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# An Analytical Study of SIM Card Usage, Services, and Consumer Problems in Maharashtra State.

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### Abstract

The rapid expansion of mobile telecommunication in India has significantly transformed consumer communication patterns. This study investigates the usage of SIM cards, factors influencing their purchase, patterns of calls, services offered by providers, and problems faced by customers across five regions of Maharashtra: Marathwada, Western Maharashtra, Kokan, Khandesh, and Vidarbha. Based on primary data collected from 600 respondents during 2021–22, the study reveals that most customers use two SIM cards, prepaid services dominate, and personal influence plays a key role in SIM purchase decisions. While services such as prepaid, internet, roaming, and value-added offerings are widely used, issues of coverage and data speed remain critical challenges. The findings highlight the consumer preferences, behavioral trends, and problem areas that can guide service providers in designing better marketing and operational strategies.

**Keywords:** Mobile, communication, SIM card, roaming, coverage, internet, consumer.

### 1.1 Introduction

The mobile telecommunication industry has emerged as one of the fastest-growing sectors in India, transforming the way people communicate, access information, and carry out daily activities. With the introduction of affordable smartphones, competitive tariff plans, and widespread availability of mobile services, mobile phones have become an essential part of social and economic life. Among the key components of this revolution are SIM (Subscriber Identity Module) cards, which provide users with access to various services such as voice communication, internet connectivity, value-added services, and financial transactions.

In Maharashtra, one of India's largest and most diverse states, mobile usage has seen remarkable growth, cutting across rural and urban areas. Consumers not only use mobile phones for personal communication but also rely on them for business, education, entertainment, and social networking. The choice of SIM card, number of SIMs used, services adopted, and problems faced by users vary across regions due to differences in socio-economic background, network availability, and marketing strategies of service providers.

The present study seeks to analyze **SIM card usage patterns** in Maharashtra with special focus on:

- the number of SIM cards used by consumers,
- media and sources influencing purchase decisions,
- the average usage of incoming and outgoing calls,
- services offered by providers and their level of adoption, and
- problems faced by customers in using mobile services.

This analysis is based on primary data collected from 600 respondents across five major regions of Maharashtra—Marathwada, Western Maharashtra, Kokan, Khandesh, and Vidarbha—during 2021–22. The findings provide valuable insights into consumer behavior, preferences, and challenges in the telecom sector.

The study is significant as it highlights not only the usage trends and service adoption patterns but also the problematic areas such as network coverage, data speed, and customer care services. These insights are particularly useful for telecom service providers, policymakers, and researchers to design effective strategies for improving customer satisfaction and expanding mobile connectivity in Maharashtra.

### 1.2 Literature Review

The mobile telecommunication industry has attracted considerable attention from researchers, policymakers, and industry experts due to its transformative impact on communication and socio-economic development. Several studies have analyzed mobile usage patterns, consumer behavior, and service-related challenges in India and abroad.

**Mobile penetration and consumer behaviour:**

According to the Telecom Regulatory Authority of India (TRAI, 2019), India has witnessed exponential growth in mobile subscribers, with rural and semi-urban regions showing rapid adoption. Agarwal (2017) highlighted that affordability of handsets and competitive prepaid plans are the major factors influencing mobile usage in India. Similarly, Chaturvedi (2016) observed that the preference for dual SIM cards has grown significantly due to cost optimization and the availability of multiple network options.

**Influence of marketing and social factors:**

Studies by Sharma and Gupta (2018) reveal that word-of-mouth recommendations from friends and relatives play a crucial role in consumer decision-making for SIM card purchases, often surpassing the impact of traditional media advertisements. Advertising through social media platforms like Facebook, Instagram, and WhatsApp has also gained momentum in influencing younger consumers (Patil, 2019).

**Service usage trends:**

Research conducted by Khan (2017) indicated that prepaid services dominate the Indian telecom market, while postpaid services have a relatively smaller user base. Internet and value-added services such as roaming, games, and mobile browsing are increasingly used, particularly among youth. Kumar and Mehta (2018) found that mobile internet has become a critical driver of growth in telecom services, with users demanding faster data speed and uninterrupted connectivity.

**Challenges faced by consumers:**

Various studies highlight persistent issues in mobile services. Joshi (2016) noted that network coverage and poor call quality remain key concerns for consumers. Similarly, Singhal (2019) emphasized problems related to data speed and customer care inefficiency. These findings align with TRAI's reports, which frequently underline consumer grievances related to billing transparency, activation delays, and value-added services.

