Digital Fluency Quotient: Assessing Consumption Maturity of Internet users in Rural and Suburban India

Nilabhra Auddy

Intern, National Centre for Good Governance

Batch 2023

Acknowledgement

I extend my heartfelt appreciation to the National Centre for Good Governance (NCGG) and the esteemed Director General, Shri V. Srinivas, for their generous provision of opportunity and resources, integral to the success of this research project. A special acknowledgment is extended to Mr. J Srinivas, whose astute mentorship and guidance served as the cornerstone in shaping the trajectory of this study. The unwavering support provided by both NCGG and Dr. Josyula Srinivas along with our Internship coordinator Dr. Gazala Hasan has been indispensable to the attainment of research objectives. Their commitment to fostering a conducive environment for scholarly pursuits has significantly enriched the quality and depth of our project. Gratitude prevails for the invaluable contributions from these sources, which have undoubtedly contributed to the success of our research endeavors.

Abstract:

This research establishes the transformative role of the internet as a catalyst for socio-economic development, particularly in India. By developing an index that assesses the status and growth potential of the internet in different regions, considering infrastructure, network speed, and consumption maturity. In populations with high illiteracy rates and deeply ingrained social prejudices, consumption maturity emerges as a significant determinant of internet acceptance Comparing diverse sites,These findings along with the index itself can provide valuable insights for policymakers and stakeholders in formulating targeted strategies to unlock the digital potential of different regions in India.

Key words: Internet, Index, Consumption Maturity, Development

Introduction

The Internet has emerged as a transformative force, revolutionizing various aspects of our lives. While its impact is evident in urban centers, the potential for the Internet to drive rural development, particularly in fields of innovation driven entrepreneurship is immense. In 1937, Ronald Coase—who would receive the Nobel Prize in Economics in 1991—published “The

Nature of the Firm," which asked why firms exist. Even though economics considers the market the most efficient way to organize economic activity, large companies tend to operate in a self-contained command-and control environment. What Coase realized was that using the price mechanism incurred a number of additional costs, such as the effort of finding buyers or suppliers, and negotiating contracts and enforcing them. As long as the cost of making an exchange of an intermediate good or service in the market is larger than the profit from that exchange, it is rational for a firm to produce it in-house. Most of these Coasian transaction costs stem from the costs of acquiring and sharing information. Many years later, the internet and other digital technologies have vastly reduced many of these costs, with major implications for market and nonmarket exchanges among businesses, people, and governments. It is well estabilished now that through internet a new pathway for development might take place facilitating not just the present but paving better future for the upcoming generation which at this instance not only addresses the need of a growing population but also the of a civilization in crisis marked by self-harnessed battles of global economic recession and climate change.

India has seen significant development and internet penetration over the past few years. As of 2021, India has a population of approximately 1.39 billion people, with an estimated 624 million internet users (Global overview report, 2021). This represents a penetration rate of around 45%, which is a significant increase from just a few years ago. However for internet to be a transformative force, it is highly pertinent for mass acceptance and usage even in rural corners of the country. A major hindrance for it to facilitate development is acceptance of smart phones as well as consumption maturity of the people using it. The research delves into the intricacies of the same, and what role can innovation play to surpass the problem and nurture entrepreneurship.

Literature Review

International

Melhem, Morrell, and Tandon (2009) , Gelb and Clark (2013), Varian and Farrell (2004) in "The World Development Report 2016" tried to show the impact of the internet and digital technologies on economic development. Rooted in Coasian economic principles, it emphasizes the substantial reduction in transaction costs, especially in information acquisition and sharing. This reduction

operates through three channels: overcoming information barriers, boosting efficiency in existing transactions, and fostering new business models with minimal transaction costs, driving automation and innovation. The report underscores the internet's role in promoting global inclusion, efficiency, and innovation, reshaping interactions across businesses, individuals, and governments worldwide.

“How the Internet and Data Help the Developing World (2014)” a commentary by Fred Dews where Meltzer(a fellow in Global Economy and Development) emphasizes the transformative impact of the internet on small and medium enterprises (SMEs) and firms in developing countries, enabling them to become international traders. The discussion underscores the benefits of internet penetration, positively correlating with increased exports and foreign direct investment. The report also highlights challenges faced by SMEs in terms of accessing information and identifies the need for updated international trade rules, particularly in the movement of data across borders. The discussion touches on language barriers, trust issues, and the impact of NSA surveillance on international trade.

“The Internet and Sustainable Development (June, 2015)” by ‘The Internet Society’ which emphasizes the internet's pivotal role in sustainable development, asserting its unique potential for innovation, economic opportunity, and social inclusion. As the United Nations prepares to adopt a Post-2015 Development Agenda centered on Sustainable Development Goals (SDGs), the briefing underscores the internet's transformative impact since the 1990s, affecting developed and developing nations alike. With approximately 40% of the global population using the internet, the Internet Society advocates for a multistakeholder partnership to integrate the Information Society with sustainable development, outlining a framework to unlock the internet's developmental potential and address core objectives of economic growth, social inclusion, and environmental sustainability.

Abdul Kareem Abdulghani, Managing Director & Head of Projects for InvestGlass in an article “How internet access can boost economy and social development (2019)” highlights the potential of the internet to deliver the knowledge economy, reduce poverty, and foster long-term economic and social progress. The role of governments is deemed crucial in recognizing and promoting internet access for healthcare, education, and social services, with an emphasis on innovative

solutions tailored to specific communities.The article also emphasizes the digital divide in African countries, attributing it to the high cost of internet access. It underscores the transformative impact of internet connectivity on economic and social development, particularly in developing nations.

James Manyika and Charles Roxburgh in the article “The great transformer: The impact of the Internet on economic growth and prosperity (2011)” emphasizes the transformative impact of the Internet on global economies. It reveals that the Internet accounts for 3.4% of GDP in major economies, contributing significantly to economic growth. Large enterprises benefit, but the greatest winners are individual consumers and small entrepreneurs, with the Internet fostering job creation and business innovation. The report highlights the Internet's role in driving economic modernization and business transformation. Looking ahead, it predicts continued growth, urging governments to foster competition, encourage innovation, develop human capital, and invest in infrastructure to maximize the Internet's potential benefits.

The paper “The Internet as a Tool for Social Development” by Paula Uimonen explores the potential of the Internet in promoting sustainable and equitable development in Third World countries, emphasizing its role in addressing societal needs. The analysis covers the Internet's impact on education, health, and political processes, emphasizing the importance of adapting it to benefit vulnerable groups. The author argues that for the Internet to be a tool for social development, it must address challenges faced by the least privileged, focusing on poverty alleviation, improved healthcare and education access, resource conservation, and enhanced participation in decision-making. The paper urges a shift in measuring success from sheer connectivity numbers to accessibility and contributions to social progress.

