Sarbani Banerjee Belur, Tuisha Sircar and Ananya Iyer

AN EXPLORATORY STUDY OF **ADOPTION AND USAGE OF TECHNOLOGY BY RURAL WOMEN FOR ENTREPRENEURSHIP AND EMPOWERMENT**

Foreword
Osama Manzar

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Foreword

In the ever-evolving landscape of the digital age, where technology plays an important role in shaping the very fabric of society, there exists a profound imperative – a call to ensure that the benefits of this digital revolution are equitably distributed across the gender divide. This report embarks the reader on a journey deep into the heart of India's digital landscape, where the convergence of technology and society creates both opportunities and challenges, particularly for women and girls.

The Gender Digital Divide is an oft-discussed topic in the global literature on access of women and girls to Information and Communication Technologies (ICTs). Academics and institutions regularly write what this divide constitutes of and how it is to be transcended. And yet, many frame the problem in a highly atomistic way; that is, they look at digital divide through the lens of 'technophobia' where women and girls are shown to fear ICTs. This report steers clear of such uncritical claims that seem to individualise the problem.

The authors have done a brilliant job at looking at the structures that both obstruct and facilitate the engagement of women and girls with ICTs in rural India. These structures include the family, community, corporates and states. At the same time, to avoid the pitfalls of determinism, they simultaneously look at how women navigate and negotiate these structures to gain agency. Yes, the sampled data tells us immediately that most rural women in India have access to a mobile phone – and therefore to ICTs. However, what this study illuminates is that mere access may not translate into an *active* use of ICTs. The shift from a *passive* to *active* usage is what bridges the Gender Digital Divide.

The book offers insightful analysis not only through data collected from an India-wide survey, but also is interspersed with narratives of women and girls carving out spaces of empowerment through the use of ICTs. Especially those women who have been associated with DEF's SoochnaPreneur programme are better equipped to not only use ICTs more favourably themselves, but also encourage women around them to do so. In this way, this report offers not just a critical theoretical framing of the problem, but also through a robust empirical analysis it sheds light on the way forward. Indeed, the book ends with three fleshed out recommendations to transcend the Gender Digital Divide, which both civil society and governments will find useful.

Let us heed the lessons this book offers, and let us work together to build a world where every woman and girl has the opportunity to thrive in the digital age.

Osama Manzar

Content

Executive Summary

In India, multiple socio-economic and political factors act as inhibiting and enabling yardsticks for women and girls in meaningfully accessing and using ICTs including the institutions of family and community that largely act as primary gatekeepers whose support and encouragement becomes important for most women's access to connectivity. In our study, we approach the question of technology from a socio-technical lens in order to locate the overall relationship between women and technology as embedded in the complex processes of intersecting socio-cultural, economic and political institutions and structures. Further, our study hyper-localises the context within rural geographies and the 'woman subject' refers to the gendered identity of a cis-woman. This is because in rural areas, women must overcome several barriers and challenges to accessing ICT technologies including reliable, affordable, and quality internet connectivity. In addition to this, the social and cultural barriers dissuade the use of digital technologies. Low levels of literacy, low socio-economic status, and low digital literacy are other factors that have played an important role in the non-use of digital technologies by women in rural areas.

For our exploratory study, we set out with a mixed method approach relying both on qualitative and quantitative approaches through: 1) Close-ended survey with 204 women in 11 states, across 17 districts; and 2) Semi-structured interviews with 7 women in 4 States, across 6 districts. The list of respondents for both interviews and surveys were created based on a framework that purposely sought to categorise women as *Active* and *Passive* users of digital technology. The categorisation was done across 3 verticals namely: Type of Access, Reliance for Usage and Motivated Purpose for Usage. These three verticals, as we go on to show, intersect with myriad other factors to create ideal situations for access and usage of digital technology among our sample/respondents. However, our study shows that just access to digital technology and having the requisite skills do not translate into opportunities that prominent scholarship as well as policy initiatives on digital empowerment of women largely espouse. Our standpoint to work with the category of 'women' departs from its monolithic understanding and towards the given framework which recognises that access to ICTs is also mediated by other identities of race, caste, class, ethnicity among others. These identities however do not just dictate the nature of access but lie at the root of how 'women' negotiate active and passive usage of the ICTs. Further our understanding is also informed by the global structures which dictate and mediate their relationship with technology on a daily basis.

Within the given framework, our study shows that most rural women use mobile phones - both smartphone and feature phone to stay connected, as against any other ICT. The cost, reach and convenience of the devices allow their easy access and usage. As compared to older women, most young women have some form of access to a smartphone albeit mediated through the structures of family and community. Such access allows these young women to explore more branched options for economic sustainability such as various forms of entrepreneurial opportunities. Changed economic situations and access to mobile phones have also been shown to engender newer forms of sociality and cultural change across various verticals in the community as well as in their interpersonal relationships; for instance, accessing educational material, leisure, reaching out to relatives etc. It can be argued that ICT mediated empowerment for women can be realised concomitantly when inhibiting factors are taken into account to improve womens' socio-cultural and economic situation, as well as prmote further the enabling factors. Without these socio-economic and cultural changes, ICTs alone cannot affect empowerment for women.

Our results notes that the 'English Language Issues', 'Security and Safety Issues', 'Digital Illiteracy', 'Lack of Personal Device', 'Financial Dependency', 'Illiteracy', 'Misinformation' and 'Immoral and Wrong Content Available Online' are some of the yardsticks perceived by women themselves that acts as

> Within the given framework, our study shows that most rural women use mobile phones - both smartphone and feature phone to stay connected, as against any other ICT.

inhibiting factors towards their access and usage of ICTs. Based on these perceived factors, our study highlighted that factors like age, literacy & education level, the burden of gendered labour, interpersonal relationships (especially with men), household economic status and social trust are important factors that inhibit as well as facilitate women's access to ICTs and determine the nature of their usage. Another crucial element has been the infrastructural lag in localities and heightened cost of network and internet services which makes it difficult for women and girls to adequately make use of the available digital services, even with personal financial resources in hand. However, none of these factors are accounted for in isolation as they intersect with each other to create suitable or unsuitable situations for women to access ICTs and use them.

CHAPTER

1

Introduction

Abstract: By canvassing existing literature and research, the introductory chapter highlights stark gender disparities in mobile ownership and internet usage, emphasising socio-cultural and economic barriers across the globe. Seven key questions drive the inquiry into pathways for gender-inclusive technological empowerment for women in rural India.

In India, according to the GSMA report on Mobile Gender Gap (2022), there is a 14% gap between men's and women's mobile ownership and 41% gap in their mobile internet use. Their longitudinal analysis highlights that the significant gap in mobile internet use is due to an increase in men's mobile internet use from 45 per cent in 2017 to 51 per cent in 2020, while women's has remained at 30 per cent. Barboni et al (2018) notes three principle factors that determine women's engagement with mobile phones in India, namely, 'Ownership, Independence of use and Diversification or Performance of a portfolio of tasks that a woman performs on the phone'. Their study borrows from Financial Inclusion Insights 2016 data, revealing that 47% of the women reporting access to phones borrow rather than own their phones. This is in stark contrast to 16% of men borrowing phones. While many women and girls prefer owning a mobile phone rather than simply having access to one through borrowing or sharing, many studies from developing countries have noted that ownership of the mobile phone mostly lies with the men in a household, with women as recipients (Blumenstock and Eagle, 2010). Interrelated economic and normative barriers are primarily responsible for rendering a relationship of dependence and obligation, thereby creating a situation which might be uncomfortable for many women and girls, especially from the lens of privacy (Barboni et al, 2018).

Due to this mediated access to ICTs through family, women often fall behind in acquiring the required digital awareness, literacy and skills to be able to use mobile internet. Consequently, despite owning a mobile phone, many women do not use it beyond dialling/receiving calls. Further, some women reported that they could make calls only if someone dialled the number for them in advance (Barboni et al, 2018). The OECD (2018) report reveals that active female internet users were three times more likely to have families that supported their internet use. The family acts as a gatekeeper whose support and encouragement becomes one of the foundational factors for women's access to connectivity. Womens' and girls' safety concerns seem to dictate the preoccupation of families with controlling their access and usage of ICTs, with growing threats of cyberstalking, violence, trafficking among others (OECD, 2018). This 'concern' also translates

into physical barriers when women are discouraged from availing of public facilities such as cyber cafes etc., which are often seen as 'boys' hangout' spaces with little female presence (Khan and Ghadially, 2010).

> *"Unmarried women should not be given mobile phones. If they are caught with mobile phones, their parents will be held responsible."*

This is an excerpt from a diktat issued by members of the Thakor community in Banaskantha district, Gujarat banning unmarried women from carrying mobile phones.[1] The move was supported by the local Congress MLA and other community leaders who wanted unmarried women to focus on their 'education' rather than their 'mobile phones'. In 2012, a village council in the eastern region of the Bihar state banned usage of mobile phones by women, saying the phones were "debasing the social atmosphere" and leading to elopements.[2] The council imposed a fine of INR 10,000 if an unmarried girl was caught using a mobile phone on the streets. The fine amounted to INR 2,000 for married women. Similarly, in 2018 the Khap council in a village in Haryana State banned mobile phones along with jeans for all the girls in the community.[3] According to the village headman, a ban on mobile phones for girls would prevent them from eloping with boys and therefore, prevent the girls from bringing 'shame' to the village. Instances of women being killed by their families for spending 'too much time' on their mobile phones may also be mentioned here.[4]

Barboni et al (2018) notes that prior to marriage, questions surrounding girls' "purity" and worries that women will be subject to digital harassment are the primary normative barriers to females' mobile usage. However, after marriage, normative gender roles box women's primary responsibility as limited to taking care of her family and household. This home-centric role leaves women with fewer opportunities to use the phone for socially-acceptable, "productive" purposes. Kovacs (2017) argues that such control over use of mobile phones by women is due to a fear of breakdown of social surveillance in considerations of 'purity' and towards protecting the family's 'honour' that remains paramount in dictating women's access to technology and the internet (Devadas, 2021). Thus, anxieties surrounding women's

1 PTI. (2019, July 17). 'Thakor community bans cellphones for unmarried women'. India Today. https://www.indiatoday.in/india/story/thakor-community-bans-cellphones-for-unmarried-women-1570208-2019-07-16 (Last Accessed on November 27th 2022).

2 Reuters Staff. (2012, December 5). 'Bihar village bans mobile phone use by women'. *Reuters*. https://www.reuters.com/article/india-bihar-village-phone-banned-elopeme-idINDEE8B403320121205 (Last Accessed on November 27th 2022).

3 Staff. (2018, April 17). 'Haryana village panchayat bans jeans, mobiles for girls'. *Deccan Herald*. https://www.deccanherald.com/national/haryana-village-panchayat-bans-jeans-mobiles-girls-665111.html (Last Accessed on November 27th 2022).

4 Mirror Now Digital. (2021, June 5). 'MP: Woman hacked to death by brother-in-law for 'always talking over phone'. Times Now News. https://www.timesnownews.com/india/article/mp-woman-hacked-to-death-by-brother-in-law-for-always-talking-over-phone/766730 (Last Accessed on November 27th 2022).

sexuality also shape the landscape of digital rights for women in India.

Further, a gendered division of labour within the family which requires women to perform full-time, unpaid labour and care work not only bestows women with lesser bargaining power but also lesser free time to engage with the internet or the ICTs (Paul et al., 2015). During their fieldwork in Paraguay in the year 2010, Morgan Ames found only 1% of all students, i.e. 40 out of 4000 students making use of the laptops provided by the popular One Laptop Per Child (OLPC) programme in line with what the program intended to achieve. OLPC tended to view these children, especially the boys, as 'natural geniuses' with an innate ability to learn ahead of their classrooms. Upon interviews, it was found that all of these children's families had prior access to laptops or other forms of technology that enabled them to undertake learning through the device and motivated them towards critical thinking (Ames, 2010). It is, then, abundantly clear that a certain social capital and social privilege are immensely important to facilitate smooth access and use of ICTs and the Internet.