**Research gap:**

While prior studies have examined mobile usage patterns and consumer issues at the national level, there is limited region-specific research focusing on states like Maharashtra. Considering the state's regional diversity and socio-economic variations, an in-depth analysis of SIM card usage, service adoption, and consumer problems across different regions can provide valuable insights for both practitioners and policymakers.

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**2. Objectives of the Study**

1. To analyze the number of SIM cards used by consumers in Maharashtra.
2. To examine the media and sources influencing SIM card purchase.
3. To study the average usage of incoming and outgoing calls per week.
4. To identify the services offered by service providers and their level of utilization.
5. To highlight the major problems faced by SIM card users.

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**3. Research Methodology****3.1 Data Source**

The present study is primarily based on primary data collected from mobile users across Maharashtra. A structured questionnaire was prepared to collect responses related to SIM card usage, service adoption, and customer problems. In addition, secondary data was referred from TRAI reports, academic journals, and published literature to supplement the analysis.

**3.2 Sampling Design**

- **Sample Size:** 600 respondents (120 per region)
- **Sampling Method:** Stratified random sampling
- **Analysis Tools:** Descriptive statistics, percentages, and tabular presentations

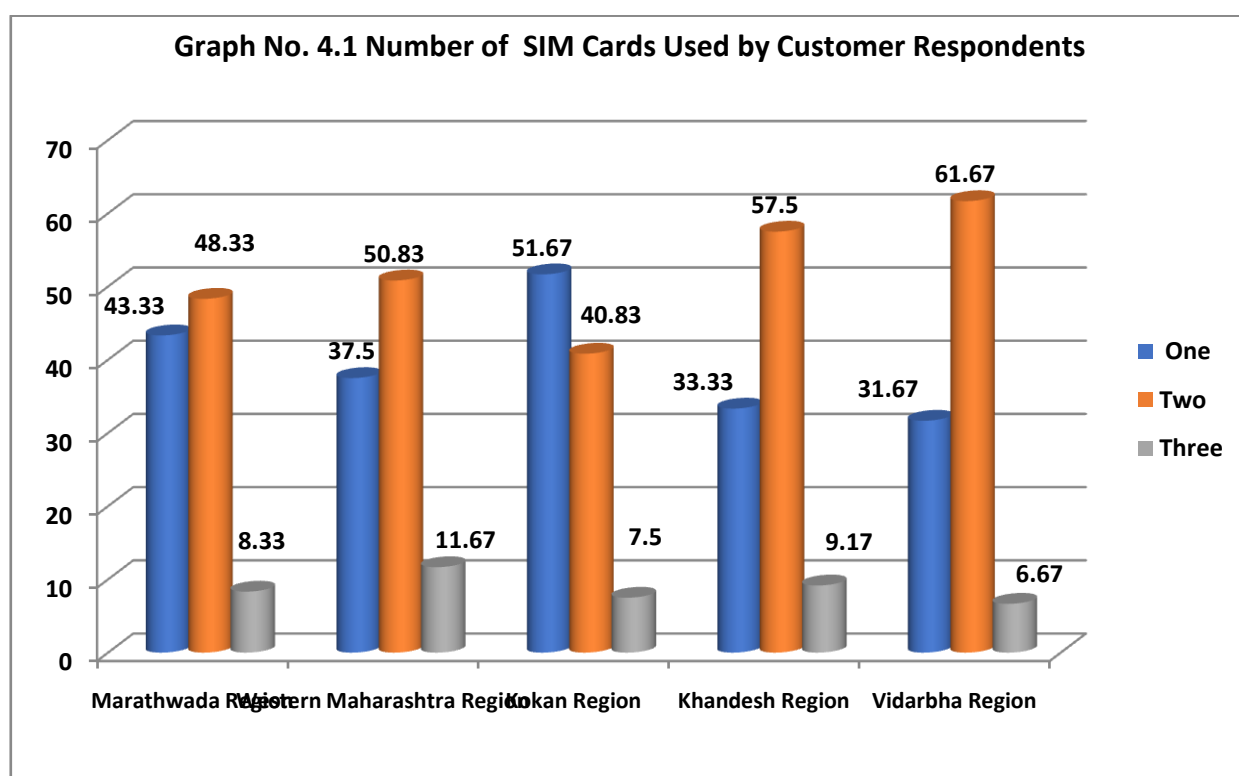
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**4. About Mobile Sim Card.****4.1 Number Of SIM Cards**

