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Internet Speed Of Various Telecommunication Service In Bundelkhand

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ABSTRACT

Welcome to the world of telecommunication, where information traverses vast distances at the speed of light. Telecommunication involves the exchange of data, voice, and video across various networks, enabling seamless connections between people and devices. From traditional telephone lines to modern fiber-optic cables and wireless technologies, the realm of telecommunication continues to evolve, shaping the way we communicate and interact in an increasingly interconnected global society. In today's world, the Internet plays a vital role in all business services and in the process of providing information, facilitating customer service, facilitating financial transactions, managing decisions, management, and more. The Internet is changing the style and type of work, sharing, creating and sharing information and organizing the movement of people, ideas, and things around the world. However the magnitude of this change is still undermined in terms of detecting negative implications in terms of speed, communication, quality and price. The customer attitude is constantly changing and the company wants to satisfy the needs of the customers and the demands according to their needs. This survey assists online 450 users with their level of satisfaction by accepting a list of questions and accepting various tools such as a Pie chart, graphs, simple percentages, chi- Square analysis.

Keywords: Internet Service Providers(ISP), Telecom service providers, Customer Satisfaction, Information Technology, Beneficiaries, Service Provider

INTRODUCTION

Telecommunication in Bundelkhand has undergone significant advancements, transforming the way people connect, communicate, and access information in this historically rich region of India. Situated in the heart of the country, Bundelkhand has embraced modern telecommunication technologies to bridge gaps in communication and accelerate socio-economic growth.

In recent years, the region has witnessed a surge in mobile network coverage, allowing residents of even remote villages to stay connected. Mobile towers dot the landscape, enabling voice calls, text messages, and internet access. This has not only facilitated personal communication but has also opened doors to education, e-commerce, and access to government services.

Fiber-optic cables have emerged as a backbone for high-speed internet connectivity in urban centers of Bundelkhand. This has led to the proliferation of online services, e-learning platforms, and telemedicine initiatives. Students can now access educational resources beyond the confines of their classrooms, and patients can consult with medical professionals virtually, reducing the need for travel to distant cities.

The impact of telecommunication is particularly noteworthy in the agricultural sector, which forms the backbone of Bundelkhand's economy. Farmers can now receive weather updates, market prices, and agricultural best practices through mobile apps and text messages. This access to information empowers them to make informed decisions,

enhance productivity, and optimize resource utilization.

The government's Digital India initiative has also made its mark in Bundelkhand. E-governance services have simplified administrative procedures, reducing bureaucratic hurdles for residents. From applying for documents to accessing social welfare schemes, citizens can now avail themselves of services online, saving time and effort.

However, challenges remain in ensuring equitable access to telecommunication across all parts of Bundelkhand. While urban centers benefit from high-speed internet and 4G connectivity, remote villages often struggle with limited network coverage. Initiatives to extend network reach to underserved areas are crucial to bridge the digital divide and ensure that every resident can reap the benefits of modern communication technologies.

Telecommunication has also catalyzed entrepreneurship and job opportunities in Bundelkhand. Online businesses, digital marketing agencies, and freelance work have become viable career paths, allowing individuals to tap into a global market from the comfort of their homes. Moreover, the rise of e-commerce has enabled local artisans and craftsmen to showcase their products to a broader audience, boosting their income and preserving traditional arts.

History of Internet In India

The Internet in India began in 1986 and was only available in the educational and research community. It was available publicly from August 15, 1995. As of 2020, there are 718.74 million Internet users working with 54.29% of the population.

As of May 2014, the Internet has been brought to India mainly with 9 different submarines, including SEA-ME-WE 3, the Bay of Bengal Gateway and the Europe India Gateway, arriving at 5 different destinations. India also has a single internet connection, in the town of Agartala near the border with Bangladesh.

The Government of India has initiated projects such as Barat Net, Digital India, Made in India and Startup India to further accelerate the growth of the internet-based environment.

Internet services in India were first released in 1995 by VSNL. However, over the next decade, the Internet continued to grow slowly in the country until 2004, when the Government implemented its broadband policy. Internet access gained momentum in 2005 onwards, starting with PCs only as Existing Points, and later extending to mobile devices. After the sale of the 3G theme and later with 4G, the area is set for the Indian market to move beyond the existing cable technology to the highly controversial and challenging wireless broadband market. As of December 2011, India has an estimated 121 million users, the world's third largest Internet user.