In another research on the OLPC Project, the authors found that the founders of the initiative often inscribed the program with their 'own tastes, competencies, and views of gender identity' (Ames and Rosner, 2013). The founders of the two projects, i.e. OLPC and the Fixit Clinic Project, were both men who had related their first interaction with

Anxieties surrounding women's sexuality also shape the landscape of digital rights for women in India.

machines and ICTs to their childhood. It was their childhood imaginaries that were translated into the program, leading to the imagination of the so-called 'technical child' being male and thereby possessing a natural ability to work with technology. The authors also argued that the two men had attributed their work with technology and their later success as engineers to unacknowledged privileges enabling access, in comparison to women or persons from minority groups who tended to learn to program at a later stage. Many scholars have spoken about the prevalence of 'technophobia' amongst women which, as they argue, translates into women's reduced access to not only ICTs but also the skills and education required to use the same. Using a term such as 'techno-phobia' or a 'fear of technology' risks individualising the problem while taking away the responsibilities from structures such as the family, the community, corporates and the state in institutionalising the Gender Digital Divide. As seen above, the very imagination and the design of the

This report draws on a holistic picture of the relationship between women in rural areas in India with that of digital technology in light of the pervasive Gender Digital Divide through all its nuances.

project had no place for women. Its success fed off of the existing power imbalances in society and furthered them.

It has been observed for years now that women's usage of digital technology can harness a positive impact in terms of gender equality in various ways. Increased digital literacy enables women to utilise the myriad opportunities that are engendered via the medium of ICTs. More and more women can advance their economic and professional growth, for instance by learning about online banking or networking to find market linkages, as well as marketing their products online (Suwana & Lily, 2017). Further ICTs can enable women's right to freedom of speech and expression (Women's Rights Programme APC, 2012) which may serve larger purposes of engendering peace[5] or social justice towards various rights (Sarrats, 2022). Moreover, women can also serve as agents of change within their own communities where they use digital technology to advocate for social change by imparting awareness on important issues like menstrual hygiene and sexual health or building avenues for socio-economic mobility for other women and their households through entrepreneurial activities.[6]

This report draws on a holistic picture of the relationship between women in rural areas in India with that of digital technology in light of the pervasive Gender Digital Divide through all its nuances. The critical politics of the digital technology which creates obstructions in women's access and usage of ICTs will be highlighted. Economic, social, cultural as well as psychological factors will be weighed in to assess the differentials in usage of ICTs among various women and in doing so, the report seeks to answer seven questions which are as follows:

- *What are the facilitating and inhibiting factors that influence the adoption of new technologies for women in different geographical locations and socio-economic categories?*

5 Robertson, D. & Ayazi, M. (2019, July 15). How Women Are Using Technology to Advance Gender Equality and Peace. United States Institute of Peace. https://www.usip.org/publications/2019/07/how-women-are-using-technology-advance-gender-equality-and-peace (Last Accessed on January 16th 2022).

6 Aspirations, Access and Agency: Women Transforming Lives with Technology 2022 report by Reliance Foundation and Observer Research Foundation.

- *How do new user and mass-based digital technologies have an enabling and empowering influence across genders in different geographical locations and socio-economic categories?*
- *How adoption of new technologies influences personal, familial and community- societal change?*
- *What are the challenges in the adoption of technologies amongst women and men, and how to ensure that both genders are equal beneficiaries?*
- *How does the adoption of new technologies lead to entrepreneurship and develop new leaders?*
- *What are the KPIs to measure the success of the new approaches to bridge the digital divide when gender dimension is considered?*
- *While new technologies are crucial to address societal challenges, but how true is it that a lack of understanding of the gender dimension can lead to new digital divides and gender bias? If it is true, how to mitigate the unintended consequences?*

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CHAPTER

2

Contextualising ‘Gender Digital Divide’

Abstract: This chapter critically examines the multidimensional nature of the 'Gender Digital Divide', emphasising its global, social, and democratic dimensions by once again reviewing the existing scholarly engagements with the term. It challenges simplistic notions of bridging the divide and explores how structural inequalities intersect with gender to shape women's access to and usage of digital technology.

Pippa Norris (2001) in her book titled 'Digital Divide' talks about the emergence of the term as a catch-all phrase to describe *'any and every disparity within the online community'*. She then proceeds to unpack the digital divide by looking into it as a 'multidimensional' setup constituting three distinct dimensions. The first such dimension is stated to be the 'Global Divide', i.e. the divide in internet access between the industrialised or developed and the developing countries. The second dimension is the 'Social Divide', which is descriptive of the gaps between the rich and the poor in a country. Finally, the 'Democratic Divide' is indicative of the gap between those who use and do not use the digital medium to engage and participate in public life. Norris wrote her book at a time when the World Wide Web was just a decade old and challenged the hopes of many 'cyber-optimists' that the market place and 'chameleon-like' capacity of technological innovations can make ICTs affordable and more accessible to the people.

Despite immense explorations through literature and research over the past three decades, similar cyber-optimistic ideas prevail in the public imagination. Access to connectivity and technology are seen as the keys to active participation in decision making and individual upliftment. However, the general neoliberal idea of universal trickle down or 'spillover' benefits to the individual lies at odds with the contextual nature of each society that determines how technology will be adopted and used, and who will benefit from it (Hosman, 2010). The idea of 'bridging the digital divide', then, seems very simplistic to scholars like Hosman, who believe that the terminology in itself creates a very 'attractive visual' of the 'have-nots' smoothly transitioning to becoming the 'haves' as technology or connectivity is made accessible (Ibid). Following this, structural inequalities are then, either neglected or addressed through a one-size fits all framework. Norris (2001) highlights the role of education, literacy and social status in facilitating an easier access to resources and innovative technologies. In her work, she highlights detailed studies suggesting that the digital divide widened racial and gendered inequalities in income, education, computer ownership among others in the American context. However, Norris' analysis, while highlighting social inequalities in access, inevitably limits itself to the economic sphere without delving into

> Despite immense explorations through literature and research over the past three decades, similar cyber-optimistic ideas prevail in the public imagination.

a complex analysis of how race, class and gender together mediate access to the digital world. While gender is treated as a category in itself, it is grounded in no material context, as if to suggest that all women face similar challenges in the digital arena.

Such a false premise of gendered 'inclusion' is prevalent today in most field-based studies and policy level decisions. Similar ideologies are reflected in telecom corporate giants' initiatives and commitments seeking to increase the number of women customers using mobile internet and accelerating their 'digital and financial inclusion' (GSMA, 2018). Therefore, the inclusion of women becomes a tool for enhancing economic gains to the Telecom Company and the GDP. The basic assumption, here, is that inclusion of women amounts to 'empowerment', while other stakeholders like the community, family, government, among others are hardly held accountable. Gurumurthy and Chami (2014) in the Indian context also highlight the 'naive' nature of such a framework that looks at an 'input access-output empowerment' model. The scholars call for an in-depth engagement with underlying structural inequalities that form the barriers to women's access to internet connectivity and ICTs. Along these lines, they argue for an approach that does not merely deal with 'filling' the gender gap in access to connectivity and the ICTs, but rooting the question of gender justice in the very foundation of such an access.

The GSMA (2022) has identified 4 enablers to Mobile Connectivity namely, Infrastructure, Affordability, Consumer Readiness and Content and Services. The 4 enablers are further split into 14 dimensions. A closer look at these dimensions reveal the obvious economic infrastructural and economic bias, whether it be the existence of infrastructure, locally developed apps, greater literacy rates, high mobile ownership among others. Indicators wherein developed nations are known to clearly perform better over developing nations. It is here, Gurumurthy and Chami (2014) bring back our attention to another aspect of the divide emerging between the developed and the developing world, i.e., the 'Communications Capacity Gap'. In an insight from the State of Broadband Report (2019), Stephen Spengler notes that fixed and wireless based broadband, however, becomes difficult to implement due to the high cost of extending optical fibres along longer distances,

especially in rural areas and the negative of return on investment have dissuaded service providers from making their connections available in the areas. Gurumurthy and Chami (2014) highlight that building upon the aforementioned argument, most developing countries and organisations around the world have started looking at mobile based broadband connectivity as a replacement to the fixed based broadband connectivity. This case is prevalent in India too.

The Mobile is one of the most popular mediums of accessing the internet world over, particularly in Asia and the Global South. According to GSMA's State of Mobile Internet Connectivity report, 75% of the respondents from South Asia were found to solely rely on the mobile phone to access the internet. The same report states that, as of 2018, 53% of the population in South Asia owned Mobile Phones. In comparison, North America (75%) and Europe and Central Asia (68%) have a larger part of the population that is connected. Along these lines, the GSMA identifies two types of gaps to look at the question of a digital divide. The coverage gap denotes the people who have not been covered or do not stay in the range of mobile broadband networks. The usage gap denotes those people who while staying in coverage areas do not avail of/use mobile internet connection. Therefore, while 53% of the South Asian population owns a mobile phone, only 33% of the population is connected to the internet (State of Mobile Internet Connectivity Report, GSMA 2018).

Accessing connectivity through the mobile, while being a fool proof means of lessening the coverage gap, is known to restrict the type and numbers of applications that users can avail of over the internet (International Telecommunications Union Report, 2012 in Gurumurthy and Chami, IT for Change 2014). Gurumurthy and Chami (2014), believe that the Communication Capacity gap along with the reliance and advocacy for mobile broadband networks has been a massive influence on the way women's 'digital inclusion' and 'empowerment' have been conceptualised in popular imagination. This remains true of policies which focus on merely providing mobile phones to women or increasing their numbers as customers to service providers. Policies on Mobile Broadband connections, then, need to effectively complement fixed broadband connectivity in order to ensure meaningful access for women.

Since the 1980's, the 'Information Society' approach has gained global currency with economies around the world gearing towards providing high speed communication or 'Information Infrastructures' that enables people to access and disseminate a plurality of knowledge and content that is relevant and useful to their contexts. Gurumurthy and Chami (2014) understand the transformative power of the internet enabled ICT in society and believe that the framework gives us an opportunity to look at the

This report uses the term ‘Gender Digital Divide’ as a means to not only foreground the women’s question in the digital divide but also as a means of establishing the need to formulate women’s centric, context specific and participatory models of creating ‘Information Infrastructure’.

emancipatory role of technology in enabling and enhancing women’s participation and position in a ‘shifting social Global order.’

While the transformative notion of an Information Society is an important framework for our scholarship, one must question the formulation of what constitutes society in itself when, as of 2023, more than 2.9 billion people of the world still do not have the opportunity to go online and meaningfully engage in the digital ecosystem. The mainstream ‘access to empowerment correlation’, then, must be challenged and reformulated to ensure that the gender question is not just merely incorporated but is rooted in the question of access to connectivity.

Towards this end, this report uses the term ‘Gender Digital Divide’ as a means to not only foreground the women’s question in the digital divide but also as a means of establishing the need to formulate women’s centric, context specific and participatory models of creating ‘Information Infrastructure’. Such a model is conceptualised with the belief that women’s voices and active participation needs to take centre stage in order to facilitate meaningful access to and use of technology and by extension, the internet.