**Table No.4.1**  
**Number of SIMCards Used by Customer Respondents**

Number Of Sim	Marathwada Region		Western Maharashtra Region		Kokan Region		Khandesh Region		Vidarbha Region		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>One</b>	52	43.33	45	37.50	62	51.67	40	33.33	38	31.67	<b>237</b>	<b>39.50</b>
<b>Two</b>	58	48.33	61	50.83	49	40.83	69	57.50	74	61.67	<b>311</b>	<b>51.83</b>
<b>Three</b>	10	8.33	14	11.67	9	7.50	11	9.17	8	6.67	<b>52</b>	<b>8.67</b>
<b>Total</b>	<b>120</b>	<b>100.00</b>	<b>120</b>	<b>100.00</b>	<b>120</b>	<b>100.00</b>	<b>120</b>	<b>100.00</b>	<b>120</b>	<b>100.00</b>	<b>600</b>	<b>100.00</b>

Source:- Primary Data.(2021-22)



From the above table 4.1, it is observed that out of 600 sample the number of customer respondents use the Number of SIM cards used by customer respondents for the Two number of SIM were 311 (51.83%) which included maximum 61.67% in the Vidarbha region and minimum 40.83% in the Kokan region. After 237 (39.50%) respondents were one SIM card use which included maximum 57.67% in the Kokan region and minimum 31.67% in the Vidarbha region. Only 52 (8.67%) respondents were used Three SIM card.

It is concluded that Most of the 51.83% respondents has used two SIM cards.

#### **4.2 Media of Attracting to Buy SIM Card**

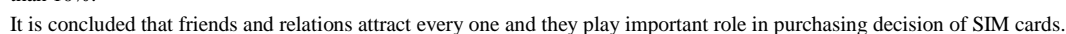
All the SIM Card companies adopt different types of marketing strategy for attracting of customers to buy their brand name of SIM Card. different types of media such as Newspaper, Radio, Television, Magazines, Company pamphlets, Hoarding's, Internet and social media like Face book, Twitter,

Instagram, Whatsappadvertisements, SMS by the Company Marketing executives (agents), Dealers of the company, Friends & Relations, Other sources etc.

**Table No.4.2**  
**Media Of Attracting To Buy SIM Card**

Media Of Attracting	Marathwada Region		Western Maharashtra Region		Kokan Region		Khandesh Region		Vidarbha Region		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
News papers	15	12.50	20	16.67	12	10.00	10	8.33	14	11.67	71	11.83
Radio	2	1.67	4	3.33	3	2.50	5	4.17	3	2.50	17	2.83
Television	13	10.83	10	8.33	14	11.67	16	13.33	22	18.33	75	12.50
Magazines	7	5.83	12	10.00	15	12.50	6	5.00	9	7.50	49	8.17
Company pamphlets	5	4.17	8	6.67	5	4.17	2	1.67	11	9.17	31	5.17
Hoarding's	11	9.17	14	11.67	15	12.50	9	7.50	12	10.00	61	10.17
Internet advertisements and social media like Face book, Twitter, Instagram, Whatsapp.	12	10.00	16	13.33	12	10.00	15	12.50	11	9.17	66	11.00
SMS by the Company	5	4.17	2	1.67	2	1.67	3	2.50	3	2.50	15	2.50
Marketing executives (agents)	12	10.00	10	8.33	4	3.33	10	8.33	2	1.67	38	6.33
Dealers of the company	6	5.00	5	4.17	8	6.67	7	5.83	6	5.00	32	5.33
Friends & Relations	29	24.17	17	14.17	26	21.67	35	29.17	25	20.83	132	22.00
Other sources	3	2.50	2	1.67	4	3.33	2	1.67	2	1.67	13	2.17
Total	120	100.00	120	100.00	120	100.00	120	100.00	120	100.00	600	100.00

Source:- Primary Data.(2021-22)