Ibrahim Poda,John W. Murry, Jr.,Michael T. Miller in their paper “Internet use in the developing world: A case study of an African university” focused on internet usage perspectives in Burkina Faso, particularly within Ouagadougou University's Humanities Faculty. Participants, selected for their technology interest and computer knowledge, were queried on internet perceptions, encouraging and discouraging factors, its role in learning, and strategies for enhanced technology management. The research revealed insights into the current status of internet knowledge and utilization in the region. Six recommendations were proposed to improve practices at the post-secondary level, acknowledging the vital role of appropriate facilities and technology management in fostering greater internet usage in less developed nations.

“The Internet: An Unprecedented and Unparalleled Platform for Innovation and Change” by Lynn St. Amour states the Internet, a global innovation platform, has transformed society by connecting people, businesses, and governments. Its open architecture, emphasizing freedom and sharing, has sparked unprecedented changes, driving economic growth, fostering collaboration, and influencing governance structures. Initiatives like Research4Life and the Millennium Villages project highlight its positive impact on global well-being. The McKinsey report emphasizes its substantial contribution to economic growth. As a catalyst for change, the Internet's potential is immense, necessitating open collaboration and effective policies for ongoing evolution.

Shing H. Doong, Shu-Chun Ho in their paper “The impact of ICT development on the global digital divide” tried to explore the impact of Information and Communication Technology (ICT) on the global economy and quality of life, emphasizing its role in creating livelihoods and reducing poverty. With a focus on the digital divide, the research examines changes in ICT development among 136 countries from 2000 to 2008, utilizing a framework involving data clustering and multi-dimensional data ranking to represent a country's ICT development level. The methodology allows for the exploration of ICT development paths and includes panel data analysis based on gross national income and fixed effects.

“The Internet and the Pandemic” by Colleen Mcclain, Emily a. Vogels, Andrew Perrin, Stella Sechopoulos and Lee Rainie did survey on the impact of the COVID-19 pandemic on Americans' use of technology reveals a complex relationship. While 90% of respondents find the internet important during the pandemic, 40% report technology-induced fatigue, particularly in video calls. Notably, 30% of parents find online learning challenging, contributing to the "homework gap." Digital divides persist, with concerns about internet affordability and connection issues, especially for lower-income individuals. The survey highlights evolving attitudes towards technology in education, the persistence of tech-related challenges, and varying experiences across demographic groups, emphasizing the need for targeted policies and interventions.

The paper “How internet helped firms to cope with COVID-19 (2022)” by JoëlCariolleand Florian Léonyried to examine the impact of firms' pre-existing familiarity with digital technologies on their ability to navigate the COVID-19 pandemic. Analyzing data from 31,387 businesses across 39 economies, the findings emphasize that firms with prior website usage demonstrated greater

resilience. This positive effect primarily manifested through the adoption of adaptive measures like home-delivery services, online sales, and remote work. Notably, the advantageous impact of prior internet use did not stem from improved access to external financial resources, whether public (government support) or private (bank loans).

The paper “Internet Usage During and Post COVID-19 Pandemic: A Study onthe Students of Information Science and Library Management in the University of Rajshahi, Bangladesh (2023)”by Zihadur Rahman, Md. ArmanulHaque, DilAfrozBente Aziz investigates the post-pandemic internet usage patterns among students of Information Science and Library Management at the University of Rajshahi, emphasizing aspects like internet usage rate, career and academic development, and the effectiveness of online classes. Utilizing a questionnaire-based data collection method and analyzing responses with SPSS and Biblioshiny software, the research reveals that students, with an average age of 23, utilized the internet productively during the pandemic. Despite some aimless usage, students significantly developed their careers and acquired additional knowledge, including language learning and IT skills, through online resources. The study acknowledges both positive and negative impacts of internet usage on students' daily lives during COVID-19, particularly noting the prevalence of online activities among respondents from rural areas.

National

Initiatives like the BharatNet Project with 1.94 lakh villages connected, the project leverages Optical Fiber Cables (OFCs) for high-speed broadband, facilitating internet inclusiveness. To bridge the last-mile connectivity gap, the government introduces the BharatNetUdyami project, employing Village Level Entrepreneurs (Udyamis) to extend fiber connections to every rural household. Partnering with Bharat Broadband Network Ltd (BBNL), this initiative has already covered 60,000 villages, providing 3,51,000 fiber connections. Polycab Telecom, with extensive experience, plays a crucial role in realizing this vision, contributing to India's digital inclusion.

The paper “Understanding the challenges of 5G deployment in India” by K.P.Gupta tried to show how internet connectivity faces challenges like inadequate electrification and affordability issue in rural India. The emergence of 5G promises high-speed internet, while DSL utilizes existing telephone lines. Satellite internet requires minimal infrastructure, and fixed wireless internet offers convenient installation, making it suitable for areas where wired connections are impractical.

Ramprashanth Ganesan in his article " Digital inclusion in rural India: The key to unlocking India's economic potential(2023)" illustrated that the digital revolution in India, propelled by the Digital India initiative, has predominantly benefited urban areas, leaving rural regions excluded. With only 29% of rural India having internet access compared to 64% in urban areas, this digital divide poses a threat to the country's economic growth. Lack of digital inclusion in rural areas impacts financial services, education, healthcare, and overall economic opportunities. The adoption of digital technologies, especially in financial transactions, education, and healthcare, has the potential to transform rural India, reducing costs, enhancing financial inclusion, and fostering inclusive growth. Bridging the digital divide requires concerted efforts from the government, private sector, and civil society.

A Purple Gazette article "Bridging the Digital Divide: Empowering rural India with internet connectivity(2023)" emphasizes the pivotal role of widespread internet connectivity in rural India for socio-economic development. Despite recent improvements, only 37% of rural areas have internet coverage. Enhanced rural connectivity can drive economic growth, job creation, and business opportunities. The Economic Survey 2022-23 highlights a 200% increase in rural internet penetration from 2015 to 2021, with potential for further growth. Cherian advocates for a converged digital network utilizing fiber, wireless, and satellite technologies, efficient technology-driven solutions, and a specific policy framework to bridge the digital divide and empower rural communities for national progress.

Kumar et al. their paper "A Survey on Rural Internet Connectivity in India" tried to investigate the status of rural connectivity as in India approximately 50% of the population lacks adequate access to digital services.The primary goal is to reduce the digital divide by minimizing network deployment costs and enhancing service adoption rates through diverse technological and economic approaches. This survey seeks to investigate rural connectivity, shed light on use-cases, ongoing projects, challenges, and technologies aimed at improving digital connectivity in rural India. It scrutinizes the strengths and weaknesses of tested technologies and discusses trials conducted both in India and globally. Additionally, the study delves into the potential application of the 6G communication system in rural scenarios in India.