The term in this report, then, recognises the idea that women are not a monolithic category and hence, their access to the internet is mediated by other identities of race, caste, class, ethnicity among others. These identities however, do not just dictate the nature of access but lie at the root of how women negotiate the use of the ICTs. In tandem with the principles of a feminist internet, we not only explore how different realities, contexts and specificities interact to influence women’s access and use of the internet enabled ICT, but we also look at how the same technology enables women to undertake regular negotiations in the home and the community. Hence, this report aims to capture an interlocking and intersectional understanding of the women’s question in meaningfully accessing ICTs.

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CHAPTER

3

Theoretical Approach and Method

Abstract: In this chapter, the reader is made familiar with the theoretical standpoint of Active and Passive users of digital technology, along with a detailed look at the sampling and methodology adopted. Some broad-brush characteristics of the sample are also elaborated upon.

Often technology is seen from a neutral lens due to its interpretation in a range of moral contexts. This neutrality lies in two facets: *how technology works* and *how it is being used*. However, Winner (1980; 1986) espouses that technology embodies social relations. The technology has certain politics embedded within itself which can be found within its design. He says that technology is like a legislative act since it establishes a public order. Instead of being a means to the end, technology has a tendency of becoming the end in itself. Extending this perspective, feminist scholarships have pointed towards women's exclusion from science and also from the creation, design and use of technology. Different strands of feminist thought have approached the relationship between women and technology from separate lenses. For instance, a liberal approach attempts to historically uncover the hidden role women have played in the development of technology, whereby technology is seen as something neutral, without hidden politics. However, such an approach has often been criticised for not problematising the question of technology itself. The Marxist approach on the other hand, tries to study the underlying power relations constituting technology as "class" which ultimately falls into the same trap as that of the liberal approach in not questioning the neutrality of technology (Gurumurthy, 2004). We instead approach the question of technology from a *socio-technical lens* where we aim to locate the overall relationship between women and technology as embedded in the complex processes of intersecting socio-cultural, economic and political institutions and structures. While this report hyper-localises the context within rural geographies and the 'woman subject' refers to the gendered identity of a cis-woman, our understanding is also informed by the global structures which dictate and mediate their relationship with technology on a daily basis.

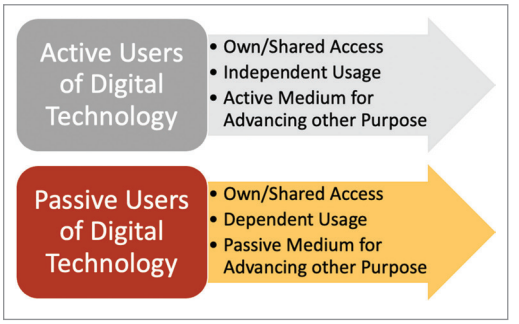
I. Methods

For our exploratory study, we set out with a mixed method approach relying both on qualitative and quantitative approaches through: 1) Close-ended survey with 204 women in 11 states, across 17 districts; and 2) Semi-structured interviews with 7 women in 4 States, across 6 districts. Our respondents largely include Dalit women and women from Other

> We instead approach the question of technology from a socio-technical lens where we aim to locate the overall relationship between women and technology as embedded in the complex processes of intersecting socio-cultural, economical and political institutions and structures.

Backward Castes. The locations were selected based on the active community presence of the Digital Empowerment Foundation (DEF) through their various programmes related to digital literacy, information entrepreneurship and other last mile access and inclusion interventions. The list of respondents for both interviews and surveys was created based on a framework that purposely sought to categorise women as *Active* and *Passive* users of digital technology. The categorisation was done across 3 verticals namely: Type of Access, Reliance for Usage and Motivated Purpose for Usage.

These three verticals, as highlighted in the figure below, intersect with myriad other factors to create ideal situations for access and usage of digital technology among our sample/ respondents. However, we aim to show that just access to digital technology and having the requisite skills, do not translate into opportunities that prominent scholarship, as well as policy initiatives on digital empowerment of women largely espouse.



Interview: The respondents for the semi-structured interview were purposively selected based on the categorisation of active/passive users of digital technology. The nature of questions ranged from understanding how women perceive the role of digital technology in their lives to the motivations that drive them to use the technology for various purposes. We aimed to gauge the implications that digital technology might have not just for the women but for their family as well as for the community. The various ways in which women perceive their own empowerment which they may relate to ICTs or otherwise and the myriad challenges that in a rural set-up women have to deal with. Each interview was conducted telephonically with prior consent and

lasted between 15-20 minutes. As per the consent agreement, the names of the respondents have been duly changed in the report.

Survey: Based on a list by DEF of the women who are users of digital technology, the respondents were randomly selected for the survey. We asked a range of questions to assess how women define technology itself and if there is a difference in how digital technology is perceived; the nature of usage of digital technology in terms of purpose, motivation, time spent and multifarious challenges experienced; using digital technology for entrepreneurial activities; experience surrounding privacy and digital safety, as well as the relationship with technology as experienced during COVID-19. While the majority of the respondents were from rural regions, about 23% of the respondents hailed from semi-urban and urban regions. Consequently, our data presents a predominantly rural perspective.

Figure 1: State

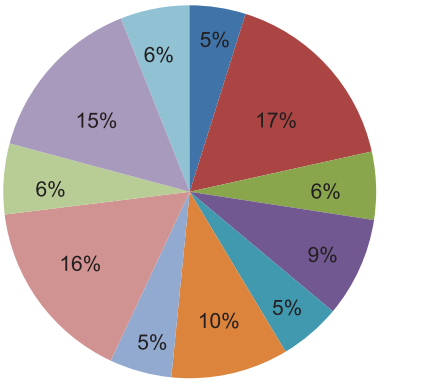
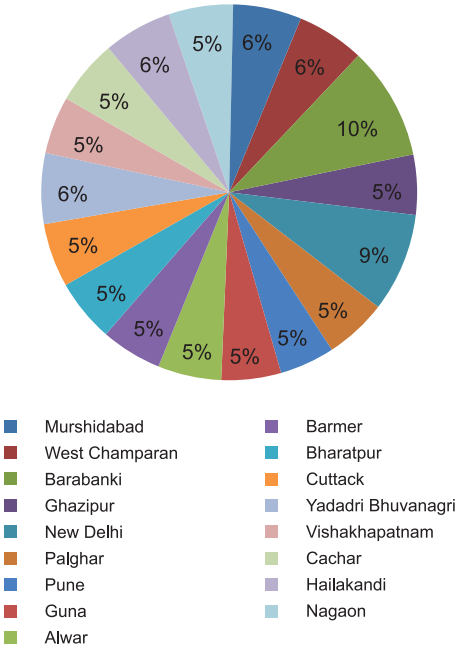
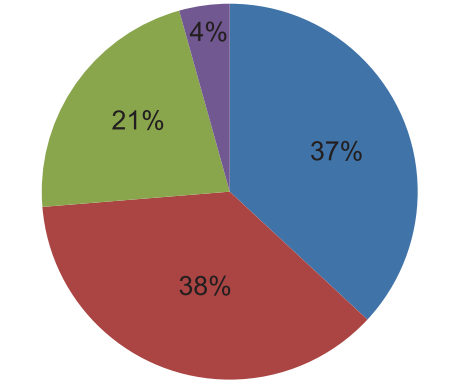


Figure 2: District



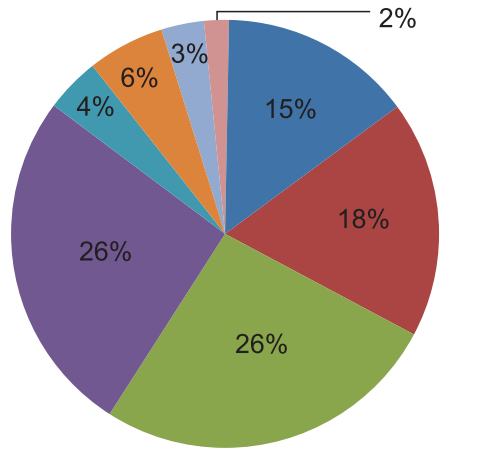
37% of the respondents aged between 18-25 years, while 38% respondents were aged between 26-35 years, 21% respondents were between 36-45 years and only 4% respondents were aged above 46 years (Figure 3).

Figure 3: Age



In terms of educational qualification, 15% respondents studied till 7th grade and 18% respondents studied till 10th grade, as compared to the 26% respondents who studied till 12th grade and another 26% who finished their under-graduation. Only 4% respondents have done diploma as compared to the 6% respondents who are illiterate and 3% respondents who are neo-literate.[1] Only 2% respondents have either pursued post-graduation or studied till 2nd or 3rd grade (Figure 4).

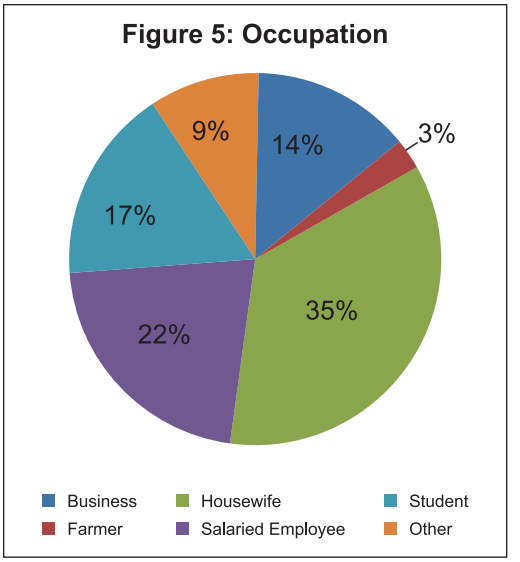
Figure 4: Education Level



In terms of occupational distribution, 35% respondents said that they are housewives, 22% are salaried employees, 17% are students, 14% respondents are self-employed or entrepreneurs, 3% are farmers and 9% said "other" (Figure 5).

1 Neo-literate can be defined as an adult or an adolescent who did not or could not make use of. the available educational opportunities on time, and who at a later stage acquired the skills of literacy through formal or non-formal approaches.

Figure 5: Occupation



II. Perceived Understanding of Technology and its Usage

When respondents were asked about their understanding of 'technology', varied answers were received. Most women responded with the implication of what technology does, i.e. reducing time to do a given task or making a given task easier and more comfortable than if it had to be done 'with hand'. Digital technology's implication was largely reflected upon respondents mentioning aspects like 'better connected', 'watching YouTube videos' or 'digital education' as a boon. Some other respondents mentioned the devices or tools itself such as smartphone, tablet, computer, TV, radio or non-digital technologies such as sewing machine and flour grinder as constituting technology. A respondent from Cachar district in Assam also gave a specific theoretical

answer saying technology is “the branch of knowledge dealing with engineering or applied sciences”.

In terms of usage, 90% respondents use some form of technology in their daily life (Figure 6). However, when asked what kind of technology these women mostly use in their daily life, 40% of them said that they use household gadgets such as mixer grinders, refrigerators, sewing machines etc. and digital gadgets like computers, smartphones etc. 13% of women chose only household gadgets while 21% women chose only digital gadgets. Only 2% said other technologies, while other 2% chose household gadgets and other technologies and 14% selected household, digital gadgets and other technologies (Figure 7).

