BBNL)? Would you say you are …. [SA]	Code	Route
	I know it very well	1	Q63
	I have heard about it, but I don't know many details	2	Q63
	I do not know about it at all	3	Q68.a

ASK IF CODED 1 / 2 IN Q62

Q63	Can you please tell me where did you come to know about National Optical Fiber Network (NOFN) / Bharat Broadband Network Ltd (BBNL)? [MA] **INTERVIEWER DO NOT READ OUT OPTIONS TAKE SPONTANEOUS RERSPONSE**	Code	Route
	Internal official communication	1	
	Through television	2	

Through Radio	3
Through news papers	4
Through friends and family	5
Through people at office or business	6
Through Internet	7
Others please specify:_______________	8
Others please specify:_______________	9

ASK IF CODED 1 / 2 IN Q62
AND ASK IF NOFN or BBNL IS NOT CODED FOR ANY OPTION IN Q37a BUT CODED SOME OTHER SERVICE PROVIDER INSTEAD ie. USING INTERNET IN ORGANIZATION BUT NOT VIA NOFN / BBNL
SHOWCARD

Q64 We understand that you are using internet in your organization but you are not using through NOFN / BBNL. We would like to understand the reason for not using NOFN / BBNL. As I read out each option, please rate on a scale of 1 to 5 where 5 means 'Strongly agree' and 1 means 'Strongly disagree' you can give any rating between 1 to 5 [SA]

INTERVIEWER TO ASK FOR EACH STATEMENT ONE BY ONE

		Strongly Disagree	Somewhat Disagree	Agree	Somewhat Agree	Strongly Agree	Don't know / Cant say	Not applicable
(R1)	We have Internet from BSNL landline already	1	2	3	4	5	6	7
(R2)	We have Internet connection from others already	1	2	3	4	5	6	7
(R3)	We do not have anyone who knows how to get the connection / operate / use	1	2	3	4	5	6	7
(R4)	We do not have anyone who knows how to operate / use	1	2	3	4	5	6	7
(R5)	It's not beneficial in any way	1	2	3	4	5	6	7
(R6)	It's waste of money	1	2	3	4	5	6	7
(R7)	We do not have adequate funds to get it	1	2	3	4	5	6	7
(R8)	Due to poor electricity supply .	1	2	3	4	5	6	7
(R9)	Maintenance of equipment is expensive	1	2	3	4	5	6	7
(R10)	The equipment is breaking down often	1	2	3	4	5	6	7
(R11)	We do not have manpower for maintenance or technical support	1	2	3	4	5	6	7
(R12)	It's not clear who would pay for the connection	1	2	3	4	5	6	7
(R13)	The connection is very slow ...	1	2	3	4	5	6	7
(R14)	The connection is not reliable	1	2	3	4	5	6	7
(R15)	There is lot of misuse of Internet	1	2	3	4	5	6	7

(R16)	Without internet also we can continue with what we are doing	1	2	3	4	5	6	7
(R17)	Our organization/ business does not have the required devices to access internet	1	2	3	4	5	6	7
(R18)	Our customers do not use it	1	2	3	4	5	6	7
(R19)	Using internet is not at all safe ..	1	2	3	4	5	6	7
(R20)	We do not have prior experience in using it	1	2	3	4	5	6	7
(R21)	We do not have technical capacity to use it.	1	2	3	4	5	6	7
(R22)	It is too complicated	1	2	3	4	5	6	7

ASK IF CODED 1 / 2 IN Q62
SHOWCARD

Q65 I would now read out a few statements related to NOFN / BBNL. As I read out each statement, please share your level of agreement or disagreement with each of them. Please rate on a scale of 1 to 5 where 5 means 'Strongly agree' and 1 means 'Strongly disagree' you can give any rating between 1 to 5 [SA]