History of Broadband In India

BSNL launched Internet services in August 1995 in India. Until November 1998, BSNL was the sole Internet service provider in India. The government approved the provision of Internet services by private owners in 1998 with Internet Service Provider (ISP) licenses issued in free conditions. There were no license fees and the policy allowed an unlimited number of players who were able to enter their overseas gates and determine their pricing plans.

The Government of India announced the Broadband policy in 2005. While India continues to be one of the fastest growing telecommunications markets in the world, Broadband development is not the most impressive to date. There are about 180 people working with the Internet Service Provider (ISP) in the country as of today but very few players control the entire broadband market. It is predicted that 90% of connections have 10% of ISP providers.

According to a survey by IAMAI, Indian customers use the Internet via email and instant messaging (98%) to search for jobs (51%) banking (32%) billing payments (18%) stock trading (15%) and marriage search (15%) %)). Broadband is new oxygen. Opens a large inbox with just one click of a button. Get ready to

explore the world at WWW with high speed connections. Access emails instantly, download music, share multimedia instantly, share video with friends and play games with someone on the other end of the world. When broadband was first introduced as a way to connect to the web, many companies were confidently expecting it to capture most of the market share, and with good reason.

Wireless Internet

The following frequencies are used to provide wireless internet services in India:

- 2G : GSM 900 MHz, GSM 1800 MHz
- 3G: WCDMA UMTS 2100 MHz, 900 MHz
- 4G: TD-LTE 2300 MHz, 2500 MHz, FD-LTE 2100 MHz, 1800 MHz, 9000 MHz, 850 MHz
- CDMA: 800 MHz (for 1x voice and data & EVDO Rev A, Rev B, Rev B Phase II data)

Wired internet

The fixed or wireless internet technology used in India includes digital subscription line, (DSL), Internetup Dial-up access, ethernet and local area network (LAN), cable modem, fiber at home, and leased line.

2G Network

2G networks, on the other hand, were based on digital band networks. Signs were transmitted in a digital format and this greatly improved the quality of the calls and reduced the difficulty of data transfer. Another advantage of the 2G network comes in the form of the Semi Global Roaming System, which has enabled global connectivity.

3G Network

Third-generation telecommunications meet the standards set by the International Telecommunication Union for mobile communications. Specifically, 3G is a term that combines a variety of applications used on mobile networks and data systems, including the 3G hot spots available for Kindle and iPhone users, for example. 3G download speeds will vary, just like the bars on a cellphone vary from place to place, although this is an access problem while traveling. Generally, if you are sitting in one place with decent signal strength, the connection is stable. 3G applications may be unlimited, such as unlimited data strategies from mobile providers, or restricted, such as 3G data plans for iPad users.

4G Technology in India

Bharti Airtel launched India's first 4G service, using TD-LTE technology, in Kolkata on April 10, 2012. Fourteen months before the official launch in Kolkata, China-based company, Mobile Bharti Airtel and Softbank Mobile came together, called the Global TD -LTE Initiative (GTI) in Barcelona, Spain and signed a commitment to TD-LTE standards in the Asian region. It should be noted that Airtel's 4G network does not support standard 4G phones such as Apple I phone 5, Samsung Galaxy S III, Nokia Lumia 920 and others.

Leading Mobile Telecom Service Providers in India

Sl. No	Operators	Technology	Subscribers (In Millions)		Ownership
1	Jio	 850(B5)/1800(B3)/2300(B40) LTE, TD-LTE, FD-LTE, LTE-A VoLTE, ViLTE, VoWiFi WiFi 	408.29	324.78	Jio Platforms
2	Airtel	 GSM - 900/1800 (EDGE), GPRS 900(B8)/1800(B3)/2100(B1)/2300(B 40)LTE, TD-LTE, FD-LTE, LTE-A Volte, Vilte, Vowifi Wifi 	334.66	323.39	Bharti Airtel Limited