Figure 6: Use/Non-use of technology in daily life

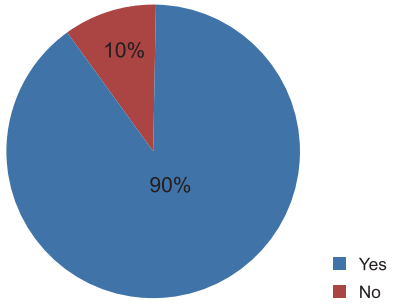
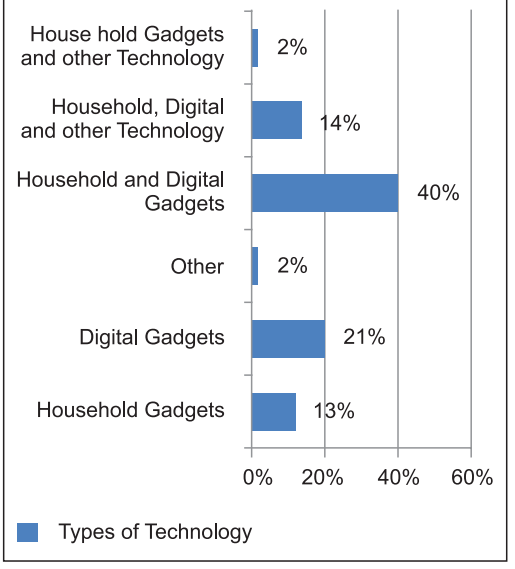
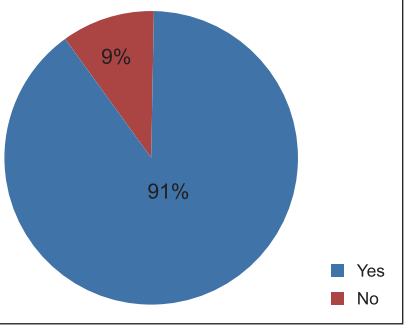


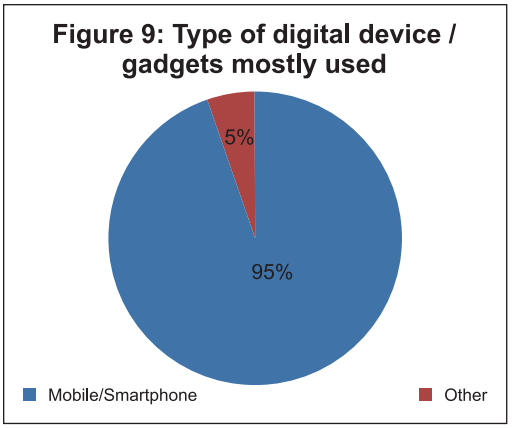
Figure 7: Types of technology used in day to day life

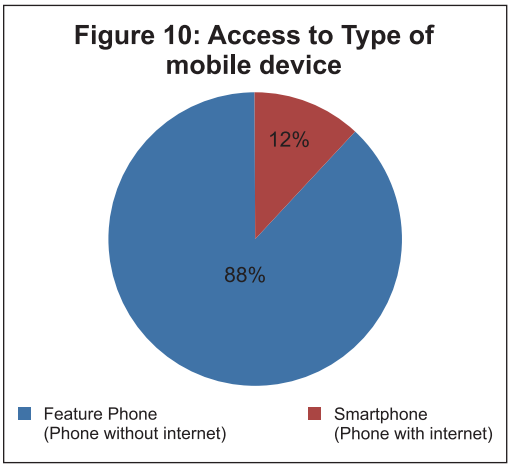


However, 91% women said that they use digital technology as compared to 9% who said that they don’t (Figure 8). 95% women use mobile/smartphones as compared to only 5% who use other digital devices (Figure 9). Out of this, 88% women have access to smartphones as compared to the 12% who have access to feature phones (Figure 10).

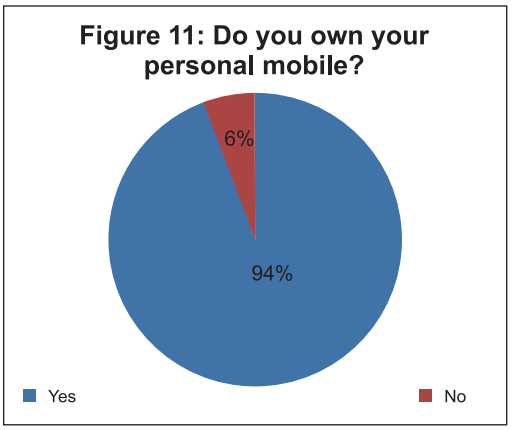
Figure 8: Usage of digital technology







Like mentioned above, digital gadgets are mostly used on an everyday basis by most women across age groups and occupational distributions and 94% of the women said that they have their *own* mobile phones (Figure 11).



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CHAPTER 4

The Gender Digital Divide in the Indian Context

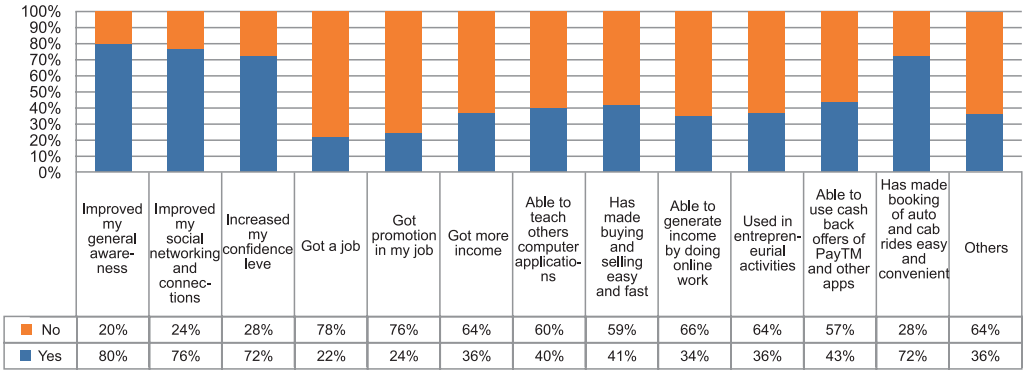
Abstract: This chapter brings forth a detailed analysis of the interviews to illuminate the character and extent of the Gender Digital Divide in rural India. The implications of such a divide are revealed by identifying the factors inhibiting access of women to ICTs, such as lack of digital skills and exposure to online 'immorality'.

I. Usage of ICTs by Rural Women

Kovacs (2017) argues that ICTs make it possible to develop new ideas of self, to explore and exercise autonomy, choice and agency. She writes, "By creating all these new possibilities, and especially by creating spaces for privacy that were previously not available to young women... mobiles have disrupted the existing patriarchal regimes of control and surveillance." However, as Tenhunen (2014) notes in their study, the introduction of the phone in rural areas allowed women to 'extend their contacts and spaces' without actually moving beyond their neighbourhood. She established that the calls made by women to their close kin or relatives were a means of strengthening relationships and networks while also obtaining economic and emotional support. "Since women's calls are more limited to their close kin than men's calls, this exemplifies that in digitally constructed spaces, women are construed as more homebound than men (Ibid)."

While an active access to ICTs creates a certain scope for rural women to extend the boundaries of their everyday lived experiences beyond the physical spaces that they inhabit and thereby explore more meaningful interactions with the world, it is by and large constrained within the domestic gender roles that women perform every day. Nevertheless, women do perceive overall benefits of using digital devices with the internet on an everyday basis as important mediums for 'improving general awareness', 'improving social networks and conditions' and most importantly, 'improving confidence level' (Figure 1).

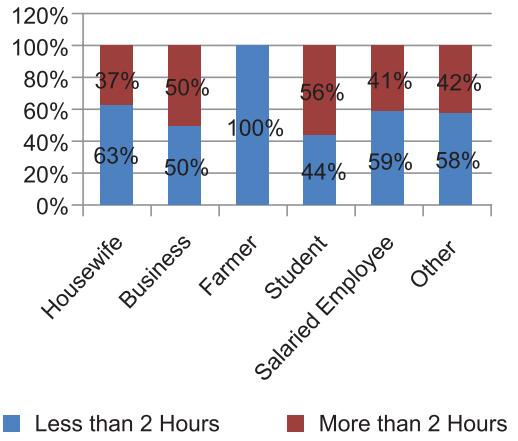
Figure 1: Overall perceived benefits using digital devices everyday



	Improved my general awareness	Improved my social networking and connections	Increased my confidence leve	Got a job	Got promotion in my job	Got more income	Able to teach others computer applications	Has made buying and selling easy and fast	Able to generate income by doing online work	Used in entrepreneurial activities	Able to use cash back offers of PayTM and other apps	Has made booking of auto and cab rides easy and convenient	Others
No	20%	24%	28%	78%	76%	64%	60%	59%	66%	64%	57%	28%	64%
Yes	80%	76%	72%	22%	24%	36%	40%	41%	34%	36%	43%	72%	36%

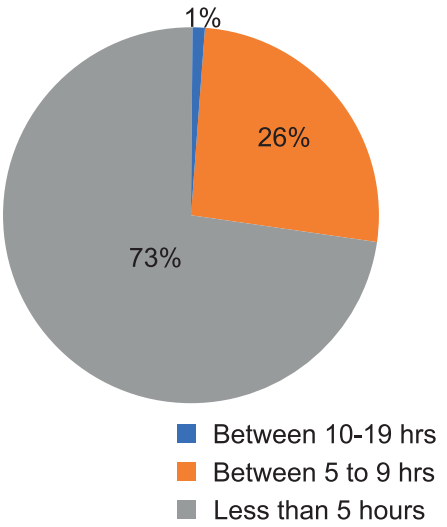
Through our study, while 91% of the women said that they have their own smartphones, it was found that 85% of the women use it on a daily basis. However, 58% of the women use their smartphones for less than 2 hours a day. Shah et al (2006) have noted in their study that the majority of Dalit women work outside their homes as agricultural labourers, performing the most arduous work at dismal wage rates in rural areas. In our study, an occupation-wise distribution highlights that among farmers only, which constitutes 3% of the whole sample, 100% women are spending less than 2 hours on their smartphones, as compared to any other occupational group (Figure 2).

Figure 18: Occupation-wise Distribution of Less than 2 hours spent daily on the digital Gadget



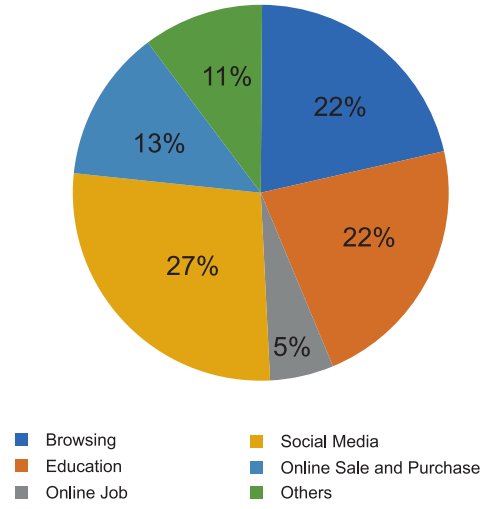
Further, 73% of women spend less than 5 hours a day using the internet (Figure 3).

Figure 3: Time spent on internet activities in a day



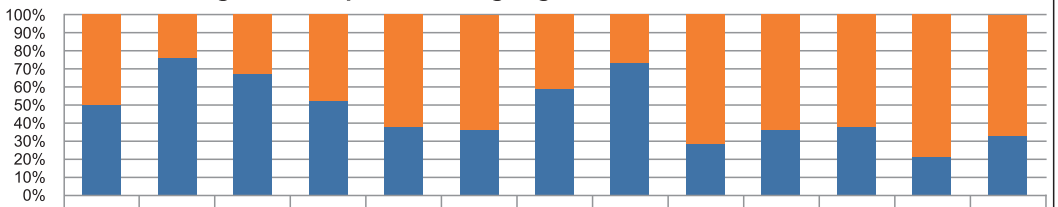
Using Social media platforms such as Facebook or browsing educational material or watching movies/playing games or general browsing, are the most common usage of digital devices with the internet (Figure 4 and 5).

