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**Subscriber Churning of Madhya Pradesh and Chhattisgarh Telecom Service  
Providers: An Age Based Study**

**Peeyush Shrivastava,**

*Research Scholar, Faculty of Management*

Pacific Academy of Higher Education and Research University, Udaipur (Raj.), India

**Dr. D.T. Manwani,**

*Supervisor*

Pacific Academy of Higher Education and Research University, Udaipur (Raj.), India

**Abstract**

Telecommunication industry has emerged as a fastest emergent segment in the Indian setup which is building challenges for the service providers to retain the existing subscribers. In a universal context, Churn is synonym for AGITATION or TURNOVER, while in industry context; Churn refers to subscriber turnover and especially attrition. Churn is commonly pronounced of in telecommunication context, where it refers to the tendency of mobile phone subscribers to switch service providers. The existence of any industry is based on its talent to retain the customers and with reference to the telecommunication industry; churn control is a very severe concern. Most of the telecommunication service providers invest large amount of money to gain new subscribers and it is more expensive to gain a new subscriber as compare to retain an existing one. When a subscriber leaves the operator, service provider not only loses the prospect revenue from that subscriber; but also the capitals they spend to acquire the subscriber at initial stage. The significance of this research is to perform the age based study of subscriber churning of Madhya Pradesh and Chhattisgarh telecom licensed service providers. In this paper, ANOVA (Analysis of Variance) is used on the sample size of 700 respondents. This will help the leading telecom operators like Idea, Airtel, etc. to formulate the new strategy, to dominate the competitor and to enhance the revenue by controlling the prepaid subscriber churn.

**Keywords:** Churn, Age, ANOVA, Prepaid, Service Providers, Telecommunication Industry

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**Introduction**

Communication stands for sending messages whether encrypted or decrypted from sender to the receiver. With the passage of time, another invention came into picture which 'Technical Pundits' named as 'Telecommunication'. Telecommunication is the capability to transfer and carry information in faster and quicker way. Telecommunication is defined as the technology to communicate from source to the destination with minimization of noise and hurdles.

Telecom sector is currently at boom and growth stage, with main focus on customized products, fulfilling the customer demands, cost minimization and smooth and faster communication with no hurdles at all. Also, the key focus of service providers is to achieve proper and successful acquisitions

and mergers, so as to fulfill the business mission, vision, goals and objectives. Telecom is a boundless technique to understand the peculiarities of an embryonic market (**Shamolin, 2012**).

Indian telecommunication market is just like telecom sector of other countries. There are more than 15 mobile service providers that operate in extremely competitive market. The main focus is to offer attractive telecom data packages at low cost. Near about 96% of subscribers chooses prepaid service facility, whereas rest choose to opt for postpaid services. These subscribers keep on rotating among different service providers through MNP and select the best services offered at comparatively lower prices. Multi-service/SIM card capability option devices are provided to India subscribers just like the US subscribers. Subscribers select the most preferred rates available at the market, activates the SIM with that plan and switch from one operator to another operator (**Allen, 2012**).

The telecommunications industrial sector is lively and active with a huge gamut of customers and subscribers. Proper strategies are the key strength to attract more customers, so as to mint the profit. With the growth of the company, the economy of the country is also improving and better return on investments is generated. Apart from the profit generation motives, telecom sector also started focusing on the customer intentions, their behaviour and attitudes towards products and services offered. India has a stormy market, where numerous operators are facing the cut throat competition. To survive in the market, every company has to give their best to the customer and it becomes the mandatory requirement for the operators to deliver (**Simha, 2011**).

### Literature Review

Bagging and boosting techniques were used by the companies of United States on one lakh subscribers to identify the possible reasons of churn. One of the finding is that the Age of the subscriber has impact on the churn. Middle aged person prefers base plans more, while the youngsters wants other features also, which is the major cause of churn. Low prices plans are preferred by the subscriber and they will churn for the pricing relate issues of the operators. The subscribers want more and more in comparatively low prices. Thus, demographics affect the churning ratio (**Lemmens and Croux, 2006**).

Subscriber churn is the matter of serious concern for all the telecom operators. One of the studies conducted on the sample of 30,000 mobile users reveals that the switching pattern of the subscriber is based on the demographics and other allied reasons. Service quality and delivery, products innovation, service packets and service pushing are significantly associated with the transfer of services from one subscriber to other subscriber. Other demographic factors like age and gender has significant impact on the churning of the subscriber (**Ranganathan et al., 2006**).

The subscribers who keep on doing the out-net call are most probable to churn their services to the other telecom service providers. If the number of times the frequency of the out-net call increases, then the company must consider it as the first signal or the step of subscribers likelihood to churn. The second step is the churn itself. One of the technique known as J48tree is used to predict the churn. Various socio-demographic factors are included in it like Age, City, Gender, Income, Marital Status etc. Other factors are also taken care of like Out-Net Calls, International calls, Tariff plans, SMS and other allied factors. The prepaid subscribers are most sensitive and they churn, if any of the services are hampered (**Nguyen, 2011**).