INTERVIEWER TO ASK FOR EACH STATEMENT ONE BY ONE

		Strongly Disagree	Somewhat Disagree	Agree	Somewhat Agree	Strongly Agree	Don't know / Cant say	Not applicable
(R1)	It is connecting 2.5 lakhs gram panchayats in coming days in the entire country	1	2	3	4	5	6	
(R2)	It provides 100 Mbps speed Internet	1	2	3	4	5	6	
(R3)	It provides Internet free of cost to people	1	2	3	4	5	6	
(R4)	It is fully owned by the government	1	2	3	4	5	6	
(R5)	It is working properly in my locality	1	2	3	4	5	6	
(R6)	It is affected by poor electricity supply	1	2	3	4	5	6	
(R7)	It is more beneficial for personal use than business use	1	2	3	4	5	6	
(R8)	It is known to everyone in this locality	1	2	3	4	5	6	
(R9)	The Internet from NOFN can be resold by private businesses.	1	2	3	4	5	6	

ASK IF CODED 1 / 2 IN Q62
SHOWCARD

Q66 I would like to understand to what extent is NOFN helping people to do each of the following. As I read out each statement, please share your level of agreement or disagreement with each of them. Please rate on a scale of 1 to 5 where 5 means 'Strongly agree' and 1 means 'Strongly disagree' you can give any rating between 1 to 5

INTERVIEWER TO ASK FOR EACH STATEMENT ONE BY ONE:

NOFN is helping people ______________(read options below) [SA]

		Strongly Disagree	Somewhat Disagree	Agree	Somewhat Agree	Strongly Agree	Don't know / Cant say
(R1)	to learn new things through online videos	1	2	3	4	5	6
(R2)	to receive education	1	2	3	4	5	6
(R3)	to learn new skills for employment	1	2	3	4	5	6
(R4)	to learn new skills for personal use	1	2	3	4	5	6
(R5)	to access better doctors	1	2	3	4	5	6
(R6)	to access better hospitals	1	2	3	4	5	6
(R7)	to access Internet banking	1	2	3	4	5	6
(R8)	to find new ways of entertainment	1	2	3	4	5	6
(R9)	to receive help from others	1	2	3	4	5	6
(R10)	in getting information about government schemes better	1	2	3	4	5	6
(R11)	to find new business opportunities	1	2	3	4	5	6
(R12)	to expand the existing business	1	2	3	4	5	6
(R13)	to access the government websites	1	2	3	4	5	6
(R14)	to find new job opportunities for people	1	2	3	4	5	6
(R15)	To purchase things online	1	2	3	4	5	6
(R16)	To receive required latest information	1	2	3	4	5	6
(R17)	Others please specify:___________	1	2	3	4	5	6
(R18)	Others please specify:___________	1	2	3	4	5	6

ASK IF CODED 1 / 2 IN Q62
SHOWCARD

Q67 And to what extent will NOFN be helping people in future to do each of the following?
As I read out each statement, please share your level of agreement or disagreement with each of them. Please rate on a scale of 1 to 5 where 5 means 'Strongly agree' and 1 means 'Strongly disagree' you can give any rating between 1 to 5

INTERVIEWER TO ASK FOR EACH STATEMENT ONE BY ONE

In future, NOFN will help people ______________(read options below) [SA]

		Strongly Disagree	Somewhat Disagree	Agree	Somewhat Agree	Strongly Agree	Don't know / Cant say
(R1)	to learn new things through online videos	1	2	3	4	5	6
(R2)	to receive education	1	2	3	4	5	6

(R3) to learn new skills for employment	1	2	3	4	5	6
(R4) to learn new skills for personal use	1	2	3	4	5	6
(R5) to access better doctors	1	2	3	4	5	6
(R6) to access better hospitals	1	2	3	4	5	6
(R7) to access Internet banking	1	2	3	4	5	6
(R8) to find new ways of entertainment	1	2	3	4	5	6
(R9) to receive help from others	1	2	3	4	5	6
(R10) in getting information about government schemes better	1	2	3	4	5	6
(R11) to find new business opportunities	1	2	3	4	5	6
(R12) to expand the existing business	1	2	3	4	5	6
(R13) to access the government websites	1	2	3	4	5	6
(R14) to find new job opportunities for people	1	2	3	4	5	6
(R15) To purchase things online	1	2	3	4	5	6
(R16) To receive required latest information	1	2	3	4	5	6
(R17) Others please specify:____________	1	2	3	4	5	6
(R18) Others please specify:____________	1	2	3	4	5	6