3		• GSM - 900/1800 (EDGE), GPRS	289.95	258.07	Vodafone	
		• 900(B8)/1800(B3)/2100(B1)/2300(B40)/2500(B			Idea	
	Vi	41)LTE, TD-LTE, FD-LTE, LTE-A			Limited	
		Volte, Vilte				
		WiFi, VoWiFi				
4		• GSM - 900/1800 (EDGE), GPRS	122.28	62.17	Government	
	BSNL	• 2100(B1) LTE, TD-LTE, FD-LTE, LTE-A			of India	
		• Volte				
		WiMAX, WiFi				
	4	4	• 900(B8)/1800(B3)/2100(B1)/2300(B40)/2500(B 41)LTE, TD-LTE, FD-LTE, LTE-A • VoLTE, ViLTE • WiFi, VoWiFi 4	• 900(B8)/1800(B3)/2100(B1)/2300(B40)/2500(B 41)LTE, TD-LTE, FD-LTE, LTE-A • VoLTE, ViLTE • WiFi, VoWiFi • GSM - 900/1800 (EDGE), GPRS • 2100(B1) LTE, TD-LTE, FD-LTE, LTE-A • VoLTE	• 900(B8)/1800(B3)/2100(B1)/2300(B40)/2500(B 41)LTE, TD-LTE, FD-LTE, LTE-A • VoLTE, ViLTE • WiFi, VoWiFi • GSM - 900/1800 (EDGE), GPRS • 2100(B1) LTE, TD-LTE, FD-LTE, LTE-A • VoLTE	• 900(B8)/1800(B3)/2100(B1)/2300(B40)/2500(B Vi 41)LTE, TD-LTE, FD-LTE, LTE-A • VoLTE, ViLTE • WiFi, VoWiFi • GSM - 900/1800 (EDGE), GPRS • 2100(B1) LTE, TD-LTE, FD-LTE, LTE-A • VoLTE

Jio.

In India Reliance Jio Infocomm is an LTE mobile network operator doing business with the name 'Jio'. It is wholly owned by Reliance Industries, headquartered in Navi, Mumbai, Maharashtra which provides a 4G LTE wireless network and is the leading voice for LTE operators in a country without 2G and 3G legacy network support, available at all 22 telecommunications circles in India. The network started trading on 5 September 2016. Mobile phone Jio is the third largest mobile network in the world. In India, it is located on the largest mobile network with 408.29 million subscribers.

Bharti Airtel

In 1995, telecommunications brokers introduced a network service and started a business on 18th July 1996 and launched a network service in Delhi under the brand name Brand 'Airtel'. In its operations, 200 million customers fall through this network. Airtel plays the second largest provider of the world's largest network with 439 million mobile network subscribers and is considered India's most valuable product with 334.66 million subscribers.

Vi

Vodafone Idea Limited is the Aditya Birla Group and Vodafone Group in partnership. It is India's leading service provider. The company provides pan India Voice and Data services across the 2G, 3G and 4G platform. With a large portfolio to support the growing demand for data and voice, the company is committed to delivering an exciting customer experience and contributing to building a real Digital India' by giving millions of citizens the opportunity to connect and build a better future. Vi is the third largest mobile network in India with 289.95 million subscribers.

BSNL (Bharat Sanchar Nigam Limited)

Barat Sanchar Nigam was established in 2000 to provide telecom services in India. The telecommunications policy was developed and implemented by BSNL and its operations under the protection of the Department of Communications and the Department of Communications, Government of India. In the telecommunications sector, it plays the 20th largest place in the world. In India, it ranks 4th with 122.28 million subscribers.

Objectives Of The Study

The following are the main objectives of the study:-

- To Understand the profile of telecom Service providers.
- To study the customer satisfaction about telecom service provider.
- To identify the factors that motivated the customers to choose telecom service providers.
- To study the internet speed and impact of the new commoners.

REVIEW OF LITERATURE

Dr. Mohdrafi bin yaacob (2018)-Customer Satisfaction Survey in Broadband Services in Malaysia, Determining the level of customer satisfaction in the stability of broadband services and their conclusions were the number of broadband customers and each broadband provider was less demanding at higher prices. to connect anytime and anywhere, Internet service stability was important to them and due to the stability situation, they switched to other broadband service providers.

V. Varatharaj, S. Vasantha, R. Varadharajan, "Strong customer perception and satisfaction with BSNL broadband connectivity in Chennai city" Learning customer perception and satisfaction with BSNL broadband connectivity in Chennai city, and discovering features that affect customers to choose BSNL broadband services, BSNL Broadband Suggestion are satisfied with the product image, additional services, costs, ads and access.