Ivo Ivanov, CEO of DE-CIX International, in his article 'India needs to scale up investments to improve Internet access in rural areas' emphasizes the need for increased investments in India's

internet infrastructure to ensure widespread access. While acknowledging improvements, he notes that less than 30% of rural India has internet access, indicating the necessity for more investment in fiber, mobile connectivity, and edge connectivity. Ivanov advocates for technologies like 5G and Wifi-6, increased investment in data centers, and the establishment of connectivity to Low-Earth Orbit (LEO) satellites to bridge the digital divide. He also discusses DE-CIX's operations in India, highlighting the importance of distributed infrastructure for resilience. Ivanov sees potential in LEO satellite internet provision to reduce connectivity gaps in India.

Shishir Jajoo in his article “How Internet Penetration Is Helping Rural India Grow Digitally” stated that Rural India is experiencing digital growth, outpacing urban areas, with a 13% increase in internet users in the past year. While urban users increased by 4%, rural areas now account for over 38% of all internet users. Initiatives like the "Digital India" program aim to bridge the rural-urban divide, providing digital access to agriculture information, medical assistance, and financial connectivity. The "Pradhan Mantri Jan-DhanYojana" connects homes to the banking system, exemplified by Akodara, Gujarat, India's first Digital Village. Training programs and future technologies like big data and blockchain are expected to further boost digital inclusion in rural India.

Background of the Study

The Internet is a powerful tool that, if leveraged effectively, can be a driving force for rural development. In the realms of education and finance, it has the potential to break down barriers, empower individuals, and create sustainable growth. Governments, non-profit organizations, and the private sector should collaborate to ensure that rural areas are not left behind in the digital era. By harnessing the transformative power of the Internet, we can build a more inclusive and prosperous future for rural communities. India’s mission to be developed by 2047 can only be fulfilled when the development is not in bubbles but at a comprehensive inclusive way reaching corners of the country. Internet will be a formative force, a strong medium to pass on not just information but be a basis of supportive force for rural economy. Education in Rural Areas

Access to quality education is a cornerstone for the development of any community. Unfortunately, rural areas often face challenges such as limited infrastructure, scarcity of

qualified teachers, and lack of educational resources. The Internet has the potential to bridge these gaps and bring education to the fingertips of rural residents.

Firstly, online learning platforms can provide access to a wide array of educational resources. Interactive courses, video lectures, and virtual classrooms can enable students in remote areas to learn from the best educators in the world. This not only enhances the quality of education but also exposes students to a global perspective.

Secondly, the Internet facilitates collaborative learning. Students in rural areas can connect with their peers, share knowledge, and engage in group projects through online platforms. This not only enhances the learning experience but also fosters a sense of community among students who may be geographically dispersed.

Moreover, the Internet can be a tool for skill development. Online vocational training programs can empower individuals in rural areas with practical skills, enhancing their employability and contributing to the local economy.

Financial Inclusion in Rural Areas

Access to financial services is another critical aspect of rural development. Many rural communities lack access to traditional banking services, making it challenging for them to save, invest, and access credit. The Internet can play a pivotal role in addressing these financial inclusion challenges.

Firstly, online banking and mobile payment solutions can provide a convenient and secure means for rural residents to manage their finances. This not only reduces the need for physical banks but also minimizes the risks associated with carrying cash over long distances.

Secondly, the Internet enables access to microfinance and crowdfunding platforms. Entrepreneurs in rural areas can seek funding for their ventures, and individuals can access small loans to start or expand businesses. This democratization of finance empowers local communities and stimulates economic growth.

Furthermore, financial literacy programs delivered through online platforms can educate rural residents on managing their finances, making informed investment decisions, and understanding the benefits of saving. This knowledge empowers individuals to make sound financial choices, contributing to the overall economic development of the region.

Research Problem

Connectivity has a great potential for empowering masses by giving them access to information, public services including those of education, health and financial inclusion. The expansion of broadband in India has not kept pace with the growth seen in mobile telephony. Broadband penetration in India is far from satisfactory limit. Panchyats are the constitutionally managed 3rd tier of Government and key institutions for local self government in the rural areas. Coverage of Panchyats with Broadband Internet is a Government strategy however in many places the same has not been done even though the project of Panchayat internet is over a decade old. In an ever connected world, where information is the new currency, digital divide is a major problem. However it is also to be understood that just providing internet to a region would not help much since acceptance and readiness for the technology is also a major component affecting the impact. In a developing country like India with limited resource and unending priorities, it is highly important for optimizing the resource use for best possible returns. The Internet Consumption Maturity Index helps to assess the adoption and consumption potentiality of a region for development through digital means, thereby acting as a step towards optimization and trying to solve the problem of limited resource, unlimited priorities.

Research Gap

The internet has had a significant impact on regional development in India, particularly in terms of economic and social development. The Internet Index, also known as the e-Readiness Index, is one way to measure the level of regional development through internet infrastructure and services. The e- government readiness index is a composite index comprising 3 sub-indices; the web measurement index, the telecommunication infrastructure index and the human capital index. It is

published by the World Economic Forum (WEF,2021) The index is based on various indicators, including internet connectivity, digital literacy, and the availability of e-commerce and e-government services.

According to the latest data available (2021), the overall Internet Index for India is 43.57, which is considered moderate. However, there are significant variations in internet infrastructure and services across different regions in the country. For example, the state of Delhi has the highest Internet Index score (68.54), followed by Maharashtra (59.47) and Tamil Nadu (51.83). In contrast, states like Jharkhand (23.83), Bihar (22.17), and Assam (20.91) have much lower scores, indicating lower levels of internet infrastructure and services.

While the Internet Index is a useful tool for measuring the level of development of internet infrastructure and services in a particular country or region, it has some limitations that should be considered when interpreting its results: In a country like India, with an etched cultural paradigm, acceptance and consumption maturity plays a great importance in using any new technology let alone accepting it as a medium for development, especially in rural India with marked poverty and illiteracy measuring the adoption rate is of paramount importance. Overall, while the Internet Index is a useful tool for comparing the level of internet infrastructure and services between different countries or regions, it should be used in conjunction with how much people are using and what are they using internet for to get a more complete picture. It is important to note that higher the consumption maturity, higher will be it's linkages in varied sectors such as education, service, innovation, entrepreneurship and so on. Moreover, no quantifiable entity has been done till date to measure the maturity of a region, a greater maturity will lead to a greater acceptance rate thereby the growth potential will be more

Research Methodology

The evaluation of consumption maturity, specifically pertaining to the diverse applications of the internet, lacks a standardized quantitative index. The exact data is not available since screening usage is looked down upon owing to it being an infringement of privacy. Therefore a self declared index to follow up on domains which are being used, is a more reasonable approach. The measurement of this maturity is currently undertaken by assessing the breadth of services or

domains that the local population engages with. The comprehensive coverage spans various domains, encompassing a wide array of services, to capture the extensive range of internet-based activities utilized by individuals.