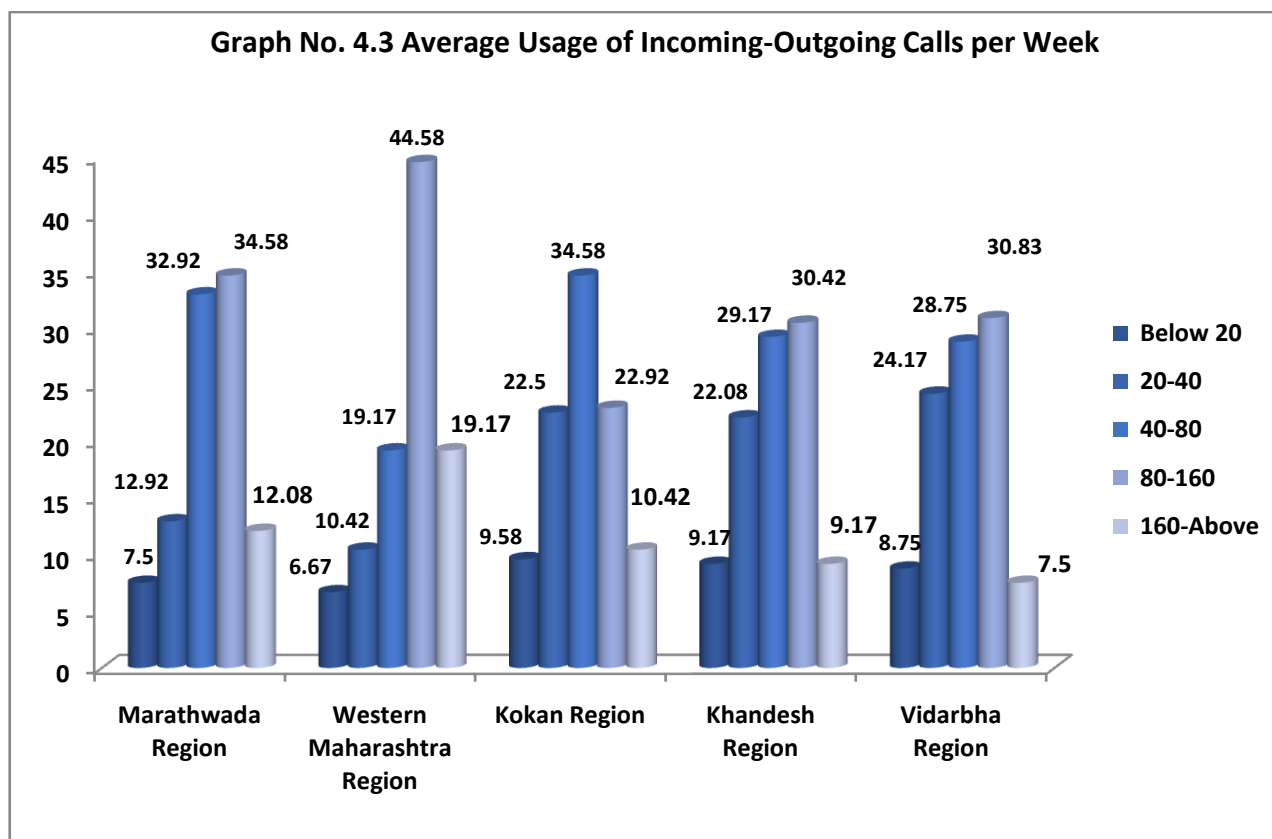
### 4.3 Average Usage Of Incoming-Outgoing Calls Per Week

**Table No.4.3**  
**Average Usage of Incoming-Outgoing Calls per Week**

[illegible]

Outgoing Calls	Below 20	5	4.17	6	5.00	8	6.67	10	8.33	7	5.83	36	6.00
	20-40	16	13.33	13	10.83	26	21.67	21	17.50	24	20.00	100	16.67
	40-80	37	30.83	18	15.00	42	35.00	34	28.33	32	26.67	163	27.17
	80-160	48	40.00	55	45.83	30	25.00	43	35.83	46	38.33	222	37.00
	160-Above	14	11.67	28	23.33	14	11.67	12	10.00	11	9.17	79	13.17
	Total	120	100.00	120	100.00	120	100.00	120	100.00	120	100.00	600	100.00
Total Calls	Below 20	18	7.50	16	6.67	23	9.58	22	9.17	21	8.75	100	8.33
	20-40	31	12.92	25	10.42	54	22.50	53	22.08	58	24.17	221	18.42
	40-80	79	32.92	46	19.17	83	34.58	70	29.17	69	28.75	347	28.92
	80-160	83	34.58	107	44.58	55	22.92	73	30.42	74	30.83	392	32.67
	160-Above	29	12.08	46	19.17	25	10.42	22	9.17	18	7.50	140	11.67
	Total	240	100.00	240	100.00	240	100	240	100.00	240	100.00	1200	100.00