Harish and Raman Kumar Sharma (2010) in their paper Use Of 3G & 4G Network for Marketing point out that very high download speeds are of great benefit to both retailers and consumers. 3G and 4G Technology have transformed the marketing concept from far away with SMS. Harish and Raman Kumar Sharma said 3G and 4G offer a wide range of services such as Location based service, Geo-Fencing (Virtual field for creating mobile marketing message), customized coupons, Mobile Website, Mobile TV, Mobile -MMS is a great help in Mobile Marketing.

Ashish Das and Sukesh Kumar (2011) The authors estimate the robustness of the price and income of mobile phone demand for rural subscribers. In addition they have tried to understand and analyze factors that affect the choice of mobile service providers and mobile subscriptions. The authors highlight a variety of factors affecting the choice of mobile service providers such as Network Coverage, good customer care center, good product image, easy access to renewable space, attractive programs.

Shirshendu Ganguly (2008) aims to assess drivers of customer satisfaction among Indian service users. Shirshendu Ganguly highlighted that the reliability, reasonable quality and competitiveness of service providers drive all aspects of customer satisfaction in addition to network quality, market reputation or ease of use. When it comes to satisfaction with competitive use of services the most important driver of satisfaction followed by reliability and ease of use of the service are less important factors.

Muhammad Mohsin Butt and Ernest Cyril de Run (2009) pointed out that measuring customer satisfaction is one of the most important steps in improving service quality and retaining customers in the telecommunications industry. Research shows that there are a number of factors that affect the satisfaction of Internet Service Provider users. Price and network installation are two of the most important factors contributing to customer satisfaction. Service providers must realize that in addition to competitive prices, they must carefully monitor service delivery in terms of signal quality and network coverage.

Füller and Matzler (2008), priorities are considered as the basic conditions for satisfaction. Performance features are competitive and have a direct impact on customer needs and desires. Emotional factors are referred to as assumptions for consumers, which means that these claims can increase satisfaction.

Padma K. JHA (2010) —Airtel broadband consumer behavior survey aims to assess customer satisfaction with Airtel broadband services and assess consumer awareness. He found that 60% of people know about Airtel's broadband. Airtel customers are very satisfied with the services and do not want to switch to other products.

Parasuraman et al. (1988)service quality to assess service received by customers by comparing their actual performance with the expectation of its performance phase. It can also make a difference to what customers expect in terms of their performance and actual performance.

Gilbert &veloutsou (2006) is a term that is intended as an opinion or belief made in relation to service delivery as a reference or general point where a product's performance can be judged. The process of measuring customer satisfaction is difficult. Customer satisfaction is very natural and varies from one customer to another which makes it difficult to establish a standard measurement kit for this item.

Oliver (1997)redefined customer satisfaction by looking at the response to fulfillment. You mentioned that customer satisfaction means judging the features of a product or service and ensuring that the service or product offers enjoyable levels of use related to fulfillment. In this regard, customer satisfaction ratings measure customer satisfaction and expectations. The word contentment comes from the word comfort,

which is related to the level of satisfaction without excitement. Customer satisfaction is related to satisfaction, which includes responding only when customers are less emotionally involved. Although the definition of satisfaction is related to contentment, the introduction of a delicious product states that food, in turn, can produce a moderately highly arousing effect that can result in happiness and happiness.

Oliver (2010) is the result of a comparison between expectations and tangible performance. When the apparent performance is above expectations, then the customer is satisfied. On the other hand, if the apparent performance is below expectations, the customer is not satisfied. This means that the customer can judge the performance of a product as good or bad, or equal to expectations. The consistency between customer perceptions of the product and their initial expectations leads to satisfaction. Performance perception is considered an attribute of satisfaction level.

Rout D., Ota Rachita and (at all) 2021 – Customer satisfaction study on internet speed of various telecom service in Bhubaneshvar, determine the Airtel is the best to provide internet and test some hypothesis on the basis of internet.

RESEARCH METHODOLOGY

This study is based on a survey conducted online. Scheduled questionnaire used for data collection. An online survey of Google forms is designed to find customer satisfaction with the internet speed of various telecom service providers. 450 respondents from various parts of Bundelkhand were selected as sample of Datia and Prithvipur of town area in Niwadi. Since the number of respondents is 377+73 = 450 here the number of respondents and the percentage of respondents are different. Data is analyzed by Chisquare analysis, cross tabulation and Excel charts.