The data has been collected on site through questionnaire survey at given locations. Samples have been taken and the resultant outcome of Yes-No survey has been marked with ‘Yes’ as 1 and ‘No’ as 0. The sample size for each study area is 100 and all samples were between the ages of 18-55. It has been calculated on the basis of 9 parameters. They are –

1. Communication and Connectivity (WhatsApp, Mail Telegram, Facebook, Instagram etc.)
2. Banking and Finance (Gpay,Paytm, Internet banking, Bank Apps etc.)
3. Entertainment (Youtube,OTTs, Online Games)
4. Skill Courses or Tuitioning (ByJus, Udemy, TutorVista etc.)
5. Online Shopping/Ordering (Flipkart, Zomatoetc)
6. E-Governance (Driving license, kissanvikas apps, PO, Aadhar, Pan Card etc.
7. Jobs and related services (Matrimony sites like shaadi.com, job sites like naukri.com, Linkedinetc)
8. Navigation (Google Maps etc.)
9. Reservation and Bookings (Cabs, Irctc,Oyo etc.)

Study Area:

A total of 4 study areas were chose, each of them having their own distinct characteristics Out of 4, two are statutory towns while rest two are classified villages, thereby showing a dimension of the current status of internet usage. Internet penetration in India is far from satisfactory limit, in rural areas especially coverage of Panchayats with Internet Connectivity has a great potential for empowering rural masses by giving them access to information, public services including those of education, health and financial inclusion.

ITACHUNA

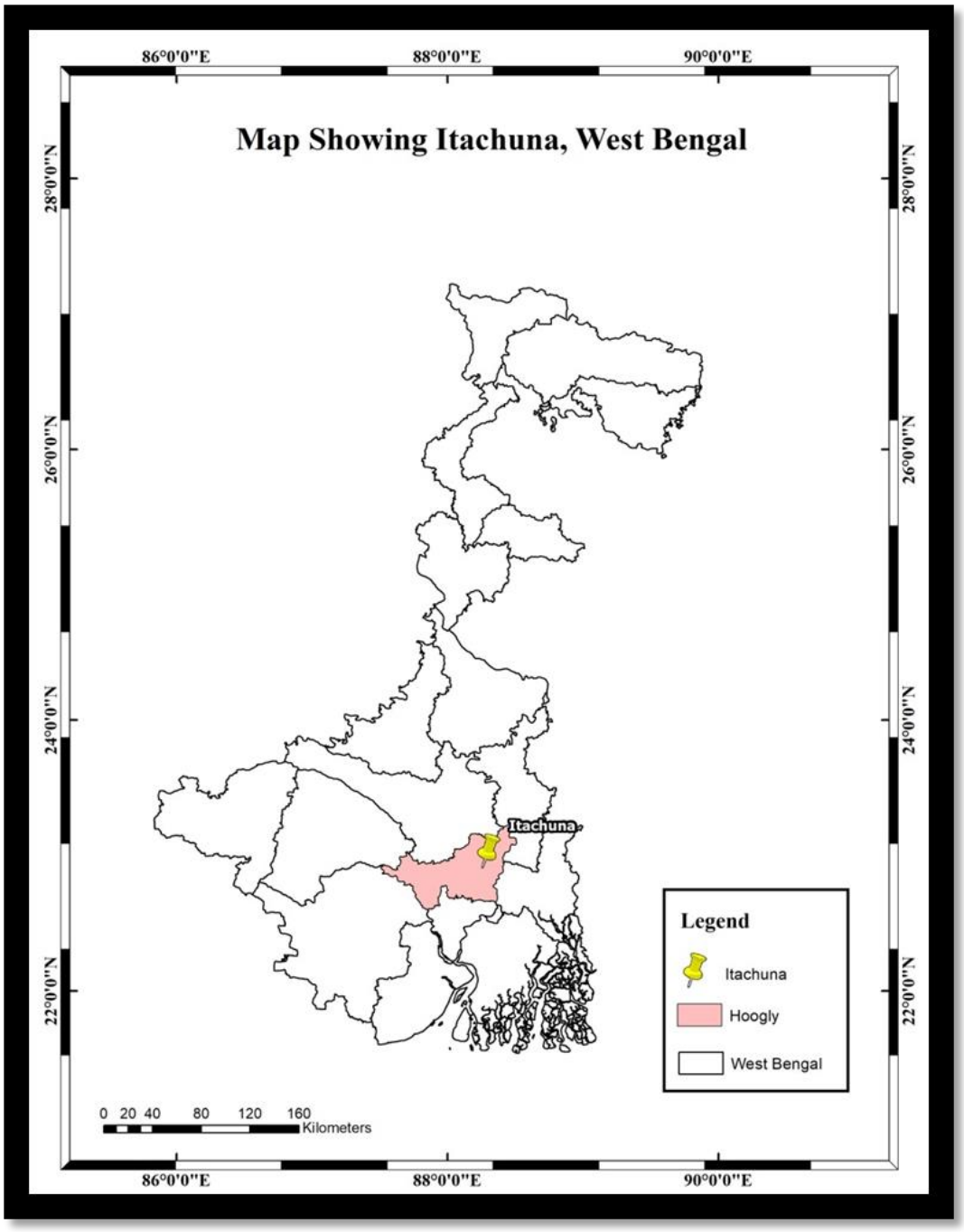
Location and Background

Itachuna is a small village in Hooghly district, which falls under Itachuna-Khanyan gram panchayat in Pandua CD Block in Chinsurah subdivision of Hooghly district in the state of West Bengal, India . The Coordinates of the village 23°2'17" N and 88°18'58" E. As per the 2011 Census of India, Itachuna had a total population of 1,451 , where over 75% of population are literates over 6 years of age. 51% of the population (735) are males while 49% (716) are females. The majority of the village is dominated by agricultural landscape however by primary survey it had been observed that the majority of the population is inducted into the services sector, which well co-relates to the high literacy rate. The village is developed in its kind with having its own railway station, being connected to Kolkata by a 2hr train journey, and primary to college level studies could all be done within reasonable distances of the village.

Justification of the study area

West Bengal has a moderate Internet Index score compared to other Indian states, indicating that the level of internet infrastructure and services in the state is generally better than some other parts of the country. However, there can be significant variations in internet infrastructure and services within a state, and assessing the Internet Consumption Index (ICI) for Itachuna could provide valuable insights into the specific challenges and opportunities in the area.

In addition to its agricultural foundation, the region is characterized by a service-oriented population and is home to a heritagezamindari bungalow turned luxury hotel, drawing a considerable number of tourists to the village. While the area exhibits a certain level of development, the next evolutionary phase is poised to emerge through the integration of the internet. Consequently, this region presents a diverse array of opportunities for the introduction of internet-based initiatives, spanning various sectors that can be strategically leveraged to catalyze further development.