Figure 4: Purpose for using the internet frequently



While the fewer hours spent on the internet are due to various factors that inhibit women's access and usage of ICTs (as will be discussed in the next section), the nature of internet usage varies from interpersonal communication to learning to leisure. Earlier studies on the gendered usage of the internet argued that unlike men who use the internet mainly for purposes related to entertainment and leisure, women use it primarily for interpersonal communication and educational assistance (Weiser, 2000; Boneva et al, 2001; Kennedy et al, 2003). However, recent studies have shown that women also have been using ICTs for purposes related to work, networking and leisure (Parry & Light, 2017; Porter et al, 2020; Garg, 2021). During the interviews with the rural women, it was found that most women across different age groups rely on ICTs for work related purposes, as well as to surf educational material. Nisha, a twenty-one years old woman from Nuh district in Haryana, who has finished her under-graduation, has been working as a counsellor in the Digital Sarthak programme by the Digital Empowerment Foundation (DEF). When asked for which purpose she uses her phone mostly, she replied *"Mostly I use my phone to facilitate training [work]. Rest, I use my phone to learn something new as well. That's it."* Yet, according to her the most useful features of the phone are digital transaction apps like Google Pay that have made payment direct and convenient, as well as WhatsApp and Instagram which allows her to directly correspond with people, network and indulge in leisure.

Figure 5: Purpose of using Digital Devices with Internet

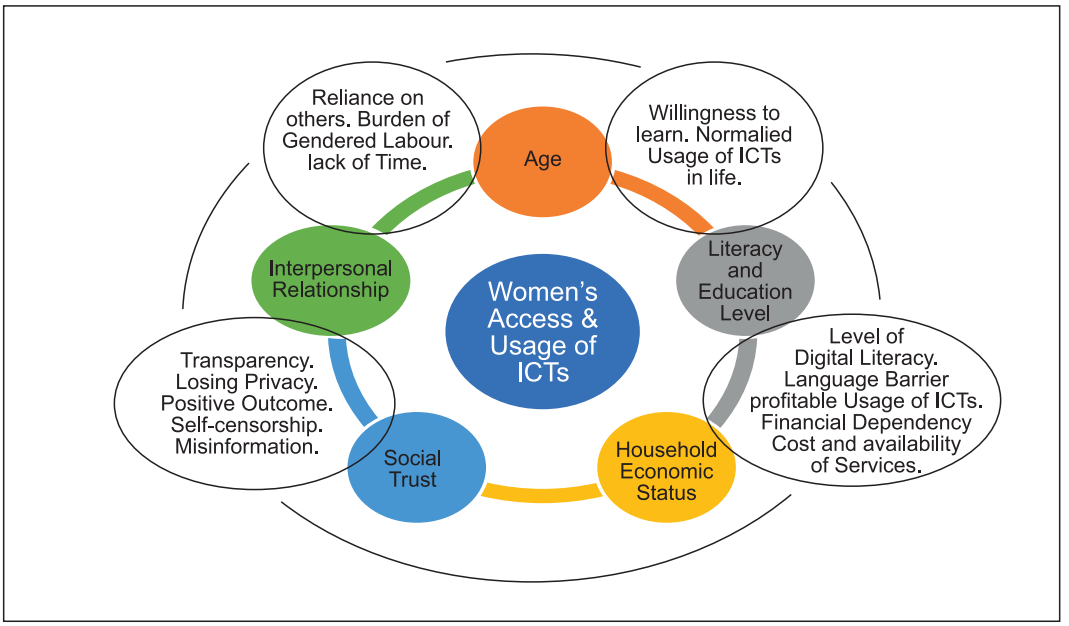


	Sending/ receiving mail	Search the Internet for informa-tion	Accessing Facebook /Twitter	Making digital payments	Searching jobs	Availing of Govern-ment services (for example, Aadhaar card, booking of tickets etc.)	Online shopping through amazon, flipkart, etc.	Entertain-ment (Movies, Playing games, etc)	Securing certifi-cates under Digital Locker	Using Bhim App	Paying Electricity bill/ making phone recharge	Booking Ola/ Uber rides	Others
No	50%	24%	33%	48%	63%	64%	42%	27%	72%	64%	63%	79%	67%
Yes	50%	76%	67%	52%	37%	36%	58%	73%	28%	36%	37%	21%	33%

II. Factors Inhibiting and Facilitating Women's Access to ICTs

Summers et al (2020) highlights that while mobile phones have been heralded by many as promising new tools to empower women throughout the Global South, there are still many challenges that women face to access and use mobile phones itself. They found that lack of access to material assets such as finance, handsets, SIM, electricity etc. play a crucial role in women's access and usage of ICTs. Further they found that due to illiteracy or less education, women often rely on their interpersonal relationships to facilitate the usage of ICTs such as reading text messages, or changing settings, or making calls. However, the most significant inhibitor as per the study was the mediated relationship to technologies that women have through the men in their lives.

As per our survey, the common issues that women mentioned while talking about the challenges in their usage of ICTs were 'English Language Issues', 'Security and Safety Issues', 'Digital Illiteracy', 'Lack of Personal Device', 'Financial Dependency', 'Illiteracy', 'Misinformation' and 'Immoral and Wrong Content Available Online'. Based on these perceived factors, our study highlights that factors like age, literacy & education level, the burden of gendered labour, interpersonal relationships (especially with men), household economic status and social trust are important factors that inhibit as well as facilitate women's access to ICTs and determine the nature of their usage. However, none of these factors can be accounted for in isolation as they intersect with each other to create suitable or unsuitable situations for women to access ICTs and use them.



> Nishi also mentioned the importance of social networking sites such as WhatsAapp and Instagram when talking about the 'most' useful features of using smartphones.

When it comes to the matter of age, Nisha recalls having learned operating smartphones gradually over time from a young age. She initially picked up basic digital skills from her friends. Only later when she joined DEF, she was able to hone her digital skills enough to train others as well. In another instance, Mehnaz, a 26-year-old woman from Rajasthan, who studied till grade 8th and runs a shop now, narrates that she learned operating a mobile phone and computer when she was sixteen years old. When asked who taught her operating the same, she said *"Already knew a bit. But we had a computer at our home so I observed and learned by myself."* Both Nisha and Mehnaz believe that the internet has changed how things are done. For them, finding important information and learning new things are one of the main priorities of being online. Moreover, both use digital transaction services regularly. Nishi also mentioned the importance of social networking sites such as WhatsApp and Instagram when talking about the 'most' useful features of using smartphones.

However, responses from older women highlight that their engagement with digital gadgets has been more mediated through their family – younger female or male members. For instance, Hema, 40-years-old, hails from the Guna district in Madhya Pradesh. She studied till grade 10th in school. She has been working with DEF since 2018 as a SoochnaPreneur. Before 2018, Hema had minimum digital skills which was mediated through her technologically adept children. It was only after she joined DEF and went through a digital skill training programme that she was able to properly operate digital gadgets by herself. For Hema, finding important and relevant information online has been the most useful feature of a smartphone. On the other hand, Awanti, a 45-year-old woman from Nuh, who runs her small tailoring shop behind the house narrated that she does not use her smartphone for anything other than making calls. She doesn't know how to use the internet. So, when she needs to learn about new stitching designs, she asks her son to search for the same on YouTube. One of the reasons for this is that she is not functionally literate. She stopped going to school after 5th grade due to which she only remembers counting numbers in Hindi. Similarly, Savanti Devi, a 45-year-old woman from Barabanki in Uttar Pradesh who also studied till class 5, does not remember how to read and write. Her

Another barrier that hinders women's usage of ICTs is the language challenge. About 90% of online content is in English, yet only one-third users globally speak it.

engagement with her mobile phone is also limited to receiving calls. She knows that pressing the green button would allow her to pick up the call and when she hears the voice on the other side, she knows who is calling. This process has allowed her to functionally use her mobile phone. Mostly her daughter-in-law shows her videos on YouTube or messages on WhatsApp.

Our study highlights that age and literacy level play an important role in how women adopt digital technologies. For younger women like Nisha and Mehnaz, gendered normalisation of usage of digital gadgets in family and among friends, led to their introduction to mobile phones and computers at an early age. This has allowed them to be more flexible and adept towards using more features by being more independent in their usage of digital gadgets. For older women, especially with almost no functional literacy, it remains difficult to easily adopt digital skills. For instance, Hema says, *"I use Google Pay and PhonePe. I have tried to train other women with similar skills. But most of the women are illiterate so they find it difficult."* For such women, as seen in the cases of Awanti and Savanti Devi, their children were seen to have become intermediaries through whom they used their digital gadgets and surfed the internet.

Another barrier that hinders women's usage of ICTs is the language challenge. About 90% of online content is in English, yet only one-third users globally speak it.1 This often poses as a challenge to non-English speakers,2 many of whom are women living in rural and remote areas (Melhem et al, 2013). According to the 2011 census survey, only 6% Indians can speak English Just 3% of rural respondents said that they could speak English, as against 12% of urban respondents.3 Consequently, despite the low literacy rate amongst Indian rural women, most of them are burdened with learning a foreign language to be able to adequately use ICTs. Like Pooja mentioned, in her village, most women knew to receive calls by pressing the green button. However, after attending the digital

1 United Nations (UN) e-Government Survey. 2012. Access at: http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2012-Survey/unpan048065.pdf

2 Organisation for Economic Co-Operation and Development (OECD). Understanding the Digital Divide; OECD: Paris, France, 2001.

3 S, R. (2019, May 14). 'In India, who Speaks in English, and where?'. Mint. Last Accessed on: 14-01-2023. https://www.livemint.com/news/india/in-india-who-speaks-in-english-and-where-1557814101428.html

skill training sessions they are able to recognise the English numbers which allows them to not just become familiar with unsaved numbers but keep digital accounts and digitally receive/send money.

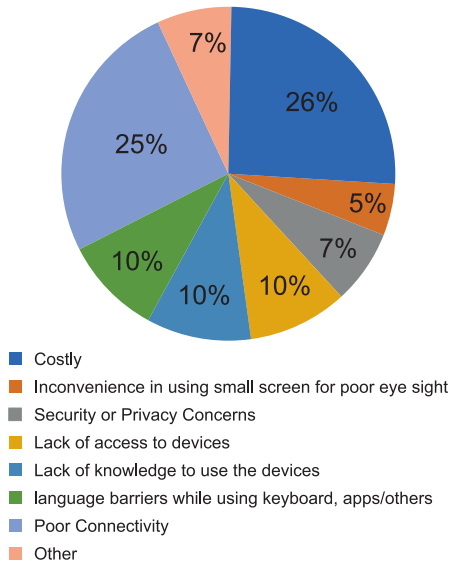
Women have to juggle between their reproductive and productive work within patriarchal constraints that subject them to restrictions on their mobility, labour, time, labour process and earnings (Kalpagam, 1987). Cerrato and Cifre (2018) notes that unequal involvement in household chores between men and women is associated with increased work-family conflict (hereon, WFC) in women and men. Moreover, unequal allocation of household labour significantly increases the gendered gap towards acquiring new skill sets. Pető and Reizer (2021) says that such unequal responsibility of unpaid work leads to a gender penalty on women whose skill use through time allocation is halved due to which they are able to invest much less time on learning new skill sets. Such observations were made in our study as well where many women do not join digital skill training programmes because that would require creating time for learning and they are often busy with both household chores and their own micro enterprises. For instance, when asked about the barriers Awanti faces in learning to operate her smartphone, she says, *"Children go out of the house and even I get busy with my stitching work and other chores. It's I who do not get the time."*

Further, such unequal expectations regarding women's labour, not only reduces the time women spend on mobile phones and internet but also puts restrictions on their mobility which has played an intrinsic role in limiting women's access to digital skill training programmes. However, Alesina et al. (2013) notes that social norms about women's work can sometimes have economic origins that persist long after the economic rationale for them is obsolete. In other cases, the historical roots of norms are religious rather than economic. In the case of India, Eswaran et al. (2013) argues that upper-caste patriarchal values of 'purity' and 'honour' plays a key role in conceiving the nature of women's activity from market work to status-related work within the household. Particularly in the case of married women, Papanek (1979) highlights that their engagement in the production of services that increase the family's social profile is a consequence of paternity uncertainty and the fear that married women may have illicit liaisons with unrelated men. During the interview, Nisha recalled that she faced a lot of barriers from the families of the women regarding them joining the digital skill training programmes. She notes that male household members of the women often used to say *'What will she do?', 'Why does she need to do this? We can do this instead.', 'She doesn't need to get out. Our women do not go out of the house for such work. We will not allow this.'* Nisha later added that women who joined the programme learned a lot and their households' financial situation

gradually improved. This prompted the families who were initially hesitant to allow their women from joining the programme, later allowing them for the same in the hopes of having a better household economic status. Such observation is consistent with the various studies that have highlighted a negative correlation between household economic status and women's employment status, and consequently mobility within the boundaries of patriarchal norms (Mammen & Paxson, 2000; Stier & Lewin, 2002; Panda, 2003). This also affects women's engagement with ICTs.