Analysis And Interpretation

An effort has been made in this study to obtain Customer Satisfaction with Internet speed of various Internet providers (ISP). Analysis and interpretation was performed on data obtained from all 450 respondents from various locations. We used an Excel tool to create various charts and chi square analysis of variance.

Table-1 shows the clear picture about the age of respondent. Most respondents are from age group 15-21 i.e.373 respondents, then 21-30age group 57 respondents and 15or 30 above i.e. 10-10 respondents out of 450, which is clearly can be seen from Chart- 1 shown below.

Table 1: Age of Respondent

Age Group	Participants
0-15	10
15-21	373
21-30	57
30 and above	10
TOTAL	450

Chart 1: Age of Respondents

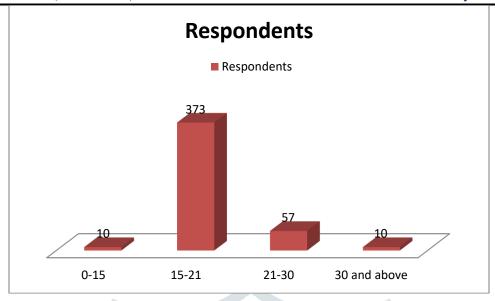
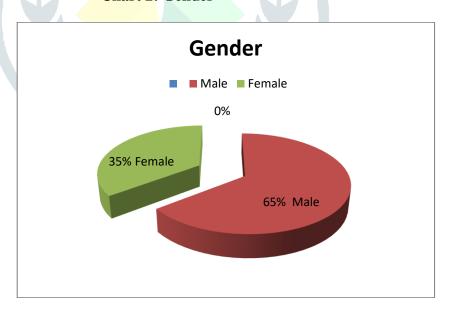


Table – 2 shows the respondents sex and there are male respondents consist of 290 out of 450 and female we got 450 out of 160 responses, which is clearly seen in Chart – 2 below.

Table 2: Gender

Gender	Participant	30
Male		290
Female		160

Chart 2: Gender

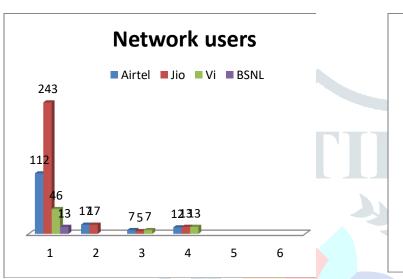


telecom service provider in this study we have included are Airtel, Jio, Vi, BSNL, and Others. In this mostly the respondents are from Airtel i.e. 112 respondents followed by Jio i.e.243 respondents and rest are from Vi-46, BSNL-13, some respondent are used three network and others as you can see from the below Table - 3 and Chart - 4.

Table 3: Respondents belong to various Telecom Service Provider

Service Provider	No. of Participant			
Airtel	112	17	7	12
BSNL	13			
Vi	46		7	13
Jio	243	17	5	13

Chart - 3: Respondents belong to various Telecom Service Provider



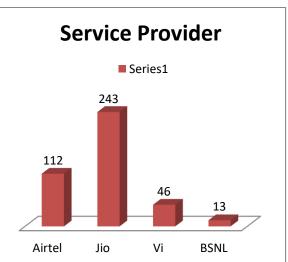


Table – 4 represents the number of respondents who are satisfied with their speed or not and most respondents said that they are satisfied with their speed. It can be very clearly seen from the Chart -4.

Table 4: Satisfaction of respondents regarding internet speed

Internet speed satisfaction				
YES	320	4		
NO	126	4		

Chart 4: Satisfaction of respondents regarding internet speed

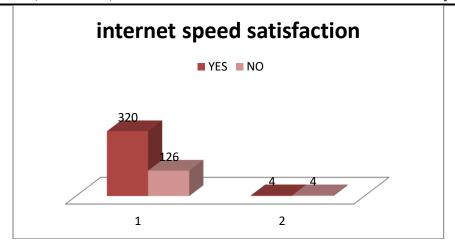


Table – 5 shows about how much time the respondent spends using internet. From the study we have got most of the respondents spend time more than 4 hours a day.190 out of 450 respondents use more than 4 hours per day. It is clearly visible in Chart -5.