Itachuna in West Bengal

(Source: Prepared by the Researcher, 2023)

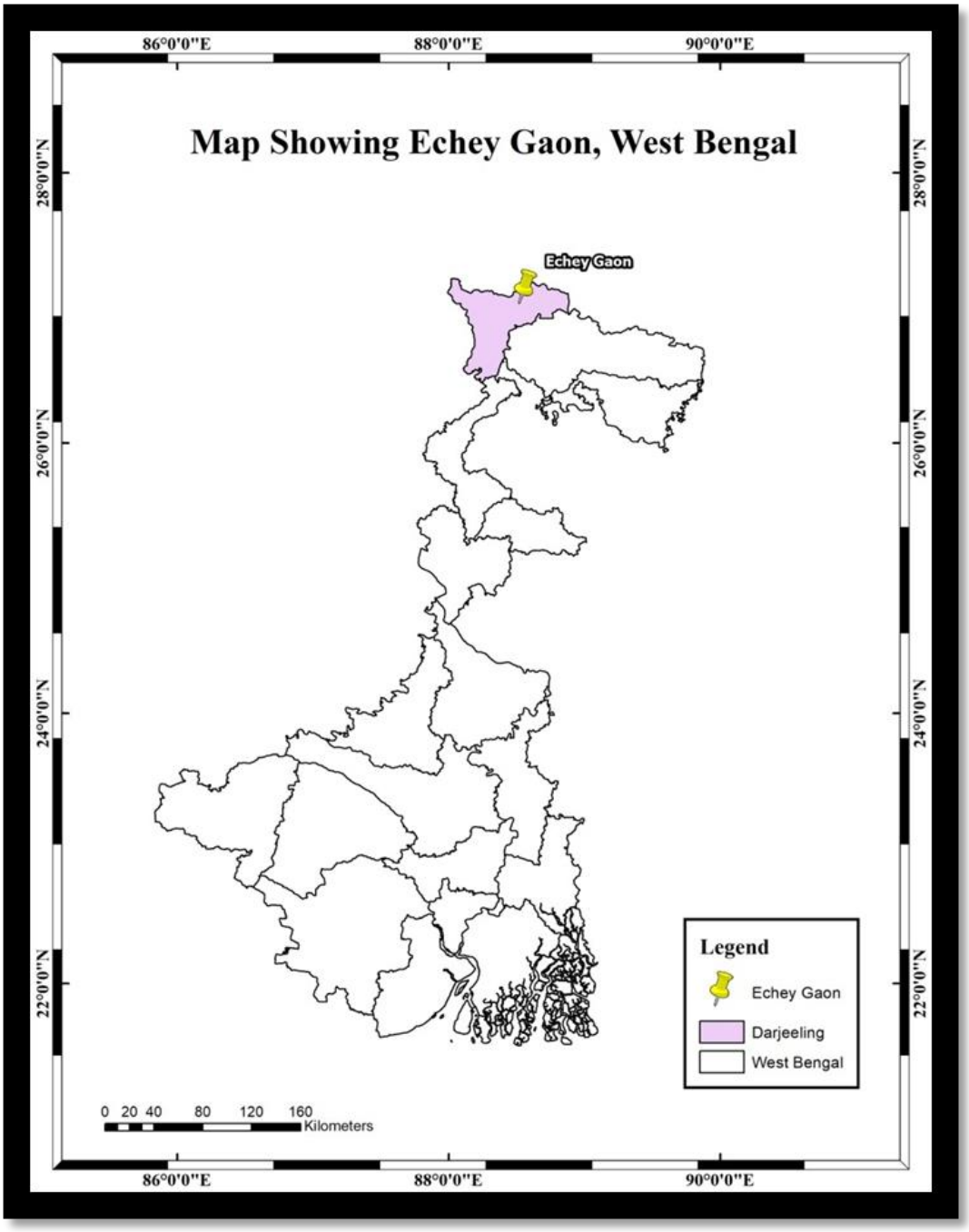
ECHHEY GAON

Location and Background

EcheyGaon is a small hamlet located at a hill near to kalimpong town. It is situated in the Kalimpong II CD block in the KalimpongSadar subdivision of the Kalimpong district of West Bengal, India . It is situated at 5800 ft above mean sea level and has a view of Mount Kangchenjunga and nearby peaks. The village is located at 27°08′01″N and 88°34′32″E. The village is home to around 40 families and is completely a tourist centric village facilitating many trekking routes. The home stay business is the main revenue generating source in the village and agriculture although very limited (often subsistence) comes second. The nearest relatively bigger region with more services and access to market is Alagarah, which is an hour drive from the village. The village got its first electric poles in later half of 2004, and business as a tourism centre started from around 2012-13. However now, a lot of large home stays can be dotted in the village, with a good tourist footfall during trekking season.

Justification of the Study Area

It is a unique case, owing to its relatively isolated location, the village can well be assessed with the Internet Consumption Index (ICI) to unlock the value it might hold to sustain further businesses and overall development of the region. Owing to it being primarily a tourist centric village, Internet plays a paramount role in since, right from advertisements to bookings all are done through this mode in current times. The village acts as an ideal study area where limited population acts as a blessing in disguise since the most accurate results about the population can be computed owing to relatively larger proportion of sample. The ICI Index suits well to these regions since the real potentiality at the current circumstances is reflected through the index, and in a village where internet plays such an important role, the index should ideally help the policymakers to prioritize the policies and promote subsequent developmental activities.



Echhey Gaon in West Bengal

(Source: Prepared by the Researcher, 2023)