### **Objective**

The objective of this study is to perform the age based study on the prepaid subscriber churn in the telecommunication sector of Madhya Pradesh and Chhattisgarh.

### **Research Design**

This study was exploratory in nature as it is an investigation in to a problem or situation which provides insights to the researcher. This is a one shot research study at a given point of time and consists of a sample of the population of interest. The typical data filling and survey of this type is advantageous in giving the overall picture of the position at a given time.

### ***The study has covered following Scopes:***

1. Mobile Subscribers of Madhya Pradesh and Chhattisgarh
2. Madhya Pradesh and Chhattisgarh Telecom Licensed Operators
3. Prepaid Subscribers

### ***Data Collection:***

Both primary and secondary data has been used to fulfill the mentioned objective. A Structured questionnaire has been prepared and circulated to the prepaid subscribers of Madhya Pradesh and Chhattisgarh public and private telecom service providers and data regarding the factors responsible for subscriber churning Madhya Pradesh and Chhattisgarh licensed telecom service providers was collected directly interacting with the prepaid subscribers of major operators in Madhya Pradesh and Chhattisgarh like Idea, Airtel, Reliance, BSNL, etc. The questionnaire was simple, easily comprehensible and consisted of both open and closed ended questions. The scale is based on 7-point Likert scale, where 1 is given for Strongly Disagree; 2 for Disagree; 3 for Slightly Disagree; 4 for Neither Agree Nor Disagree; 5 for Slightly Agree; 6 for Agree and 7 for Strongly Agree.

In order to provide a foundation for the current study, secondary data were collected from various sources, so as to develop an insight for the study. Data from various research papers, journals, books, magazines, Internet, and annual reports have been collected with a view to develop a conceptual framework and literature review for the study.

### ***Population and Sample:***

In the present study, the population includes all the prepaid subscribers of public and private telecom service provider of Madhya Pradesh and Chhattisgarh. And, a sample of 700 respondents was taken, wherein a positive interest and response was shown in filling up the questionnaire through face to face interview and e-mail.

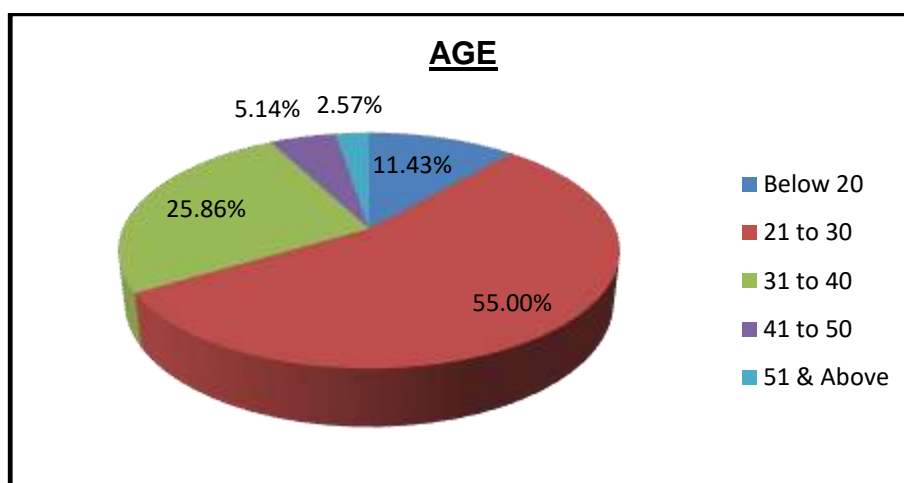
### ***Tools and Techniques:***

1. ANOVA is used to study the demographic i.e. Age.
2. SPSS 17.0 software is used for the analysis.

3. A convenient judgment sampling is used, because a convenience sample results when the more convenient elementary units are chosen from a population for the observation and a judgment sample is obtained according to the discretion of someone who is familiar with the relevant characteristics of the population.

### Analysis and Findings

Demographical analysis is the key element, as it represents the bird's eye view of the research. In this research study, I have collected in total of 700 responses from the subscribers with the help of structured questionnaire. Demographic analysis is carried out for Age. Following is the pictorial and percentage wise distribution of the analysis.