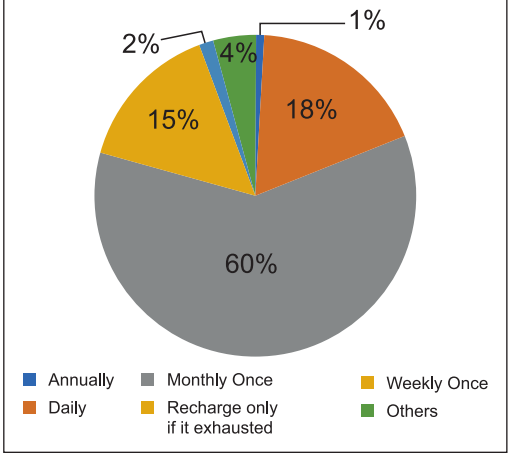
A heightened cost of internet services as well as localised infrastructural lag which may cause a slow internet speed, often adds to the hindering factors in women's access and adoption of digital devices (Figure 6).

Figure 6: Difficulties while using internet services



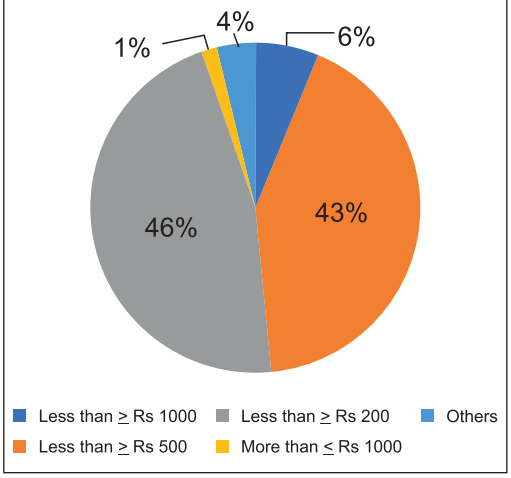
As per our survey, 60% women said that they recharge their internet pack monthly, as compared to only 1% who recharge it annually (Figure 7).

Figure 7: Frequency of recharging your internet data pack



Moreover, 46% of women spend less than INR 200 on recharging their internet pack, as compared to only 1% women spending more than INR 1000 on recharging their internet packs (Figure 8).

Figure 8: Amount spent monthly on mobile recharge



For Hema, her work as a SoochnaPreneur requires her to incur expenses which includes recharging her monthly internet packs. Even though she spends INR 250 monthly on the internet pack, she deemed it as a "bit expensive" since it gets exhausted quickly, as compared to the printer cartridge which despite being expensive is changed once in 6-7 months. Similarly, Nisha, Pooja and Meher reiterated that not just buying an internet pack on a monthly basis is expensive but the poor network in their villages makes it hard for them to do their job among other things. Pooja mentioned that after the COVID-19 pandemic, the cost of everything has risen exponentially which is not sustainable. From food to the internet, everything has become expensive and at some point, it will be difficult to afford everything together.

Further, various researchers have studied the role of trust and understanding of privacy in people's usage of mobile phones. Some researches incorporated the aspect of age, arguing that older adults are more likely to experience fear or distrust of technology which may lead to their lack of engagement or nonparticipation (Waycott et al, 2016; Knowles & Hanson, 2018). A few researchers have studied the impact of cybercrime on consumers' trust. Most of these studies have focused on the impact of dwindling consumers' trust on e-commerce platforms (Apau & Koranteng, 2019). Kimpe et al (2021) notes that when users perceive themselves as informed, it often translates into heightened awareness about the severity of the cybercrime. Consequently, higher trust in the safety of the internet is linked to the feeling that one is less vulnerable to cybercrime and the perception that cybercrime is not a severe threat.

> Nisha recalled that she faced a lot of barriers from the families of the women regarding them joining the digital skill training programmes.

From a gendered lens, in our research we found that 98% women mentioned that they have encountered cybercrime where the most common instances are of getting cyber-bullied or money fraud like 'spam calls asking for the OTP impersonating bank personnel' or 'fake online order' and few women even mentioned that they or someone in their family received 'spam marriage proposals with the promise of money'. Such experiences of cyber fraud translate into lack of trust in the system and reluctance towards the digital financial landscape. For instance, when Pooja, a 27-year-old woman from the Alwar district in Rajasthan who has been working with DEF since 2017, was asked about the hurdles she faced in her work as a

> Our survey reveals that women themselves perceive 'immoral and wrong content available online' as one of the most common factors that inhibit their access to ICTs.

SoochnaPreneur that requires her to handle personal data like Aadhar card number of people, she said "*Initially it was really difficult for us to get the women to join the programme. They were reluctant in using the Soochna Kendra. They did not want to share their Aadhar card number with us. They thought we would steal their money.*" When asked how people are so aware about digital fraud and are rather careful, she added, "*There is a village about two kilometres from here. A few people were partaking in digital fraud there. They used to ask for peoples' OTP. Gradually, people started losing money from their accounts. They stole about 2-3 crore rupees.*" However, women were allowed to share their sensitive data and join the programme only after Pooja gained trust of the households, especially the male members. Thus, it is seen that women are often not trusted with making their own decisions because it is assumed that their knowledge about the world and how it works is always lacking.

Women have to ascertain an additional form of social trust which often comes at the cost of their privacy. Our survey reveals that women themselves perceive 'immoral and wrong content available online' as one of the most common factors that inhibit their access to ICTs. Media narratives have given rise to moral panic about the potential risks of usage of ICTs such as exposure to pornography, bullying, violence, and disturbing content (Lim, 2013). Such moral panic is exacerbated in the case of women and young girls which often translates into familial surveillance of their private usage of ICTs. Rao and Lingam (2020) argue that the surveillance of women and young girls' usage of ICTs is due to perception of the online risks which mirrors the risks perceived in the offline world i.e. the fear and anxiety over the well-being, safety and sexuality of women. In other words, the same hegemonic structures that limit Indian women's independent access to public space (Phadke et al., 2011) constrain her online activity. Consequently, it is often the case that women and especially young girls use ICTs at the cost of their privacy which requires social negotiation to gain enough trust of the family. However, it was also found that mobile phones have enabled greater mobility to women since the scope of being reachable and connected allows negotiating with the family's fear about their 'safety'. Like Nisha

says, phones have allowed making real-time calls, so when she is outside, her family can contact her easily and vice-versa. Thus, experiences of cybercrimes, including financial fraud and online gender-based violence, hinders women's usage of their mobile phones to the full extent. Lack of trust in the system due to instances of cybercrime and the vulnerability of sharing data translates into tighter restrictions on how women not just use their mobile phones, but also are made to take their financial and other social decisions, such as sharing posts on social media, often leading to heightened surveillance by family or even self-censorship (Minhaz & Bej, 2022).

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CHAPTER 5

On the Other Side of the Grass: Transcending Divides through ICTs

Abstract: This chapter explores how ICTs enable socio-economic change for rural women, empowering them in entrepreneurship and community leadership. It also examines the impact of COVID-19 on women's engagement with ICTs, highlighting both challenges and opportunities for women's empowerment amidst the pandemic.

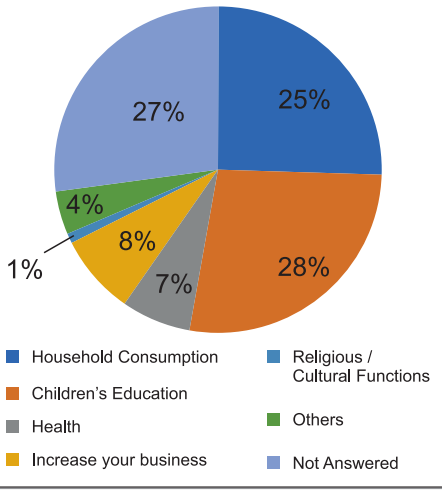
I. ICTs Enabling Socio-economic Change in Self, Family and Community for Women

It is common knowledge that Information and Communication Technologies (ICTs) are facilitating a new socio-economic model of change whereby livelihood opportunities are either directly dependent on their usage or significantly mediated through them (Surugiu et al, 2018). For rural women, ICTs have enabled new job opportunities and opened new avenues to access important and relevant information, entitlements and services. Such new opportunities have allowed many women across age-groups and varied socio-economic backgrounds, who were earlier involved in non-paid household labour, to become an active financial contributor in the household. This has enabled them to acquire a new status within the household i.e. enabled their socio-economic vertical mobility within the household. Studies have shown that earning status of women can play a part in influencing their status within the household, especially when it comes to intra-household decision-making and increased bargaining power (Murshid, 2018). However, Agarwal (2011) notes that earning status of especially rural women is not the only factor influencing their bargaining power, both inside and outside the households, since norms still by and large dictates their social status in their families, communities and in relation to the market and state. On similar lines, Angel-Urdinola and Wodon (2010) highlights that even when women cover most of a household's income, the probability that they will make decisions regarding the use of productive assets such as land and agricultural products (among farmers), remains low. On the other hand, women use their money to better manage household finances via need-based spending on more nutritional food, food security, children's education and in managing health (Reed et al, 2016; Roy et al, 2017; Ghosh, 2021). Hence, it can be argued that women's active and passive usage of ICTs and other economic resources are largely determined within the matrix of patriarchal gender norms. For instance, the need-based access and usage of ICTs are both internally and externally controlled to stay within 'respectable' limits as discussed in the previous chapter. Consequently,

the perceived need of ICTs by women many times remains limited to making calls to maintain familial relationships or accessing educational material or digital transactions.

In our survey, 73% of women said that they are able to make profits in entrepreneurial activities using information and communication technologies. However, it was found that most women use this profit to invest in their children's education, as compared to 25% of women who use it for household consumption. However, only 8% women reinvest it in their business and only 1% use it for religious and cultural functions (Figure, 9).