KATWA

Location and Background

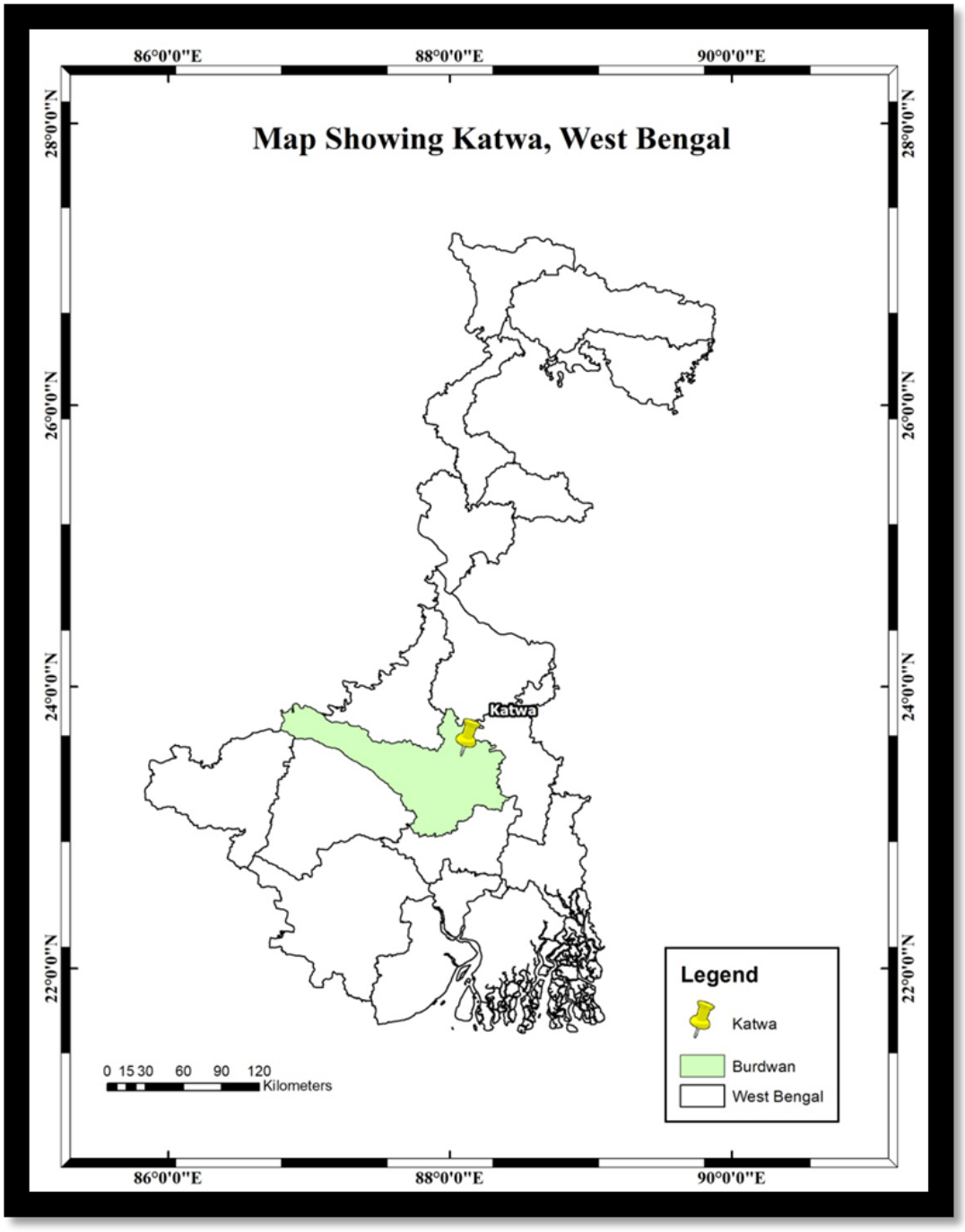
Katwa is a small town located in the PurbaBardhaman district of the Indian state of West Bengal . It was primarily a rural area however now it falls under municipality and can be termed as a peri-urban region. It is located at 23.65°N 88.13°E. It has a population of around 80,000 people, and is known for its historical sites and cultural heritage. It is the headquarters of the Katwa subdivision. As per the 2011 Census of India, 51% of population were males and 49% were females. And around 79% of the population are literates over 6 years.

Justification of the study area

West Bengal has a moderate Internet Index score compared to other Indian states, indicating that the level of internet infrastructure and services in the state is generally better than some other parts of the country.

Assessing the ICI for Katwa would involve evaluating the level of internet maturity and services consumptionof the area. Assessing the Index for Katwa could also help identify potential areas of growth and development. For example, if the index shows higher maturity , businesses could consider establishing online marketplaces or platforms to meet this demand.

Moreover owing go it being a peri-urban region, it can provide for well reflection of peri urban regions, thereby helping us to compare it with other similar counterparts.



Katwa in West Bengal

(Source: Prepared by the Researcher, 2023)

GHATSHILA

Location and Background

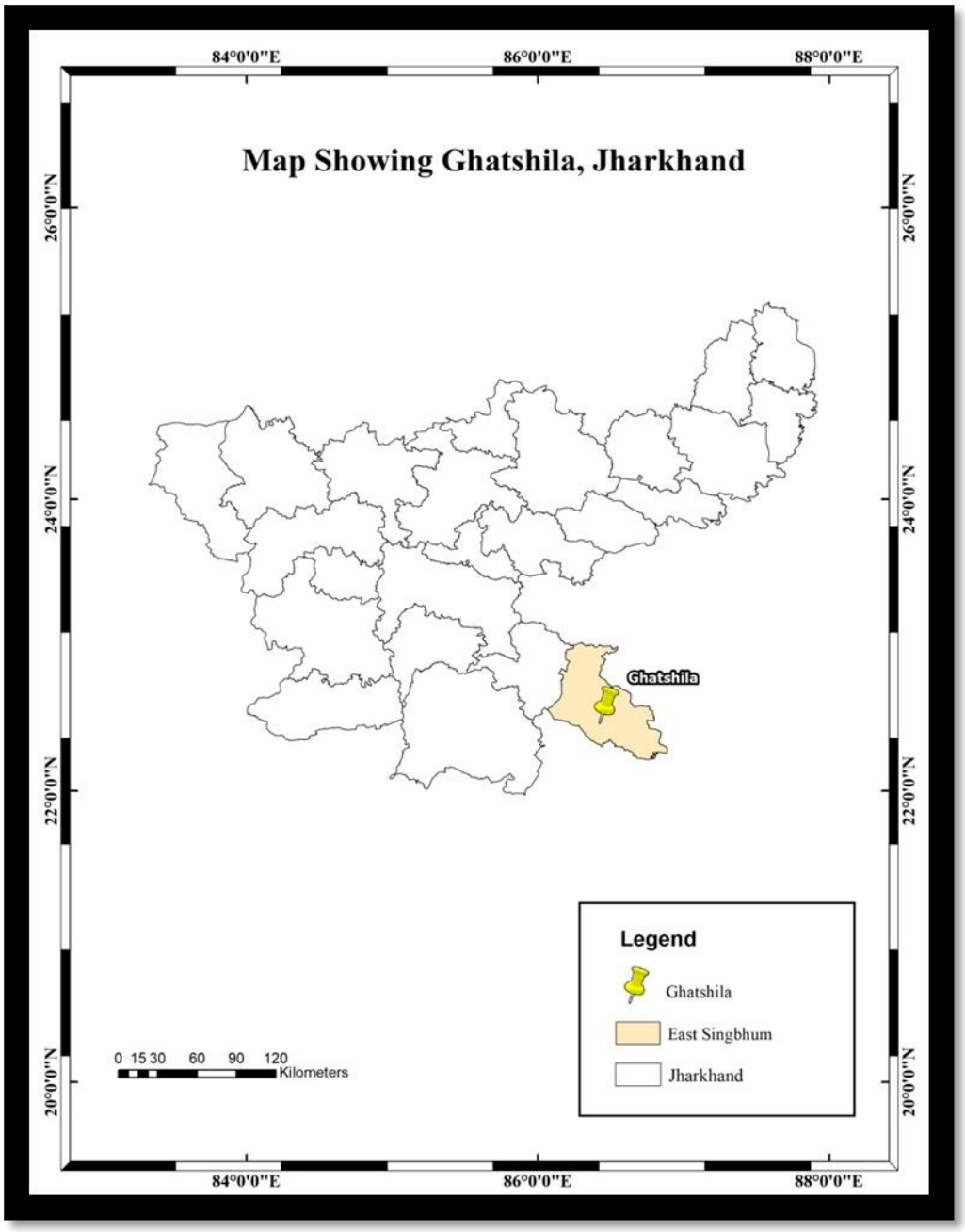
Ghatshila is a small town located in the East Singhbhum district of the Indian state of Jharkhand . It is primarily a rural area, with a population of around 56,000 people, and is known for its natural beauty and historical sites. The coordinates of the town is 22.5873° N, 86.4744° E. It is located at CD block in the Ghatshila subdivision of the East Singhbhum district, in Jharkhand. Being a pre dominant mining town, where mining has stalled post 2020, the city is currently at a cusp where it might shift towards a more tourism centric place. Internet has a paramount role to play in subsequent years

Justification of study area

The Internet Consumption Index for Ghatshila would assess the level of internet infrastructure and services available in the area. This would include indicators such as internet connectivity, digital literacy/consumption maturity, and the availability of Service providers

Currently, Jharkhand has one of the lowest Internet Index scores in India, indicating a lower level of internet infrastructure and services. However, the Indian government has launched several initiatives to improve internet connectivity and digital literacy in rural and remote areas, including in Jharkhand.