Table 5: Use of Internet per Day

Time	No. of respondents			
Less than 1 Hour per day	33		8	2
1-2 Hours per Day	98	8	8	2
2-4 Hours per Day	112	8		2
More than 4 Hours per Day	188			2

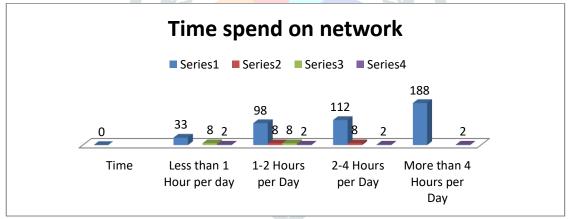


Chart 5: Use of Internet per Day

Table – 6 depicts the satisfaction level with their internet speed provided by the telecom service provider. 289 of them said they are satisfied with their internet speed. 60 said they are very satisfied and 101 are not satisfied with the speed of internet, some respondent very satisfy or not satisfied. Chart – 6 represents the same.

Table 6: Satisfaction level with the telecom company

Satisfaction Level	No. of Respondents		
Very Satisfied	58	2	
Satisfied	289		
Not Satisfied	98	2	1

Chart 6: Satisfaction level with the telecom company



Table – 7 shows that the best telecom company according to the respondent from our survey is Airtel- 138 of the respondents said that Airtel is the second and Jio-278 respondent said that Jio is the best to provide Internet. Chart-7 represents the same.

Table 7: Best telecom company according to respondents

Service Provider	No. of Participant			
Airtel	112	17	7	12
Jio	243	17	5	13
Vi	46		7	13
BSNL	13			

Chart 7: Best telecom company according to respondents

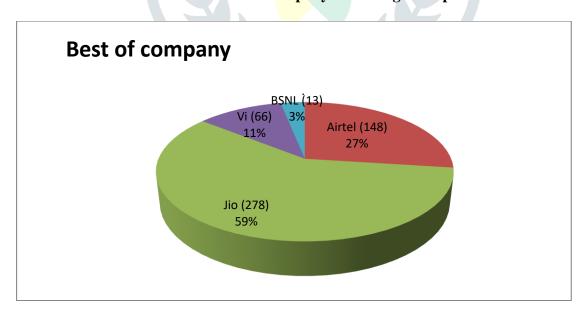


Table -8 and Table -9 show the chi-square test between Gender and internet usage in hours per day.

Ho: Gender and Internet usage are independent of each other.

H1: Gender and Internet usage are dependent of each other.

Table – 8 cross table of gender and internet usage

Observed (f0)	less than 1 Houbrs	1-2 Hours	2-4 Hours	4 and avobe Hours	Total
MALE	52	78	110	50	290
FEMALE	40	57	38	25	160
TOTAL	92	135	148	75	450

Table – 8 shows the observed value of chi square test which is conducted to know the association between gender and usage per day. Respondents are categorized on the basis of their internet usage (hours per day) i.e., 0—1 hours, 1—2hours, 2—4 hours and more than 4 hours.

Table – 9 Expected Frequency for chi-square test

Male	Observed (f0)	Expected (Efo)	(fo) –(Efo)	{ (fo) –(Efo) } ²	$\frac{\{(fo) - (Efo)\}^2}{(Efo)}$	$\frac{(fo)^2}{(Efo)} = H1$
1	52	59.28889	-7.28889	53.12792	0.896085547	45.60719555
2	78	87	-9	81	0.931034483	69.93103448
3	110	95.37778	14.622 <mark>22</mark>	213.8093	2.241709943	126.8639299
4	50	48.33333	1.666 <mark>67</mark>	2.777789	0.057471498	51.7241415
					4.126301471	294.1263015
Total	290					4.126301471
	Observed	Expected			$\{(fo)-(Efo)\}^2$	$\frac{(fo)^2}{(F(f))^2} = H1$
Female	(f0)	(Efo)	(fo) –(Efo)	$\{(fo) - (Efo)\}^2$	(Efo)	${(Efo)}$ - Π I
1	40	32.71111	7.28889	53.12792	1.62415514	48.931304514
2	57	48	9	81	1.6875	67.6875
3	38	52.62222	-14.6222	213.8093	4.063099537	27.44087954
4	25	26.66667	-1.66667	2.777789	0.10416707	23.43749707
					7.478921747	167.4789217
Total	160					7.478921747

Table -9 shows the expected values for the chi square test along with p values. The null hypothesis is accepted here as p value is less than 0.05. So it is concluded that there is no association between gender and internet usage.