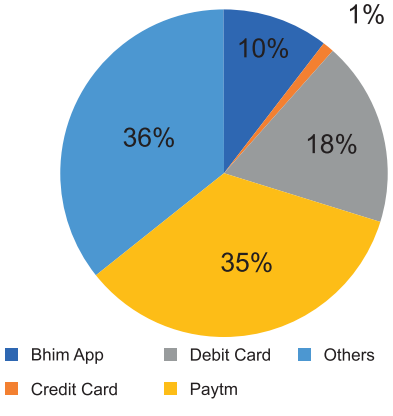
Figure 9: Ways of spending profit/income



Like Hema said in relation to the impact that her improved income status had on her household, *"[Household] income has increased quite a bit. My children are able to get a good education. If I were not working, I wouldn't have moved ahead in life."* While the gendered nature of spending can be seen as reflecting through Hema's words, it is pertinent to highlight that Hema assumes a better social standing and more confidence based on her ability to financially contribute towards the household expenses including her children's education.

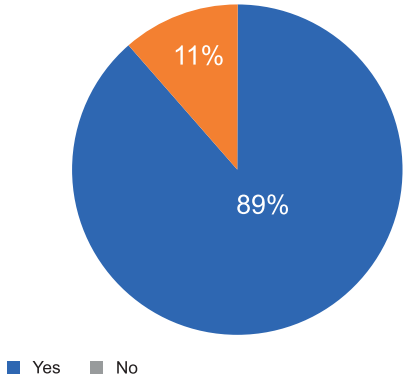
ICTs have enabled convenient ways of doing business for women who own their nano enterprises. Most women rely on their male family members to manage procurement of resources or dealing with clients or managing their finances. However, due to a boom in recent years in more direct and easier forms of communication and marketing through social media and available modes of transaction through digital payment avenues, more and more rural women are being able to become self-reliant in managing their business processes. Most women use PayTM to carry out digital payments as compared to another app and only 1% of women said that they use credit cards (Figure 10).

Figure 10: Means of making digital payments



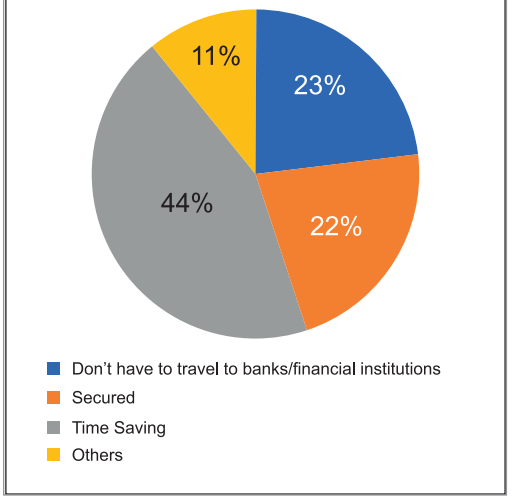
Since most women use digital payment services through various mobile wallets or UPI apps, they agree that digital payment services have made their lives easier (Figure 11) mainly because it saves time albeit for other reasons (Figure 12). Like Pooja mentioned, women owning nano enterprises in her village have started using digital transaction apps which has made *"len-den"(give and take)* easier.

Figure 11: Digital Payment Made Life Easier or Not



In talking about her experience of working with the rural women in Nuh who own nano enterprises such as beauty parlours or tailoring shops or grocery shops, Nisha says, *"The women entrepreneurs with whom I work, I've seen how much they have benefitted [by usage of ICTs]. Even though they work from home, technology has opened new avenues to be independent. But yes, there has been an increase in women's mobility. Restrictions are easing up."*

Figure 12: Benefits of digital payments



She further adds that earlier women used to stay at home only and did not use smartphones so often, but things are changing. She says, *"There is a woman entrepreneur in our village. She has a small shop. After the [digital skill] training she has been able to sell her products, talk to the customers and traders directly through WhatsApp. She now uses Google Pay and PhonePe to make transactions. She is grateful for these digital services. Earlier it used to take her a lot of time to sell her products because the whole process was very long and manual. Now she can manage these processes from her home. Earlier only the cost of travelling was very expensive. But now it has become very economical for her to run her business."*

While Nisha shared instances of women who actively use ICTs to facilitate their business processes, Awanti who runs her own tailoring shop in Nuh and is a passive user of ICTs said that she only accesses YouTube with the help of her son to

> It was seen that male household members (Father, Husband, Son) generally have control over the finances of their female family members (Mother, Wife, Daughter) through access to their bank accounts.

search for new designs. Moreover, while she also receives her payments on digital transaction apps, her son and husband manage the finances. Many women-centric studies have focused on the question of financial control and dependencies in marriage and its implication on the relationship. Papp et al (2009) highlights that marital conflicts about money are more pervasive, problematic and recurrent and remain unresolved, despite including more attempts at problem solving. Further, Alsemgeest and Grobbelaar (2015) have shown that both men and women consider men to be better managers and decision makers of household finances, including the wife's income. Their study indicates that: 1) women lack self-confidence regarding their ability and knowledge of financial management; 2) men have little confidence in their wife's spending sensibility, especially when it comes to differentiating between need-based spending and luxury-spending. However, in the context of our research, it was seen that male household members (Father, Husband, Son) generally have control over the finances of their female family members (Mother, Wife, Daughter) through access to their bank accounts. Hence, while women are increasingly using digital means for transaction purposes related to their household and enterprise needs, they have mediated access to their own money pool via the men in their homes.

Moreover, ICT mediated jobs such as that of SoochnaPreneurs (Information Entrepreneurs) have enabled many rural women to achieve social mobility within their communities. Given that majority of India's rural population suffers from lack of access to meaningful connectivity and digital skills, which inhibits their timely access to information and application to relevant government entitlements and benefits, the SoochnaPreneur model of entrepreneurship has allowed many rural women to become centrifugal figures within their communities to deliver crucial need-based information, required digital skills and access to entitlements. These women have the requisite digital skills and access to networks which is required to deliver such services. For women like Pooja and Hema, such an opportunity has changed how they engage with ICTs itself. Their work requires them to be

> The SoochnaPreneur model of entrepreneurship has allowed many rural women to become centrifugal figures within their communities to deliver - crucial need-based information, required digital skills and access to entitlements.

adept at using these technologies to access relevant information that is required by their community members and in the process, they have also become mediators of digital skills for other women to whom they impart the training. For instance, Hema says, *"After learning these [digital] skills myself, I went ahead to teach them to other women in my community…I had to go from house to house to teach these women about digital skills. I told them about the benefits of digital skills. Whatever I learned while working with Digital Empowerment Foundation, I taught them as well. For example, how to benefit from government schemes, how to connect with Wi-Fi, how to apply for Aadhar card and other IDs. Such skills have helped them with other skills like sewing."* Hema also mentioned that digital technology has allowed women with the requisite digital skills to be independent in accessing public entitlements and benefits directly without relying on a male counterpart. This is because without such access, one needed to travel long distances to get the required information as well as apply for the entitlements, and men were required to take care of such responsibilities.

Pooja on the other hand says that people in her village come to her with grievances regarding lack of access to public entitlements and benefits (which they require to sustain to their households). Consequently, she is required to approach government officials and hold them accountable for the villagers' sake. The responsibility has allowed her to carve spaces of negotiation for herself that requires appropriate mediation through technology in order to access information pertained to each and every beneficiary and reach out to relevant authorities both online and offline. Moreover, Pooja is also responsible for digital skill training with the women in her community. This has allowed her to understand the issues and opportunities that rural women face in their access and usage of ICTs. She is able to dissect the nuances of their stories, to articulate the issues which require solution and thereby becoming an important part of the process involved in addressing those issues. It must be highlighted that Pooja's position as a SoochnaPreneur has engendered

> Even though the pandemic negatively impacted women's livelihood to a great extent, access to ICTs allowed many to stay afloat by remotely managing their businesses.

a newfound self-confidence in her, enabling her to become a community leader whom people look up to.

II. Impact of COVID-19 on Women's Engagement with ICTs

During the COVID-19 pandemic, many people lost their jobs. Women have been particularly affected by this both directly and indirectly. Various studies have shown that in India, Covid induced lockdowns from March 2020 have put women's already poor job security at even greater risk. Women entrepreneurs were greatly affected as compared to men, since they are observed to suffer more from vulnerable situations (Alon et al, 2020). As per a report on the gendered impacts of COVID-19,[1] within a month of the lockdown, 37.1% of women lost their jobs, versus 27.7% men. Despite employment rates recovering after ease on trade and mobility restrictions, the gender distribution had changed, as there were 3.5 million fewer women employed. Rural female employment experienced a dip from 29.8 million in March 2020 to 17.8 million in April 2020, i.e., by 40.2% vs. 25.5% for men.

When asked about women's usage of technology during COVID-19, while some women responded positively saying that technology helped them stay connected as well as access relevant information and services, many women recalled that since they fell into a financial crisis, technology was not of much help. Pooja narrated her predicament her family faced during the COVID-19 pandemic. She said that due to restrictions on mobility, she fell out of business as a SoochnaPreneur during the lockdown months. Her husband also lost his job as a teacher in a private school. To sustain, she looked for opportunities that would allow her to earn even a meagre income. As a result, she took on the role of Covidwarrior along with other women in her village. As Covid warriors, they were responsible for raising awareness about COVID-19 in the community both in person and through social media. She says, *"how could we have raised our children without that help? Digital technology has so far been helpful and convenient"*.

Hema, on the other hand, recalled that

1 Nikore, M., Prabhu, P. & Ganesh, C. (2021). The Gendered Impact of COVID-19. Veritas by Gokhale Institute of Politics and Economics. Access at: http://gipe.ac.in/wp-content/uploads/2021/02/Veritas-2021.pdf

without access to ICTs, it would have been very difficult to manage social distancing and yet avail benefits from public schemes and entitlements. The option to register for vaccination online reduced the burden on people to stand in long queues. During such trying times, she played a central role in facilitating the community members' access to government services directly through online means which was deeply appreciated by everyone. She says, *"The government gave every woman INR 500. I helped them to take advantage of that money without the hassle of standing in long queues."* During COVID-19, while there was fake news, people were also reading about the necessary steps to be taken to stay safe from Covid. As Nisha observed in Nuh, doctors were also counselling villagers through online means, as well as many apps like Aarogya Setu were also being used to understand the transmission. Thus, a social change in the community as a whole could be witnessed where ICTs did not just create an easy avenue to access information but also allowed real-time remote communication with an expert or doctor.

Moreover, even though the pandemic negatively impacted women's livelihood to a great extent, access to ICTs allowed many to stay afloat by remotely managing their businesses. According to Nisha, some women in Nuh shifted their shops to their homes from where they were not just buying the required resources, but also selling products, although various difficulties like lesser customers remained, and so did stepping out of the house to acquire resources. Afshan et al (2021) in their study on the impact of COVID-19 on women-owned small enterprises in both rural and urban Pakistan highlights that the pandemic was a difficult time for these enterprises to survive. Women suffered from the double burden of managing their household and running their business which caused them severe distress. Most women resorted to managing their businesses remotely by completely shifting to online practices. However, changing their strategy in lieu of the pandemic has transformed the way many of these women do their business.

During the COVID-19 lockdown as schools and educational institutions physically shut off their campuses, education moved online and only those with the privilege of having access to a digital device were able to attend classes. This impacted the processes in which households functioned and forced the members to adapt to significant changes. However, as mothers, women had to renegotiate for their spaces within the household. Meher, a 37-year-old homemaker who hails from the Bharatpur district in Rajasthan, reiterated out of frustration that she wished her two children go back to school. As per her, the online classes completely wasted their time since they engaged in "*badmaashi*" (naughty behaviour) more than studying. However, as the unique case of Hema highlights, these remote classes made learning flexible even for those who otherwise would not have access to education. She said that when her children were

attending classes, she used to sit with them and learn something new as the teacher explained the concepts very well. On the other hand, Pooja recalls that after her husband lost his job, he shifted to taking online tuitions which contributed in keeping the household financially afloat.