Assessing the ICI for Ghatshila could provide valuable information for policymakers, businesses, and individuals in the area, as it would help identify areas of improvement and potential opportunities for growth. For example, if the index shows that internet connectivity is limited in Ghatshila, policymakers could prioritize investments in improving broadband infrastructure in the area. Alternatively, if digital literacy is low, businesses and organizations could develop training programs to help individuals acquire the skills needed to take advantage of online opportunities.



Ghatshila in Jharkhand

(Source: Prepared by the Researcher, 2023)

Data and Discussions:

Ghatshila

Consumption Maturity	Respondents	Percentages
0	31	31
1-3	58	58
4-6	9	9
7-9	2	2
Total	100	100

(Source: Primary Survey, 2023)

Ghatshila has an average consumption maturity of 1.77 indicating a relatively low score in terms of internet usage maturity. The majority of the respondents used not more than 3 service domains catered by internet. It is an interesting revelation since Ghatshila is a developed space with an estabilished mining sector, having the Asia's first copper mines and, world's second deepest mines, along with 85.03% literacy rate as per 2011 Census. The region has a variety of infrastructure ranging from schools to colleges to developed road network. It is connected with Jamshedpur by rail (37 km) and by road (45 km) and facilitates daily commuters for work related transport. The consumption maturity of the respondents shows highest percentage in second group, this depicts the lack of depth even after having such high, developed infrastructure among residents of Ghatshila.

Katwa

Consumption Maturity	Respondents	Percentages
0	22	22
1-3	59	59
4-6	17	17
7-9	2	2
Total	100	100

(Source: Primary Survey, 2023)

The consumption maturity of Katwa scored the lowest among the case studies at 1.17 ~ 1.2, indicating a similar low level of maturity in terms of internet . This suggests that people in Katwa, who are internet users arenot actively consuming internet services and the wide domain of oppurtunies which they might indulge into remain un-used. Over 50%of the samples reported to use atleast 1-3 internet related service, but in higher zone (>4 services) the percentage share is just 19%. Like Ghatshila, Katwa too has a string economic base with its majority of population into service sector or agriculture. Burdwan is one of the high yielding regions of West Bengal, with fertile rich soil, there fore agricultural adds a significant proportion to the income of the people. Coupled with literate population (~79% of total population, 2011 Census), infrastructure, like rail and road connectivity (146kms away from kolkata corresponding to 3-4 hour journey by rail or road), it is a shocking revelation that inspite of being a town with significant developments, the consumption maturity of people is still low.

Innovate to Elevate: Pioneering the next chapter of prosperity for Katwa and Ghatshila

Katwa : Katwa stands as a well-developed town, with its populace primarily engaged in the service sector and business. Recognizing the pivotal role of the internet in fostering comprehensive development, it is imperative for the town's future growth. While a foundational level of development has been achieved, the town's progress hinges on widespread internet access. An

additional challenge lies in the limited consumption maturity, where despite widespread phone ownership, people are not harnessing the full potential of their devices. Local awareness campaigns are essential to enlighten residents on maximizing phone utility for personal growth. Governmental efforts, spearheaded by local policymakers, should prioritize enhancing internet infrastructure. Implementing welfare schemes and promoting e-Governance can unlock substantial potential, catalyzing progress in Katwa.

Ghatshila : Ghatshila, once reliant on mining, has successfully transitioned into a thriving tourism hub where the significance of the internet cannot be overstated. The burgeoning popularity of tourism activities, such as hotel room bookings and online food orders, underscores the economic potential tied to digital connectivity. However, a challenge persists in the form of limited consumption maturity, with residents not fully capitalizing on the benefits of the internet for personal and economic advancement. Innovation becomes a crucial catalyst in this context, as leveraging the internet can empower individuals and simultaneously contribute to the tourism-driven economy. Creating awareness among the local populace is paramount, necessitating proactive initiatives from policymakers and stakeholders to enhance internet usage and maximize the transformative impact on Ghatshila's evolving economic landscape.

Itachuna

Consumption Maturity	Respondents	Percentages
0	49	49
1-3	43	43
4-6	7	7
7-9	1	1
Total	100	100

(Source: Primary Survey, 2023)

Itachuna scored 2.1 average consumption maturity, which indicates that the region is not very mature in terms of internet usage, however it is slightly higher than even the peri urban

counterparts.Itachuna also has a high number of people in ‘0’ group indicating fewer number of internet users. It can be established that amomng users who use and have internet connectivity, people are slightly more inertia to use and adopt to internet and the range of services it provides. An interesting take on it could be the fact that owing to a relatively higher inertia, if number of users could be increased with local Government agency interventions, the region is to greatly develop and churn out the benefits which internet brings in. However, the score is still too low to reflect the fact that overall except for basic services (1-3) internet is not being used much by people of the region. This reveals a huge gap in population who if brought into the ecosystem can delve right into the world of internet and have significant impact onto their lives.

The region apart from its agricultural base, has a tourism forefront which can be developed and harnessed by local stakeholders to script their own growth stories. The region has lot of ignored, iunprotected dilapidated temples and sites, which have religious and historical significance therefore can be a forerunner for tourism and be developed into a tourism centre.

Ecchey Gaon

Consumption Maturity	Respondents	Percentages
0	22	44
1-3	25	50
4-6	3	6
7-9	0	0
Total	50	100

(Source: Primary Survey, 2023)

Echeygaon has scored a comparatively low 1.12 in consumption maturity, indicating that the region lags behind in terms of maturity in internet usage when compared to its counterparts, and is among the lowest in its peers. This could be attributed to the relatively isolated position of Echeygaon, resulting in limited reach and connectivity. Clearly reveals its consumption immaturity and low adoption of internet. To address this challenge, the concept of "digital bridges" could be

leveraged, in terms of fostering exchange of information and amplifying the voices of Echeygaon from a remote village to the entire world.These digital bridges can not only drive economic development, but also promote social and cultural empowerment of the local inhabitants.