A. Ownership and Usage of ICTs

Q68a **SHOWCARD**
Please tell me which of these devices do you own for yourself or in your household, for your personal usage? [MA]

Q68b **SHOWCARD**
Can you please tell me which of these devices do you use or you have access to for your personal usage currently. You may or may not be owning the same for yourself or in your household? [MA]
SHOW ALL DEVICES

Q68c **ASK ONLY FOR THE DEVICES USED ie. CODED IN Q68b**
Of all the devices which you use for your personal usage, can you please tell me which all devices do you share with your family members or friends? [MA]

Q68d **ASK ONLY FOR THE DEVICES NOT USED ie. NOT CODED IN Q68b**
Among all these devices which you are not using for your personal usage, can you please tell me which devices are you likely to use in near future? [MA]

	Q68a	Q68b	Q68c	Q68d
	(H1) Ownership (Self / HH)	(H1) Usage	(H1) Shared Usage	(H1) Future Intention

(R1)	Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	1	1	1	1
(R2)	Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	2	2	2	2
(R3)	Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	3	3	3	3
	Landline connection				
(R4)	Personal computer / desktop / laptop	4	4	4	4
(R5)	Tablet	5	5	5	5
(R6)	Speakers or headphone or both	6	6	6	6
(R7)	Web cam (allowed to code only if owns a personal computer / desktop)	7	7	7	7
(R8)	Prepaid connection for mobile	8	8	8	8
(R9)	Postpaid connection for mobile	9	9	9	9

Q69 **SHOWCARD**

Can you please tell me since how long you have been using each of this device:

SHOW ONLY THE DEVICES USED ie. ALL CODED IN Q68 b

INTERVIEWER TO TO READ OUT DEVICES ONE BY ONE[SA]

		Since more than 5 years	Since 3.1 years to 5 years	Since 2.1 years to 3 years	Since 1.1 years to 2 years	Since 6.1 months to 1 year	Since 3 months to 6 months	Since Less than 3 months ago
(R1)	Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	1	2	3	4	5	6	7
(R2)	Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	3	4	5	6	7
(R3)	Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	3	4	5	6	7
	Landline connection							

(R4) Personal computer / desktop / laptop	1	2	3	4	5	6	7
(R5) Tablet	1	2	3	4	5	6	7
(R6) Speakers or headphone or both	1	2	3	4	5	6	7
(R7) Web cam (allowed to code only if owns a personal computer / desktop)	1	2	3	4	5	6	7
(R8) Prepaid connection for mobile	1	2	3	4	5	6	7
(R9) Postpaid connection for mobile	1	2	3	4	5	6	7

Q70 **SHOWCARD**

Can you please let me know, currently how many days in a month are you using each of these devices for your personal usage? [SA]

SHOW ONLY THE DEVICES USED ie. CODED IN Q68 b

INTERVIEWER TO READ OUT DEVICES ONE BY ONE

	Daily	2 to 3 days in a week	Once in a week	Once in two weeks	Once a month	Rarely ie. Less often than once a month
(R1) Basic keypad mobile phones / feature phone (ie. Non touch screen mobile phone on which you cannot access internet)	1	2	3	4	5	6
(R2) Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	3	4	5	6
(R3) Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	3	4	5	6
Landline connection						
(R4) Personal computer / desktop / laptop	1	2	3	4	5	6
(R5) Tablet	1	2	3	4	5	6
(R6) Speakers or headphone or both	1	2	3	4	5	6
(R7) Web cam (allowed to code only if owns a personal computer / desktop)	1	2	3	4	5	6
(R8) Prepaid connection for mobile ..	1	2	3	4	5	6
(R9) Postpaid connection for mobile	1	2	3	4	5	6

Q71	**SHOWCARD** Which of these modes of internet access do you currently own for yourself or in your household? [MA]	Code	Route
	Mobile Internet through 2G	1	
	Mobile Internet through 3G	2	
	Broadband / wireline access without wifi	3	
	Broadband / wireline access with wifi	4	
	Data card / Dongle	5	
	Dongles with a built-in Wi-Fi hotspot to create Wifi zone	6	
	Do not have any mode to access internet	7	