In many ways, the COVID-19 pandemic has restructured and reshaped women's labour including both paid and unpaid care work. Bhattacharjee and Belur (2021) have noted this restructuring occurring in relation to ICTs through the concept of 'intimacies'. They understand intimacies as an analytical category and organisation principle structuring sexuality, family, culture and domesticity among other aspects of identity and life, which flows through various systems of power like state, economy and community. Their analysis of rural women's engagement with localised technological infrastructure during COVID-19 highlights that: 1) women have intimately engaged with the infrastructure through mediums such as smartphones to gather information and leisure; 2) women have meaningfully used technology to maintain intimate relationships; and 3) women have relied on the medium of ICTs to build community intimacy or public intimacy by enabling access to information at the community level. In that regard, community networks and community radios in India, while producing labouring bodies, leaves a scope for development of newer forms of intimacies for women, which are not pre-determined and addresses the affective needs of the women. Yet, within these new possibilities it is required to critically engage with the question of politics of gender which is reproduced even in autonomous and decentralised technologies and networks (Belur & Brudvig, 2021) because it largely determines women's active and passive engagement with technologies. Therefore, the burden of gendered labour and critical intimacies needs to be kept in purview while engaging with the subject of women's engagement with ICTs that is mediating aspects of their identity as flowing within and through the institutional systems of power at all levels of the society.

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CHAPTER

6

Conclusion

Abstract: In conclusion, we recap the major empirical findings of the report in this chapter and affirm that digital technology holds the capacity for a wide-spread positive social change in terms of creating avenues for gender equity. However, an innovative theoretical approach is needed to study gender equity, lest it falls into narrow reductionisms.

In India, various socio-economic and political factors play roles both hindering and facilitating women and girls in effectively utilising ICTs. Family and community institutions serve as primary gatekeepers, significantly influencing women's access to connectivity by providing support and encouragement. This influence is rooted in a longstanding patriarchal tradition concerned with women's and girls' 'sexual purity', which is regarded as crucial for family and community 'honour'. This cultural norm manifests in practical obstacles, such as discouraging women from utilising public facilities like cyber cafes, typically perceived as male-dominated spaces. Additionally, the gendered division of labour within families, where women are expected to undertake full-time, unpaid domestic and care responsibilities, not only diminishes their bargaining power but also limits their free time for internet or ICT engagement. Consequently, concerns about women's sexuality profoundly shape the digital rights landscape for women in India.

Moreover 'English Language Issues', 'Security and Safety Issues', 'Digital Illiteracy', 'Lack of Personal Device', 'Financial Dependency', 'Illiteracy', 'Misinformation' and 'Immoral and Wrong Content Available Online' are also perceived as inhibiting yardsticks by women themselves in terms of accessing and using ICTs. Based on these perceived factors, our study highlighted that factors like age, literacy & education level, the burden of gendered labour, interpersonal relationships (especially with men), household economic status and social trust are important factors that inhibit as well as facilitate women's access to ICTs and determine the nature of their usage. Another crucial element has been the infrastructural lag in localities and heightened cost of network and internet services which makes it difficult for women and girls to adequately make use of the available digital services, even with personal financial resources in hand. However, none of these factors are accounted for in isolation as they intersect with each other to create suitable or unsuitable situations for women to access ICTs and use them.

Further, we have also argued that the approach of understanding women's non-usage of ICTs through the lens of 'technophobia' risks individualising the problem while taking away the responsibilities from structures such as the family, the community, corporates and states

Women's usage of digital technology can harness a positive impact in terms of gender equality in various ways, such as – opportunity for economic and professional growth, exercising right to freedom of speech and expression, engendering peace or social justice towards various rights, advancing socio-economic upliftment of community

in institutionalising the Gender Digital Divide. Consequently, the very imagination and the design of most social projects often lack a nuanced gendered dimension. Its success feeds off of the existing power imbalances in society. Yet, it must be emphasised that women's usage of digital technology can harness a positive impact in terms of gender equality in various ways, such as – opportunity for economic and professional growth, exercising right to freedom of speech and expression, engendering peace or social justice towards various rights, advancing socio-economic upliftment of community etc.

To holistically understand Gender Digital Divide, it is pertinent to locate women's and girl's relationship to technology by not just locating the inhibiting and facilitating institutions and structures but simultaneously understanding how they actively and passively negotiate within these institutions and structures to create intimacy with the technologies that they desire, need or want. In doing so, we have tried to establish the technologies as both objects in itself and a mediating object that serves other socio-economic, cultural and political purposes. The gendered negotiation for the digital technology was particularly heightened during the COVID-19 pandemic lockdown where entire households were subjected to acute financial, economic and social distress which led to certain positive social changes in terms of the women's socio-economic status within the family and the community. This was particularly seen in the case of those women whose work relied on the usage of ICTs despite the onus of unpaid labour and care work heightening in most cases, if not becoming more stringent.

Finally, we argue that digital technology holds the capacity for a wide-spread positive social change in terms of creating avenues for gender equity. But an innovative approach is required to develop the transpiring socio-cultural changes

which build on existing concepts such as that of 'technophobia' and extend them and view them in a new light. This is especially required because the current policies, corporate investment and efforts of the civil society towards digital rights for gender equality are driven within a narrow understanding of the issue. We also hold that socio-economic, political and other factors cannot be seen in isolation from each other and within an integrated and inclusive approach, the infrastructure and architecture of ICTs needs to be adequately taken into account.

CHAPTER 7

Recommendations

Abstract: The final chapter provides recommendations by DEF to address the Gender Digital Divide in India, focusing on online safety, scholarships for women in STEM, and women-led Common Services Centres (CSCs). It advocates for legal reforms, educational initiatives, and supportive policies to empower women in technology and ensure their active participation in the digital space.

Till now, we have established the Gender Digital Divide in the Indian context as an interplay of factors, a problem beyond mere access to ICTs and the technical skills to operate the same. A deep dive into this interplay has led us to theorise about the distinction between Passive Users and Active Users of Technology.

The attempt of such a publication is, then, to also offer sustainable solutions to ensure that a large mass of Passive Users actually shift to becoming Active. These solutions are offered to governments, corporates, civil society and all stakeholders who have the power to influence systemic level change to ensure meaningful access to technology and its active use.

1. Online Safety against GBV and Financial Scam:

The study highlights that women themselves perceive 'immoral and wrong content available online' as one of the most common factors that inhibit their access to ICTs. It was also found that 98% women have encountered cybercrime where the most common instances are of getting cyber-bullied or money fraud like 'spam calls asking for the OTP impersonating bank personnel' or 'fake online order' and few women even mentioned that they or someone in their family received 'spam marriage proposals with the promise of money'. Such experiences of cyber fraud translate into lack of trust in the system and reluctance towards the digital financial landscape

According to various reports, women are more likely to be targeted by cybercriminals than men. They are not only subjected to different forms of gender-based violence but remain highly susceptible to financial and identity fraud.[1]

It is crucial to recognise that legal frameworks can provide redressal mechanisms and be punitive in nature but public education and awareness programmes are necessary in order to bring about cultural shifts that can make virtual spaces safe for women (Kosovic, 2014). Further, the accountability of the sexist nature of content uploaded and its moderation must be upon the various social media platforms as well. Legal frameworks must hold them responsible.

1. XIOTZ. (2024, February 11). Top 10 Cyber Crime Against Women. XIOTZ. Last Accessed on: 3-7-2024 https://xiotz.com/top-cyber-crime-against-women/#:~:text=Women%20are%2027%20times%20more,as%20hacking%20and%20identity%20theft.

Having robust grievance redressal mechanisms for women and members of the community aggrieved by cyber frauds and sexual nature of crimes, must exist at central, state and local levels as well.

Having robust grievance redressal mechanisms for women and members of the community aggrieved by cyber frauds and sexual nature of crimes, must exist at central, state and local levels as well.

In addition to similar investments in educational programmes, policy frameworks should encourage and focus on infrastructure and tools that are built with feminist principles and politics. Such initiatives go a long way in furthering the feminist movement by providing material aid, labour and educational avenues and spaces of solidarity. Feminist autonomous infrastructure of this kind is often decentralised and rooted within grassroots movements.

2. Scholarships for Women in Technology/ STEM

The report highlights that ICTs can enable women to not just become financially independent but it can further engender leadership roles for them in their respective communities. Hence, based on the observations stated in the report, it can be argued that women can become active in finding logical and tech-oriented solutions in their community which can go a long way in their empowerment. However, one of the reasons why women are held back from engaging with tech is their lack of STEM-oriented thinking and rationalisation. Hence, it is recommended that in addition to the various trusts, foundations and CSR wings of private organisations, it should be the responsibility of the Union, State and Central governments to ensure scholarships for women in Technology and STEM. While these programs are definitely on the rise, the responsibility of their provision, especially to women from marginalized backgrounds and rural areas must lie on the government.

It is also important to note that while policies and programmes that promote the participation of women in STEM disciplines might contribute to adding more women to the workforce, technical jobs and workplaces need to

be more welcoming and supportive of women through mentorship, networks and strong anti-harassment policies. The project of designing technology can only begin when it understands and centers women and their lived experiences.

3. Women-led CSCs/ Sewa Kendras

The report highlighted that if given appropriate training and confidence, women can use ICTs for entrepreneurship as well as take on other important roles in the community. Under the government's efforts in spurring women-led enterprises, we recommend that one of the interventions could also be driven towards incubating the setup and operations of Common Services Centres (CSCs) and/or Sewa Kendras by women. Apart from being a great source of livelihood for women in both rural and urban settings, this could also result in creating a safer space for women applicants to increasingly visit the Centres to avail various digital services and welfare entitlements. Women community leaders could particularly benefit from such programs, and support local governments to undertake targeted outreach and applications of beneficiaries under various schemes.

Encouraging existing women-led ICT centric enterprises must also be the priority of the government. The deep impact of COVID 19 on businesses, especially those operated by women must also be accounted for in such interventions by the government.

4. Going Beyond English

It was found during the survey that the English language posits as a critical barrier to ICTs for women. Hence, it can be recommended that more locally made digital content in native languages of people from different states is promoted. This can include educational content. States should be empowered and enabled to develop efficiency of the women in using ICTs by focusing on the language barrier.

Reference:

- Kosovic, L. (2014, December 8). Virtual is real: Attempts to legally frame technology-related violence in a decentralized universe. GenderIT.Org. [Accessed at : https://www.genderit.org/articles/virtual-real-attempts-legally-frame-technology-related-violence-decentralized-universe]

Sarbani Banerjee Belur, Tuisha Sircar and Ananya Iyer

AN EXPLORATORY STUDY OF **ADOPTION AND USAGE OF TECHNOLOGY BY RURAL WOMEN FOR ENTREPRENEURSHIP AND EMPOWERMENT**

The Gender Digital Divide pushes millions of women away from the empowerment that the ICT revolution has brought in the last three decades. Especially in rural India, where the expansion of digital literacy is only a relatively recent phenomena, how have women and girls fared? This report intends to answer this question and provide concrete solutions for a more equitable digital future.

Applying a socio-technical lens, this study focuses on women and girls from across rural India who come from low levels of socio-economic status, literacy, and digital literacy. By looking at the structures of the family, community, corporates and states, the study navigates the distinction between active and passive women users of ICTs, and what inhibits those in the latter camp from joining the former one and becoming capable of using digital technology for entrepreneurial needs.

The authors provide insightful analysis through data collected from an India-wide survey, coupled with narratives of women and girls empowered through ICTs, especially those associated with DEF's SoochnaPreneur programme. This report offers not just critical theoretical framing, but also practical recommendations to transcend the Gender Digital Divide.

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