Ho: Age and internet usage are independent.

H1: Age and internet usage are dependent.

Table – 10 Observed Frequency

Observed (fo)	0-1 hours	1—2 hours	2—4 hours	4 hours	Total
0-15	2	7	1	0	10
15-21	77	120	146	30	373
21-30	6	8	1	42	57
30 +	7	0	0	3	10
Total	92	135	148	75	450

Table - 10 shows the observed value for chi square test which is conducted to know the association between age and internet usage.

Table – 11 Expected Frequency

Expected (Efo)	0-1 hours	1—2 hours	2—4 hours	4—hours	Total
0-15	2.04444	3	3.288889	1.666667	10
15-21	76.2578	111.9	122.6756	62.16667	373
21-30	11.6533	17.1	18.74667	9.5	57
30 and 30 +	2.04444	3	3.288889	1.666667	10
Total	92	135	148	75	450

Table - 11 shows the expected values for the chi square test along with p value. The null hypothesis is rejected here as pvalue is less than 0.05. So it is concluded that there is an association between age and internet usage.

Table 12 shows the observed value of chi square test which is conducted to know the association betweenGender and satisfaction level of respondents with respect to internet speed of their telecom service providers.

Table-12

	NOT		VERY	
OBSERVED	SATIAFIED	SATISFIED	SATISFIED	TOTAL
MALE	58	185	47	290
FEMALE	43	104	13	160
TOTAL	101	289	60	450

Table -13 shows the chi-square test first between Gender and how Satisfied respondents are with telecom service provider.

H0: Gender and satisfaction level are independent

Table - 13 Expected Frequency

FEMALE								
Satisfaction Level	Observed (f0)	Expected (Efo)	(fo) –(Efo)	{(fo) –(Efo) } ²	$\frac{\{(fo) - (Efo)\}^2}{(Efo)}$ = H0	$\frac{(fo)^2}{(Efo)} = H1$		
Very Satisfied	13	21.33333	-8.33333	69.44444	3.255208	7.921875		
Satisfied	104	102.7556	1.244444	1.548642	0.015071	105.2595		
Not Satisfied	43	35.91111	7.088889	50.25235	1.399354	51.48824		
TOTAL	160				4.669633	164.6696		
TOTAL	160					4.669633		

MALE								
SATISFACTION								
Level			. 1		{ (fo	(Efo)		
	Observed	Expected		-34.		(Efo)	$\frac{(fo)^2}{} = H1$	
	(f0)	(Efo)	(fo)	$\{ (fo) - (Efo) \}^2$	=H0		(Efo)	
Very Satisfied	47	38.66667	8.333333	69.44444		1.795977	57.12931	
Satisfied	185	186.2444	-1.24444	1.548642		0.008315	183.7639	
Not Satisfied								
	58	65.08889	-7.08889	50.25235		0.772057	51.68317	
						2.576349	292.5763	
TOTAL	290						2.576349	

Significance level=0.01

Table-13 shows the expected values for the chi square test along with p values. The null hypothesis is accepted here as per value is more than signification. So it is concluded that there is no association between gender and satisfaction level.

Table – 14 Observed Frequency

Age Group	SATISFAACTION Observed (f0)	Expected (Efo)	(fo) –(Efo)	{ (fo) – (Efo) } ²	$\frac{\{(fo) - (Efo)\}^2}{(Efo)}$ = H0	$\frac{(fo)^2}{(Efo)} = $ H1
0-15	10	0.22222222	9.777778	95.60494	430.2222222	450
15-21	373	309.1755556	63.82444	4073.56	13.17555556	450
21-30	57	7.22	49.78	2478.048	343.22	450
30 & above	10	0.22222222	9.777778	95.60494	430.222222	450
					1216.84	1800
TOTAL	450					1350

This above table 14 shows the observed value of chi square test which is conducted to know the association between age and satisfaction level of respondents with respect to internet speed of their telecom service providers. The expected values for the chi square test along values. The null hypothesis is rejected here as per value is less than 0.05 signification level. So it is concluded that there is an association between age and satisfaction level.