Source:- Primary Data.(2021-22)



The analysis of collected data is indicated in table 4.3 shows that 184 (30.67%) of respondents were use incoming calls 40-80 per week which included maximum 35% respondents in the Marathwada region and minimum 23.33% in the Western Maharashtra region. While 170 (28.33%) of respondents were use incoming calls 80-160 per week which included maximum 43.33% respondents in the Western Maharashtra region and minimum of 20.83% in the Kokan region. While 64 (10.67%) of respondents were use incoming below 20 calls per week which included maximum 12.50% respondents in the Kokan region and minimum of 8.33% in the Western Maharashtra region. Only 61 (10.17%) respondents were use incoming 160- above calls per week .

It is observed that 222 (37%) respondents were use Outgoing calls per week 80-160 which included maximum 45.83% in the Western Maharashtra region and minimum 25% in the Kokan region. While 163 (27.17%) respondents were 40-80 used outgoing calls per week which included maximum 35% in the Kokan region and minimum of 15% in the Western Maharashtra region. While 79 (13.17%) respondents were use Outgoing calls per week 160 – above which included maximum 23.33% in the Western Maharashtra region and minimum of 9.17% in the Vidarbha region. Only 36 (6%) respondents were calls outgoing per week below 20.

It is Seen that 32.67% of respondents were use total 80-160 calls per week which included maximum 44.58% in the Western Maharashtra region and minimum of 22.92% in the Kokan region. While 28.92% respondents were use total 40-80 calls per week which included maximum 34.58% respondents in Kokan region and minimum of 19.17% in the Western Maharashtra region. While 18.42% respondents were use total 20-40 calls per week which included maximum 24.17% respondents in Vidarbha region and minimum of 10.42% in the Western Maharashtra region. While 11.67% respondents were use total 160 – above calls per week which included maximum 19.17% in the Western Maharashtra region and minimum of 7.50% in the Vidarbha region. Only 8.33% respondents were use total below 20 calls per week.

It is concluded that majority respondents use incoming and outgoing calls 32.67% per week.

#### 4.4 Various Services Offered By Service Provider

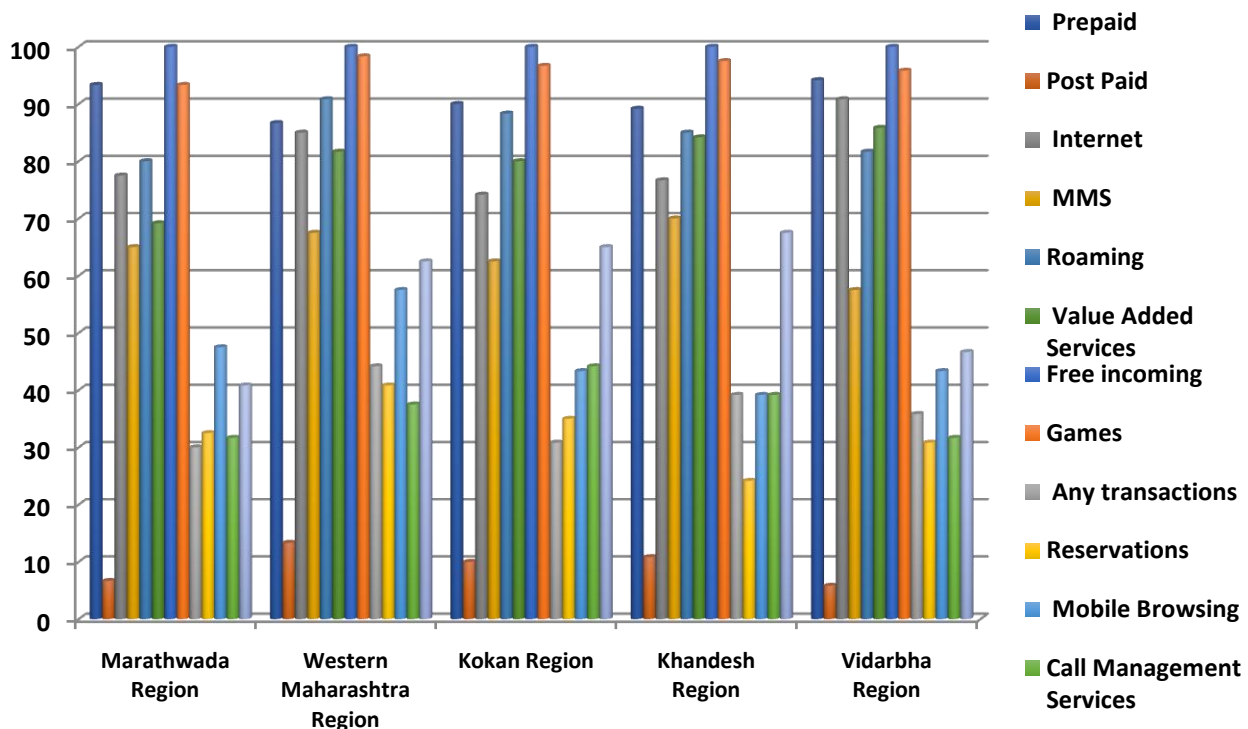
The SIM card company provided various services know as Prepaid, Postpaid, Internet, MMS, Roaming, Value add services, Free incoming, Games, Any transactions, Reservations, Mobile Browsing, Call Management Services and online billing etc. offered by services provider put are rarely used.