Digital Renaissance: Itachuna and Eccheygaon's Entrepreneurial Resurgence via the Power of the Internet

Itachuna and EccheyGaon, both endowed with a tourism foundation, present a compelling narrative for digital-driven growth, albeit with differing facilities and developmental stages. While Itachuna boasts a more established infrastructure, EccheyGaon stands as a testament to untapped potential awaiting exploration. Leveraging the digital realm holds the key to unlocking their tourism prowess, transcending local boundaries to resonate globally.

The fusion of entrepreneurship and digital strategies emerges as a dynamic catalyst in this narrative. Entrepreneurs, through online platforms, can showcase the unique offerings of both regions, promoting homestays and local businesses to a global audience. This digital visibility not only amplifies their voices but also attracts a substantial influx of tourists, translating into economic gains.

However, the realization of this potential hinges upon foundational efforts by the government and local governing bodies. Despite the inherent charm of these regions, limited internet penetration and maturity pose a challenge. A concerted effort is imperative, involving the development of robust infrastructure, awareness campaigns, and the introduction of innovative initiatives such as 'Digital Bridges' and 'Government at Fingertips.' These initiatives seek to bridge the digital divide, empowering the local population with the tools and knowledge to navigate the online sphere effectively.

The introduction of digital literacy programs becomes paramount, ensuring that the community is equipped with the skills to harness the internet for their benefit. Initiatives like 'Duare Sarkar' further streamline administrative processes, fostering a conducive environment for entrepreneurship to flourish.

In essence, the symbiosis of digital innovation, entrepreneurship, and proactive government intervention can metamorphose Itachuna and EccheyGaon into flourishing tourism hubs. By laying a sturdy foundation through digital infrastructure and fostering awareness, these regions can script their own narrative of growth, welcoming not just visitors but sustained prosperity.

Conclusion

India grapples with a significant rural-urban divide, and the internet emerges as a crucial tool to bridge this gap and connect the nation to the global landscape. While smartphones are prevalent, not everyone is harnessing their potential, creating a digital utilization disparity. The notion that the internet is only relevant to major urban centers like Mumbai, Chennai, Bangalore, and Delhi must be dispelled. India's true potential lies in extending internet access to every corner, making it an indispensable resource for all. To achieve this, a heightened level of digital literacy and consumption maturity is imperative. It necessitates a cultural shift where every individual recognizes the internet's power for personal and community development.

India boasts the necessary infrastructure; what's required is widespread acceptance and utilization of the internet. There's a collective aspiration for a future where the internet becomes a transformative force, propelling the entire nation forward. To materialize this vision, concerted efforts are needed to educate, empower, and motivate individuals in every part of the country to embrace the internet for their holistic development. Only then can India unlock its full potential and pave the way for a future where connectivity through the internet catalyzes progress on a national scale.

References

Abdughani, M. (2019, November 9). How internet access can boost economy and social development. LinkedIn. (Accessed: 26 November, 2023).

Amour, L. S. (2012). The internet: An unprecedented and unparalleled platform for innovation and change. World Intellectual Property Organization.

Cariolle, J., & Léon, F. (2022). How internet helped firms cope with COVID-19 (No. P300). FERDI Working Paper.

Doong, S. H., & Ho, S. C. (2012). The impact of ICT development on the global digital divide. Electronic Commerce Research and Applications, 11(5), 518-533.

Ganesan. (2023, May). Digital inclusion in rural India: The key to unlocking India's economic potential 2023. Times of India. Retrieved December 7, 2023, from https://timesofindia.indiatimes.com/blogs/voices/digital-inclusion-in-rural-india-the-key-to-unlocking-indias-economic-potential/

Gupta, K. P. (2023). Understanding the challenges of 5G deployment in India. Digital Policy, Regulation and Governance.

https://www.slideshare.net/DataReportal/digital-2021-india-january-2021-v01, Kepios.

Ivanov. (2021, May 29). India needs to scale up investments to improve Internet access in rural areas'. Indian Express. Retrieved November 26, 2023, from https://indianexpress.com/article/cities/pune/india-needs-investment-to-improve-internet-access-in-rural-areas-7335125/

Jajoo. (2021, June 14). How Internet Penetration Is Helping Rural India Grow Digitally. Entrepreneur. Retrieved December 2, 2023, from https://www.entrepreneur.com/en-in/technology/how-internet-penetration-is-helping-rural-india-grow/375555

Kemp Simon, Digital 2021: Global Overview Report https://datareportal.com/reports/digital-2021-global-overview-report

Kumar, S. K. A., Ihita, G. V., Chaudhari, S., & Arumugam, P. (2022, January). A survey on rural internet connectivity in India. In 2022 14th International Conference on COMmunication Systems & NETworkS (COMSNETS) (pp. 911-916). IEEE.

Manyika, J., & Roxburgh, C. (2011). The great transformer: The impact of the Internet on economic growth and prosperity. McKinsey Global Institute, 1(0360-8581).

McClain, C., Vogels, E. A., Perrin, A., Sechopoulos, S., & Rainie, L. (2021). The internet and the pandemic.

Meltzer, J. (2014). Supporting the internet as a platform for international trade. Brookings (Accessed: 14 November, 2023).

Poda, I., Murry Jr, J. W., & Miller, M. T. (2006). Internet Use in the Developing World: A Case Study of an African University. International Education Journal, 7(3), 235-244.

Purple Gazette. (2023, September). Bridging the Digital Divide: Empowering rural India with internet connectivity(2023)" . Linkedin. Retrieved November 19, 2023, from https://www.linkedin.com/pulse/bridging-digital-divide-transformative-initiatives-rural/

Rahman, Z., Haque, M. A., & Aziz, D. A. B. (2023). Internet Usage During and Post COVID-19 Pandemic: A Study on the Students of Information Science and Library Management in the University of Rajshahi, Bangladesh. Library Philosophy and Practice, 1-15.

The Internet and Sustainable Development. (2015, June). Internet Society. https://www.internetsociety.org/wp-content/uploads/2015/06/ISOC-ICTs-SDGs-201506-Final.pdf

Uimonen, P. (1997, June). Internet as a tool for social development. In Annual Conference of the internet Society, INET (Vol. 97).

World Bank Group. (2016). World development report 2016: Digital dividends. World Bank Publications.

Appendices

Research Questionnaire

Internet Consumption	Yes/No
Communication and Connectivity (WhatsApp, Mail Telegram, Facebook, Instagram etc.)	
Banking and Finance (Gpay,Paytm, Bank Apps etc.)	
Entertainment (Youtube ,OTTs, Online Games)	
Skill Courses or Tuitioning (ByJus, Udemy, TutorVista etc.)	
Online Shopping/Ordering (Flipkart, Zomato etc)	
E-Governance (Driving license, kissan vikas apps, PO, Aadhar, Pan Card etc.	
Jobs and related services (Matrimony sites like shaadi.com, job sites like naukri.com, Linkedin etc)	
Navigation (Google Maps etc.)	
Reservation and Bookings (Cabs, Irctc ,Oyo etc.)	