RESULTS

Drawing upon theoretical perspective from Customer Satisfaction with Internet speed of various telecom companies, described in this research paper examined the important factors that effect on customer satisfaction. Based on the study results, most of the respondents are from age group 15-22 i.e. 373 respondents, then 30 and above i.e.57 respondents out of 450. In this study mostly the respondents are users of Jio i.e.275 (54%) respondents followed by Airtel i.e. 148(37%) respondents and rest are users of Vi-66(11%), BSNL-13(3%). Most of the respondents said that they are satisfied with their speed of internet still there is a major proportion i.e 101(22%)who are not satisfied. From the study we have got 75(16%) of the respondents spend time more than 4 hours a day with internet. Most 375(83%)of the respondents said that Jio is the best to provide Internet. It has been found that Gender and Internet usage are independent of each other. Where as there is an association between age and internet usage. Gender and satisfaction level are independent of each other but age and satisfaction level are dependent. Most of companies cheat the customer name of the internet speed and they maximum charges to their service. Companies not developed infrastructure to provide the poor signal service.

CONCLUSION

In conclusion, telecommunication has brought about a transformative impact on Bundelkhand, revolutionizing the way people interact, access services, and engage in economic activities. From improved connectivity and access to information to enhanced agricultural practices and entrepreneurship, the region has witnessed a positive shift driven by telecommunication technologies. As infrastructure continues to develop and initiatives focus on inclusivity, Bundelkhand is poised to harness the full potential of telecommunication for a brighter and more connected future.

REFERENCES

- [1]. Ariff, M., Yun, L., Zakuan, N. and Ismail, K. (2013). The impacts of service quality and customer satisfaction oncustomer loyalty in internet banking. Procedia Social and Behavioral Sciences, 81, 469-473
- [2].Gerpott, T. J., Rams, W., & Schindler, A. (2001). Customer retention, loyalty and satisfaction in the Germanmobile cellular telecommunications market. Telecommunications Policy, 25(4), 249-269.
- [3].Dr. Mohd Rafi Bin Yaacob, (2007) _Customer Satisfaction towards Broadband Services in Malaysia' International Journal of Business, Humanities and Technology, volume 1 No. 2; September.
- [4]. V. Varatharaj, S. Vasantha, R. Varadharajan, An empirical view on customer perception and satisfaction towards BSNL broadband connection in Chennai city RVS Journal of Mnagement, volume 5, No 1, July 2012.
- [5].R. Harish and Raman Kumar Sharma (2010), Use of 3G and 4G in Mobile Marketing, Marketing Mastermind, May 2010.
- [6]. Ashish Das and Sukesh Kumar, (2011), Understanding Users of Mobile services in Rural area: A case of Bishalkhinda Village in Odisha, The IUP Journal of Marketing Management, Issue February 2011.
- [7]. Shirshendu Ganguly (2008), Drivers of Customer Satisfaction in the Indian Cellular Services

Market, IcfaianJournal of Management Research, Volume VII.

- [8]. Muhammad Mohsin Butt & Ernest Cyril de Run (2009), Modeling customer satisfaction in cellular phoneservices, Journal Kemanusiaanbil, Issue -2009
- [9]. Parasuraman, A, Zeithaml, VA & Berry, LL 1985, 'A Conceptual Model of Service Quality and Its Implications for Future Research, Journal of Marketing, vol.49.
- [10]. Parasuraman, A., Zeithaml, V., & Berry, L. (1998). SERVQUAL: A Multiple-item Scale for MeasuringConsumer Perceptions of Service Quality. Journal of Retailing, 64(1).
- [II] Oliver, R. L. 1997. Satisfaction: A Behavioural Perspective on the Consumer. Irwin/McGraw-Hill, New York.
- [12]. Oliver, R. L. 1999. Whence consumer loyalty. J. Market. Fundam. Issues Dir. Market.
- Rout D, Mishra S.J,Ota R., Gupta P 2021 'Customer satisfaction towards internet sprrd of [13]. various telecom service providers an exploratory study in Bhubaneswar' 'International Journal of aal Research Education and scientific Methods, Vol-9, issue-3, page 1463-73.
- [14]. Singh L, Malhotra S.K. 2021, Multi Server Fuzzy Queueing Model in Dodecagonal Fuzzy number using DSW Algorithm,' International Journal of Engineering and Future Technology, vol-18,Isue-1,page 21-27
- Singh L, Malhotra S.K. 2022, Fuzy Queueing Model Using DSW Algorithm [15]. Dodecagonal Fuzzy number, ' Journal of Emerging Technologies and Innovative Research (JETIR),vol-9,Isue-7,page c-407-12