**Table No.4.4**

**Various Services Offered By Service Provider**

Various services	Marathwada Region		Western Maharashtra Region		Kokan Region		Khandesh Region		Vidarbha Region		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
<b>Prepaid</b>	112	93.33	104	86.67	108	90.00	107	89.17	113	94.17	<b>544</b> <b>(600)</b>	<b>90.67</b> <b>(100)</b>
<b>Post Paid</b>	8	6.67	16	13.33	12	10.00	13	10.83	7	5.83	<b>56</b> <b>(600)</b>	<b>9.33</b> <b>(100)</b>
<b>Internet</b>	93	77.50	102	85.00	89	74.17	92	76.67	109	90.83	<b>485</b> <b>(600)</b>	<b>80.83</b> <b>(100)</b>
<b>MMS</b>	78	65.00	81	67.50	75	62.50	84	70.00	69	57.50	<b>387</b> <b>(600)</b>	<b>64.50</b> <b>(100)</b>
<b>Roaming</b>	96	80.00	109	90.83	106	88.33	102	85.00	98	81.67	<b>511</b> <b>(600)</b>	<b>85.17</b> <b>(100)</b>
<b>Value Added Services</b>	83	69.17	98	81.67	96	80.00	101	84.17	103	85.83	<b>481</b> <b>(600)</b>	<b>80.17</b> <b>(100)</b>
<b>Free incoming</b>	120	100.00	120	100.00	120	100.00	120	100.00	120	100.00	<b>600</b> <b>(600)</b>	<b>100.00</b> <b>(100)</b>
<b>Games</b>	112	93.33	118	98.33	116	96.67	117	97.50	115	95.83	<b>578</b> <b>(600)</b>	<b>96.33</b> <b>(100)</b>
<b>Any transactions</b>	36	30.00	53	44.17	37	30.83	47	39.17	43	35.83	<b>216</b> <b>(600)</b>	<b>36.00</b> <b>(100)</b>
<b>Reservations</b>	39	32.50	49	40.83	42	35.00	29	24.17	37	30.83	<b>196</b> <b>(600)</b>	<b>32.67</b> <b>(100)</b>
<b>Mobile Browsing</b>	57	47.50	69	57.50	52	43.33	47	39.17	52	43.33	<b>277</b> <b>(600)</b>	<b>46.17</b> <b>(100)</b>
<b>Call Management Services</b>	38	31.67	45	37.50	53	44.17	47	39.17	38	31.67	<b>221</b> <b>(600)</b>	<b>36.83</b> <b>(100)</b>
<b>On line Billing</b>	49	40.83	75	62.50	78	65.00	81	67.50	56	46.67	<b>339</b> <b>(600)</b>	<b>56.50</b> <b>(100)</b>

Source:- Primary Data.(2021-22)

**Graph No.4.4 Various Services Offered By Service Provider**

The analysis of collected data is indicated in table 4.39 shows that 100% of free incoming Service providers provide service respondents use. While 96.33% respondents were used Games Of Service offered by services provider which included maximum 98.33% respondents in the Western Maharashtra region and minimum of 93.33% in Marathwada region. While 90.67% of the respondents were use Prepaid of Service offered by services provider which included maximum 94.17% respondents in the Vidarbha region and minimum of 86.68% in the Western Maharashtra region. While 80.83% respondents were use Internet of Service offered by services provider which included maximum 90.83% respondents in the Vidarbha region and minimum of 74.17% in the Kokan region.