ASK IF CODED 1/2/3/4/5/6 in Q71

Q72 **SHOWCARD**

Now I will readout all the devices that you currently use for your personal usage. Please tell me through which all mediums do you access internet on each of the device one by one - at home - [MA]

SHOW ONLY THE DEVICES USED ie. CODED IN Q68 b AND SHOW ALL THE INTERNET OPTIONS

INTERVIEWER TO ASK ONE BY ONE FOR EACH DEVICE

		Mobile Internet through 2G	Mobile Internet through 3G	Broadband / wireline access without wifi	Broadband / wireline access with wifi	Data card/ Dongle	Dongles with a built-in Wi-Fi hotspot to create Wifi zone	I Don't access internet on this device
(R1)	Multimedia phone (ie. Non touch screen mobile phone on which you can access internet but you cannot download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	NA	4	NA	6	7
(R2)	Smart phone (Touch screen or touch and type mobile phone on which you can access internet as well as download / install applications from Google Playstore, Windows Store, Apple Store etc)	1	2	NA	4	NA	6	7
(R3)	Personal computer / desktop / laptop	NA	NA	3	4	5	6	7
(R4)	Tablet	NA	NA	3	4	5	6	7

Q73 **SHOWCARD**

I would now like to understand, the reasons for which internet is used. Please have a look at this card and rank the given options in the order of importance ie. 1 being the most important reason for using internet, 2 being less important and so on .. and 4 being least important reason for using internet

(R1) Personal entertainment (movies, music, cricket / sports, TV soaps) ....

(R2) To seek useful information (news, education related, medical,

government policy or schemes)			
(R3) To connect with people (Facebook, whatsapp, email, Skype, viber, etc)			
(R4) To purchase things online			

Q74 **SHOWCARD**

ASK IF OPTION 1 to 6 IS CODED FOR ANY DEVICE IN Q72 ie. USING INTERNET / HAVING ACCESS TO INTERNET

Can you please tell me the service provider that you use for each of the modes of internet access that you currently own for yourself or in the household? [SA]

SHOW THE MODES OF INTERNET ACCESS OWNED ie. CODED IN Q71

INTERVIEWER TO ASK ONE BY ONE FOR EACH MODE OF INTERNET

	Mobile Internet through 2G	Mobile Internet through 3G	Broadband / wireline access without wifi	Broadband / wireline access with wifi	Data card/ Dongle	Dongles with a built-in Wi-Fi hotspot to create Wifi zone
(R1) Airtel	1	2	3	4	5	6
(R2) BSNL/MTNL	1	2	3	4	5	6
(R3) Connect / Videocon / Ping	1	2	3	4	5	6
(R4) Idea	1	2	3	4	5	6
(R5) Loop Mobile	1	2	3	4	5	6
(R6) MTS	1	2	3	4	5	6
(R7) Reliance	1	2	3	4	5	6
(R8) Tata Docomo / Tata Indicom	1	2	3	4	5	6
(R9) Uninor ..	1	2	3	4	5	6
(R10) Vodafone	1	2	3	4	5	6
(R11) Aircel ..	1	2	3	4	5	6
(R12) BBNL	1	2	3	4	5	6
(R13) NOFN	1	2	3	4	5	6
(R14) Local broadband service provider	1	2	3	4	5	6
(R15) Others specify	1	2	3	4	5	6

ASK IF CODED 1/2/3 IN Q68a

Q75	**ASK ALL** Please tell me the name of the service provider that you have for voice calling or SMS. [MA]	Code	Route
	Airtel	1	
	BSNL/MTNL	2	
	Connect / Videocon / Ping	3	
	Idea	4	

Loop Mobile	5
MTS	6
Reliance	7
Tata Docomo / Tata Indicom	8
Uninor	9
Vodafone	10
Aircel	11
BBNL	12
NOFN	13
Local broadband service provider	14
Others specify	15

Q76 **SHOWCARD**

ASK IF OPTION 1 to 6 IS CODED FOR ANY DEVICE IN Q72 ie. USING INTERNET / HAVING ACCESS TO INTERNET

Can you please tell me how satisfied are you with the internet speed / downloading time of each of the modes of internet access that you use?