The Age wise classification of the respondents shows that out of 700 respondents taken for the study, it was found that 80 respondents were in the age category of below 20 years, 385 respondents were in the age category of 21 to 30 years, 181 respondents were in the age category of 31 to 40 years, 36 respondents were in the age category of 41 to 50 years and 18 respondents were found to be in the age category of 51 and above years.

| Age          | No. of Respondents | Respondents %  |
|--------------|--------------------|----------------|
| Below 20     | 80                 | 11.43%         |
| 21 to 30     | 385                | 55%            |
| 31 to 40     | 181                | 25.86%         |
| 41 to 50     | 36                 | 5.14%          |
| 51 & Above   | 18                 | 2.57%          |
| <b>Total</b> | <b>700</b>         | <b>100.00%</b> |

### **Reliability Analysis - Scale (Cronbach's Alpha):**

In the preliminary analysis data obtained was analyzed using SPSS 17.0 to study the factors responsible for subscriber churning of Madhya Pradesh and Chhattisgarh telecom service providers. Reliability and Validity check was performed and the reliability statistics shows the value of Cronbach's alpha as 0.948

which is closer to value 1.00 that shows that internal consistency is good. Hence, data is reliable for 700 numbers of Cases and 44 numbers of Items.

| TABLE 2 : Reliability Statistics |            |
|----------------------------------|------------|
| Cronbach's Alpha                 | N of Items |
| .948                             | 44         |

**Hypothesis:**

**H<sub>01</sub>:** There is no significant effect of “Age” on the subscriber churning of Madhya Pradesh and Chhattisgarh telecom service providers.

**H<sub>a1</sub>:** There is significant effect of “Age” on the subscriber churning of Madhya Pradesh ad Chhattisgarh telecom service providers.

| TABLE 3 : Descriptives |            |               |                |               |                                  |               |             |             |
|------------------------|------------|---------------|----------------|---------------|----------------------------------|---------------|-------------|-------------|
| Subscriber Churn       |            |               |                |               |                                  |               |             |             |
|                        | N          | Mean          | Std. Deviation | Std. Error    | 95% Confidence Interval for Mean |               | Minimum     | Maximum     |
|                        |            |               |                |               | Lower Bound                      | Upper Bound   |             |             |
| Below 20               | 80         | 3.5511        | 1.04275        | .11586        | 3.3205                           | 3.7816        | 1.16        | 5.70        |
| 21 to 30               | 385        | 3.2739        | 1.10290        | .05628        | 3.1633                           | 3.3846        | 1.41        | 6.77        |
| 31 to 40               | 181        | 3.0801        | 1.04955        | .07801        | 2.9262                           | 3.2340        | 1.27        | 5.89        |
| 41 to 50               | 36         | 2.9287        | .87407         | .14568        | 2.6329                           | 3.2244        | 1.66        | 5.14        |
| 51 & Above             | 18         | 3.2386        | .97860         | .23066        | 2.7520                           | 3.7253        | 1.59        | 4.89        |
| <b>Total</b>           | <b>700</b> | <b>3.2372</b> | <b>1.07684</b> | <b>.04070</b> | <b>3.1573</b>                    | <b>3.3171</b> | <b>1.16</b> | <b>6.77</b> |

| TABLE 4 : ANOVA  |                |            |             |       |      |
|------------------|----------------|------------|-------------|-------|------|
| Subscriber Churn |                |            |             |       |      |
|                  | Sum of Squares | Df         | Mean Square | F     | Sig. |
| Between Groups   | 16.391         | 4          | 4.098       | 3.586 | .007 |
| Within Groups    | 794.164        | 695        | 1.143       |       |      |
| <b>Total</b>     | <b>810.555</b> | <b>699</b> |             |       |      |

**Result**

A one-way ANOVA was conducted to explore the impact of “Age” on the prepaid subscriber churn. The above table 3 shows that there were 80 people below the age group of 20 years, 385 people in the age group of 21-30 years, 181 people in the age group of 31-40 years, 36 people lies in the age group of 41- 50 years and 18 people lies in the age group of 51 & above years. According to table 4,

the calculated value of  $F(4, 695) = 3.586$  at 5 percent level of significance. Since, the p-value is 0.007 ( $p < 0.05$ ), it reject the null hypothesis and accept the alternative hypothesis. It is concluded that there is significant impact of "Age" on the subscriber churning of Madhya Pradesh & Chhattisgarh telecom service providers at 5% significance level which reveals that different age group people contribute to the diversified reasons of churn in the telecom sector like Network issues, Pricing competition, Promotional Strategy, etc.

### Conclusion

The telecom industry, especially the mobile industry of India is undergoing a transformation and the number portability is bringing about imperatives worthy enough to carry out high-end research. Also, because of ongoing intense competition in mobile industry, companies are trying to attract and maintain their customers and motivate them to stay away from competitors. Actually, if companies want to stay in their competitive world, they have to invest on customer retention thereby going through different age group of the subscribers. They should sense the need basis different age of the subscribers and make plans separately and effectively for each age group.

### Abbreviations

ANOVA - Analysis of Variance

MNP - Mobile Number Portability

SIM - Subscriber Identity Module

US - United States

SMS - Short Message Service

BSNL - Bharat Sanchar Nigam Limited

SPSS - Statistical Package for Social Sciences

KMO - Kaiser Meyer Olkin

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