It is observed that various services offered by service provider such as roaming used 85.17% respondents, Value Added service used 80.17% respondents, MMS used 64.50% respondents, Online billing services use 56.50% respondents, Mobile browsing services use 46.17% respondents, Any transaction services use 36% respondents, Call management Services use 36.83% respondents, Reservation service use 32.67% respondents and only 9.33% respondents were service used postpaid.

It is concluded that maximum numbers of respondents of users use services like that free incoming, Games, Prepaid, Internet, Romaine, Value Added, and MMS.

#### 4.5 Problem Area(S) Faced By Customer Respondents

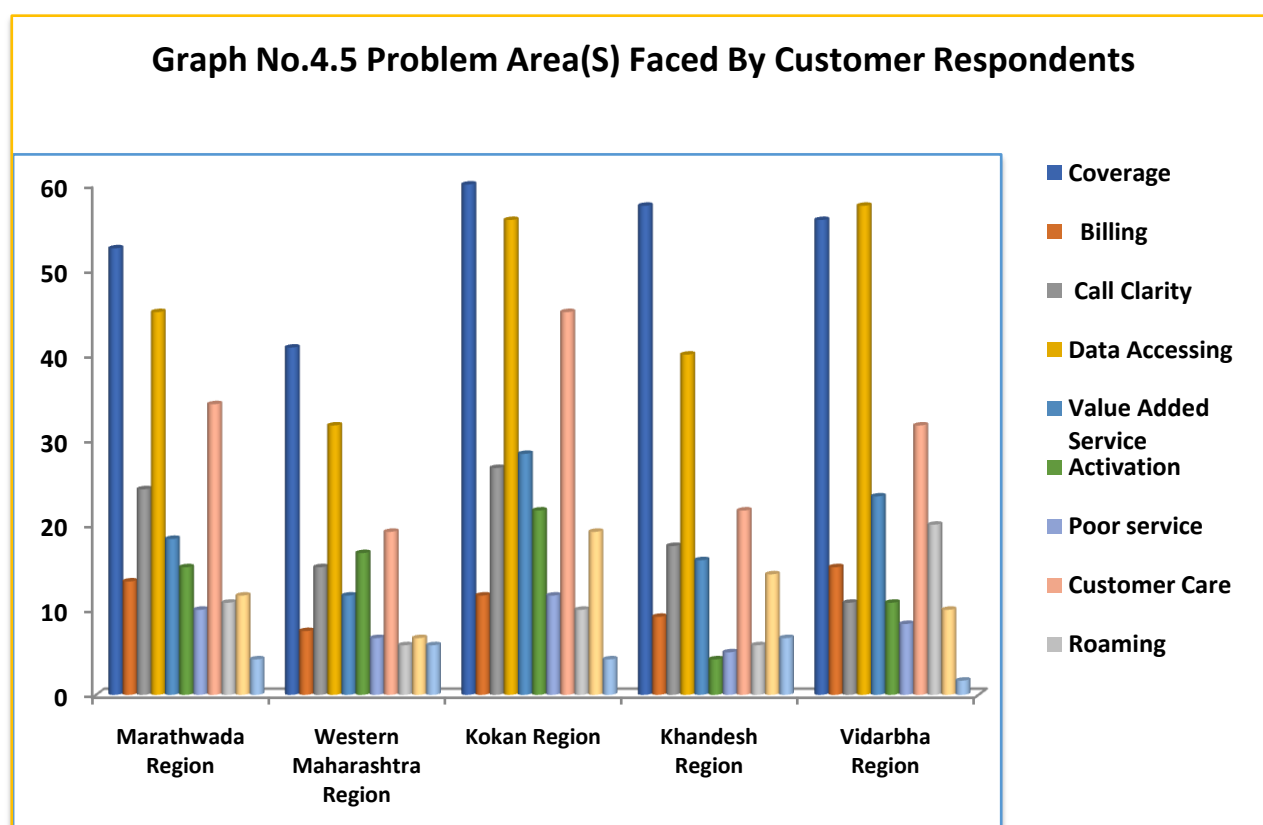
**Table No.4.5****Problem Area(S) Faced By Customer Respondents**