Please rate on a scale of 1 to 5 where 5 means 'Fully satisfied' and 1 means 'Fully dissatisfied', you can rate anything between 5 to 1 [SA]

SHOW THE MODES OF INTERNET ACCESS OWNED ie. CODED IN Q71

INTERVIEWER TO ASK ONE BY ONE FOR EACH MODE OF INTERNET

	Fully Dissatisfied	Dissatisfied	Satisfied	Very Satisfied	Fully Satisfied	Don't know / Cant say
(R1) Mobile Internet through 2G .	1	2	3	4	5	6
(R2) Mobile Internet through 3G ...	1	2	3	4	5	6
(R3) Broadband / wireline access without wifi	1	2	3	4	5	6
(R4) Broadband / wireline access with wifi	1	2	3	4	5	6
(R5) Data card / Dongle	1	2	3	4	5	6
(R6) Dongles with a built-in Wi-Fi hotspot to create Wifi zone	1	2	3	4	5	6

Q77 **SHOWCARD**

ASK IF OPTION 1 to 6 IS CODED FOR ANY DEVICE IN Q72 ie. USING INTERNET / HAVING ACCESS TO INTERNET

Can you please tell what is the speed of internet for each of the modes of internet access that you are using?

SHOW THE MODES OF INTERNET ACCESS OWNED ie. CODED IN Q71

INTERVIEWER TO ASK ONE BY ONE FOR EACH MODE OF INTERNET[SA]

	Speed	Don't know / Cant say
(R1) Mobile Internet through 2G	1	2
(R2) Mobile Internet through 3G	1	2
(R3) Broadband / wireline access without wifi	1	2

(R4) Broadband / wireline access with wifi	....	1	2
(R5) Data card / Dongle	....	1	2
(R6) Dongles with a built-in Wi-Fi hotspot to create Wifi zone	....	1	2

Q78	**ASK IF OPTION 1 to 6 IS CODED FOR ANY DEVICE IN Q72 ie. USING INTERNET / HAVING ACCESS TO INTERNET** On an average, how much money do you spend for Internet, including all mediums, in a month? [SA]	Code	Route
	Rs. ____________	1	
	Not Disclosed/refused	2	
	Don't know	3	

Q79	**POSTCODE OPTION FROM Q78**	Code	Route
	More than Rs. 600	1	
	Rs. 451 to Rs. 600	2	
	Rs. 301 to Rs. 450	3	
	Rs. 151 to Rs. 300	4	
	Less than Rs. 151	5	
	Not Disclosed/refused		
	Don't know		

Q80	**SHOWCARD** **ASK IF OPTION 1 to 6 IS CODED FOR ANY DEVICE IN Q72 ie. USING INTERNET / HAVING ACCESS TO INTERNET** With the help of this showcard can you please tell me, according to you, internet expense is [SA]	Code	Route
	Very expensive	1	
	Somewhat expensive	2	
	Just right	3	
	Somewhat economical	4	
	Very economical	5	
	Don't know / Cant say	6	

Q81	**ASK IF OPTION 1 to 6 IS CODED FOR ANY DEVICE IN Q72 ie. USING INTERNET / HAVING ACCESS TO INTERNET** On an average, how many hours in a typical day, do you use internet for your personal use? [SA]	Code	Route
	Hours in a day: ____________	1	
	Not Disclosed	2	

Q82	**POSTCODE OPTION FROM Q81**	Code	Route
	More than 5 hours	1	
	4.1 hours to 5 hours	2	

2.1 hours to 4 hours	....	3
1.1 hour to 2 hours	....	4
1 or Less than 1 hour	....	5
Not Disclosed	....	