Problem Area	Marathwada Region		Western Maharashtra Region		Kokan Region		Khandesh Region		Vidarbha Region		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Coverage	63	52.50	49	40.83	72	60.00	69	57.50	67	55.83	320 (600)	53.33 (100)
Billing	16	13.33	9	7.50	14	11.67	11	9.17	18	15.00	68 (600)	11.33 (100)



Call Clarity	29	24.17	18	15.00	32	26.67	21	17.50	13	10.83	113 (600)	18.83 (100)
Data Accessing Speed	54	45.00	38	31.67	67	55.83	48	40.00	69	57.50	276 (600)	46.00 (100)
Value Added Service	22	18.33	14	11.67	34	28.33	19	15.83	28	23.33	117 (600)	19.50 (100)
Activation	18	15.00	20	16.67	26	21.67	5	4.17	13	10.83	82 (600)	13.67 (100)
Poor service	12	10.00	8	6.67	14	11.67	6	5.00	10	8.33	50 (600)	8.33 (100)
Customer Care	41	34.17	23	19.17	54	45.00	26	21.67	38	31.67	182 (600)	30.33 (100)
Roaming	13	10.83	7	5.83	12	10.00	7	5.83	24	20.00	63 (600)	10.50 (100)
Poor information from Service providers	14	11.67	8	6.67	23	19.17	17	14.17	12	10.00	74 (600)	12.33 (100)
Other	5	4.17	7	5.83	5	4.17	8	6.67	2	1.67	27 (600)	4.50 (100)

Source:- Primary Data.(2021-22)



The analysis of collected data as indicated in table 4.5 shows that 53.33% respondents (320 out of 600) were coverage users facing problem as the most important factor while a selecting service provider, data accessing speed is another major problematic area, and 30.33% respondents (182 out of 600) were customer care services facing problem poor. While value Added services faced problem 19.50% (117 out of 600) respondents.

While Call celerity face problem 18.83 (113 out of 600) respondents and other problem face like Activation 13.37% respondents, Poor information form service provider 12.33% respondents, Billing 11.33%, Roaming 10.50%, Poor Service 8.33%, and other service 4.50% faced problem of respondents.

It is concluded that 53.33% of the respondents is facing problem in the field of coverage.

## 5. Conclusion

The study on SIM card usage in Maharashtra reveals important insights into consumer behavior, service preferences, and challenges in mobile communication. The findings indicate that the majority of respondents (51.83%) use two SIM cards, reflecting a strong consumer preference for flexibility, cost optimization, and the ability to switch between networks. Prepaid connections dominate the market, while postpaid services remain limited to a small share of users, largely due to cost-conscious behavior.

In terms of purchase influence, the study highlights the significant role of friends and relatives (22%), underscoring the importance of personal recommendations over traditional advertisements. Although television, newspapers, and social media play a role in attracting customers, word-of-mouth remains the most powerful factor in decision-making.

Usage patterns show that most respondents make 80–160 calls per week, indicating a moderate-to-heavy reliance on mobile phones for communication. Services such as free incoming, games, internet, roaming, and value-added offerings are widely used, whereas MMS, online billing, mobile browsing, and transactions have comparatively lower adoption. This reflects the growing dependence on internet-based services and the changing dynamics of mobile usage in the digital era.

On the other hand, customers face critical challenges that affect their overall satisfaction. The most pressing problems are coverage issues (53.33%), slow data speed (46%), and poor customer care (30.33%). Other concerns such as billing transparency, activation delays, call clarity, and poor information also affect user experiences.

Overall, the study concludes that while telecom services have achieved deep penetration in Maharashtra, there remain considerable challenges in terms of network quality and service delivery. Service providers must focus on improving coverage, enhancing data speed, and strengthening customer support systems to build trust and ensure long-term customer loyalty. Additionally, leveraging peer influence and social media-based promotions, while continuing to expand innovative prepaid and value-added services, can help providers align more closely with consumer expectations.

## 6. Suggestions

1. Telecom companies should invest in network infrastructure to address coverage and speed issues.
2. Customer support services need improvement through trained staff and prompt grievance redressal.
3. Marketing campaigns should leverage peer influence and social media, as these strongly affect consumer decisions.
4. Providers should expand affordable prepaid plans with bundled internet and value-added services.
5. Regular feedback surveys should be conducted to identify and address evolving customer needs.

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