Q83 **SHOWCARD**

ASK IF OPTION 1 to 6 IS CODED FOR ANY DEVICE IN Q72 ie. USING INTERNET / HAVING ACCESS TO INTERNET

Please have a look at this card and rank the given options in the order of activities that you do most often over the internet

ie. 1 Most often activity done, 2 being next to most often activity and so on .. and 5 being 'Least often activity done' over the internet

(R1) Reading information online eg, news, blog, online book	....			
(R2) Audio (listening to music, radio online)	....			
(R3) Video (seeing videos. Example YouTube)	....			
(R4) Seeing images / photographs	....			
(R5) Voice Chatting (WEChat, Viber, etc)	....			
Text chat (whatsapp, facebook messenger, etc)				

Q84a **SHOWCARD**

ASK IF OPTION 1 to 6 IS CODED FOR ANY DEVICE IN Q72 ie. USING INTERNET / HAVING ACCESS TO INTERNET

Can you please tell me how frequently do you use or access the following on internet.

As I read out each option, please rate your response on a scale of 1 to 5 where 5 means 'Very frequently' and 1 means 'Never' [SA]

	Q84a					
	Never	Less frequently	Somewhat frequently	Frequently	Very Frequently	Don't know / Cant say
(R1) Email	1	2	3	4	5	6
(R2) Face book	1	2	3	4	5	6
(R3) You tube	1	2	3	4	5	6
(R4) Instagram	1	2	3	4	5	6
(R5) Whatsapp	1	2	3	4	5	6
(R6) Skype	1	2	3	4	5	6
(R7) We chat	1	2	3	4	5	6
(R8) Google	1	2	3	4	5	6
(R9) Online Newspapers	1	2	3	4	5	6
(R10) Online games	1	2	3	4	5	6
(R11) Twitter	1	2	3	4	5	6
(R12) Linkedin	1	2	3	4	5	6
(R13) Government portals	1	2	3	4	5	6

(R14) Others please specify:_______	1	2	3	4	5	6
(R15) Others please specify:__________	1	2	3	4	5	6

Q85a **SHOWCARD**

ASK IF CODED 9 FOR ALL OPTIONS IN Q72 ie. NOT USING INTERNET

As we understand that you are currently not using internet for your personal usage, we would like to know the reason behind not using internet.

As I read out each option, please share your level of agreement or disagreement on a scale of 1 to 5 where 5 means "Strongly agree" and 1 means "Strongly disagree" [SA]

	Q85a						
	Strongly Disagree	Somewhat Disagree	Agree	Somewhat Agree	Strongly Agree	Don't know / Cant say	Not applicable
(R1) Without Internet also, I can continue with what we are doing/I do not need it	1	2	3	4	5	6	7
(R2) I do not have the required device to access Internet	1	2	3	4	5	6	7
(R3) I do not know how to operate / use	1	2	3	4	5	6	7
(R4) My friends and family do not use it	1	2	3	4	5	6	7
(R5) It's not beneficial in any way	1	2	3	4	5	6	7
(R6) It's waste of money	1	2	3	4	5	6	7
(R7) Using Internet is not safe	1	2	3	4	5	6	7
(R8) Due to poor electricity supply .	1	2	3	4	5	6	7
(R9) Maintenance of equipment is expensive	1	2	3	4	5	6	7
(R10) The equipment is breaking down often	1	2	3	4	5	6	7
(R11) The Internet connection is very slow	1	2	3	4	5	6	7
(R12) The Internet connection is not reliable	1	2	3	4	5	6	7
(R13) There is lot of misuse of Internet	1	2	3	4	5	6	7
(R14) We do not have technical capacity to use it	1	2	3	4	5	6	7
(R15) Using Internet is too complicated	1	2	3	4	5	6	7
(R16) I do not have prior experience of using it	1	2	3	4	5	6	7
(R17) I do not know what internet is ..	1	2	3	4	5	6	7

Q86 **SHOWCARD** Code Route

ASK IF CODED 9 FOR ALL OPTIONS IN Q72 ie. NOT USING INTERNET

If you were to start using internet In near future, please tell me how much would

	you likely be spending on Internet in total for your personal usage per month? [SA]		
	More than Rs. 600	1	
	Rs. 451 to Rs. 600	2	
	Rs. 301 to Rs. 450	3	
	Rs. 151 to Rs. 300	4	
	Less than Rs. 151	5	
	None	6	

D. Respondent Details

We have reached the final part of the questionnaire. Kindly share some details about your background.

Q87	Record Gender [SA] **[RECORD BY OBSERVATION , DO NOT ASK]**	Code	Route
	Male	1	
	Female	2	
	Transgender	3	

Q88	Please tell me about your numerical abilities [MA]	Code	Route
	I can do simple addition, subtraction & multiplication, etc.	1	
	I can calculate percentages, interest rates, tax calculations etc.	2	
	I can read and write numbers but cannot do any calculations	3	
	I can recognise numbers but cannot write them	4	
	I cannot recognise or write numbers	5	

Q89	Please tell me you age			
(R1)	Age: __________________			
	Refused			
	Don’t know			

Q90	**POST CODE FROM Q89 IN BELOW GRID**	Code	Route
	25 and Less than 25 years	1	
	26-30 yrs	2	
	31-35 yrs	3	
	36-40 yrs	4	
	41-50 yrs	5	
	Above 50 yrs	6	
	Refused		
	Don’t know		

Q91	Are you physically disabled? [SA] **[RECORD BY OBSERVATION IF POSSIBLE]**	Code	Route

	Yes	1	
	No	2	

Q92	Do you have a photo ID card issued by the Govt.? [SA]	Code	Route
	Yes	1	
	No	2	
	Refused		
	Don’t know about this		

Q93	Do you have AADHAAR card? [SA]	Code	Route
	Yes	1	
	No	2	
	Refused		
	Don’t know about this		

Q94	Do you have any bank account in your name? [SA]	Code	Route
	Yes	1	
	No	2	
	Refused		

Q95	Can you please tell me what is the highest level of formal education that you have done? [SA]	Code	Route
	Illiterate	1	
	School upto 4 years/ no schooling but literate	2	
	Schooling 5 to 9 years	3	
	SSC/HSC	4	
	Some college but not graduate (Incl. Diploma)	5	
	Graduate General (e.g. B.A., B.Sc, B.Com)	6	
	Post Graduate General (e.g M.A., M.Sc, M.Com)	7	
	Graduate Professional (e.g. B.E., B.Tech)	8	
	Post Graduate professional(e.g., M.Tech,MBA,CA,MBBS, LLB)	9	

Q96a **SHOWCARD**
I would like to understand your comfort level while doing the following activities. As I read each activity please share your response looking at this show card where 3 means 'Very comfortable' and 1 means 'Very uncomfortable' [SA]
INTERVIEWER TO READ OUT EACH ACTIVITY ONE BY ONE

	Q96a			
	Very uncomfortable	Neither Comfortable nor Uncomfortable	Very Comfortable	Not applicable

(R1) Sending a SMS	1	2	3	4
(R2) Switching on/off a computer	1	2	3	4
(R3) Using a search engine to find information on the Internet	1	2	3	4
(R4) Using e-mail to communicate	1	2	3	4
(R5) Perform computer programming	1	2	3	4
(R6) Trouble shoot minor hardware related problems	1	2	3	4
(R7) Trouble shoot minor software related problems	1	2	3	4

Q97	As a part of quality procedures, our client : LIRNEasia sometimes makes call backs to the respondents to verify that you have been interviewed, and to check a few of the basic information obtained. Your contact details are confidential with us and would be used only for this purpose. Please let us know if we can share your contact details with LIRNEasia. [SA]	Code	Route
	Yes	1	
	No	2	

Q98	**Capture the GPS details of the place where interview was conducted [OE]**	Code	Route
	Latitude:____		
	Longitude:____		

Q99	**Is the interview conducted at the 'Organization' location or at some 'Other location'? [SA]**	Code	Route
	Interview conducted at Organization location………………………	1	**THANK RESPONDENT AND CLOSE INTERVIEW**
	Interview conducted at Other location……………………………	2	**GOTO Q100**

Q100	**Capture the GPS details of the 'Organization location':**	Code	Route
	Latitude:____		
	Longitude:____		

THANK RESPONDENT AND CLOSE INTERVIEW