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# ATTEMPTING AN IN-DEPTH ANALYSIS OF SMARTPHONE USER DEMOGRAPHICS TO DEVELOP THE EMPLOYABILITY OF AN ANALYTICS MODEL IN PREDICTING USER BEHAVIOUR

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I have chosen the Indian trade market in my paper for several reasons. As a foreigner, Indian fast-growing economic development and being a member of BRICS is aroused topic all over the world.

Development of science and technology is enormously blistering. Nowadays, smartphones such as iPhone, Blackberry, Samsung Galaxy, HTC, and of course Nokia series etc are most demanded items in the world. There is an example of smartphone popularity.
"In the December quarter, 2011, Apple sold 37 million of the world's most popular smartphone, at a rate of 4.6 per second. This compares to the current global birth rate of about 4.2 births every second."
Not only smartphones are predicated, but also Tablets such as Samsung note, Blackberry tablet, Apple iPad (different generations), Intel tablet, etc. Through my research, I noticed the preference of tablet rather than Smartphone is increasing. According to Amazon CEO Jeff Bezos informed that "I found that Smartphone users are roughly 50% more likely than the average person to own a tablet across the US, UK, France, Germany, and Japan." October 2011.

Price of tablet range is, starting from Rs.25990/-. Medium rate of Apple iPad is Rs.38900/-.The latest model of Smartphone rate such as Samsung, Blackberry, Apple iPhones are Rs.25000/-, Rs.29000/-, Rs.35000/-, respectively.

This research is based on a survey of a paper questionnaire. I gathered a sample of 50 users are male and female, different ages, assorted choice and usage of smartphone and tablet.

Here, I used Microsoft Office Word 2007 and Microsoft office Excel 2007.

Data into Tally Marks

| | Preference |
|---|---|
| Smartphones | 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 I |
| Tablets | 𝍸 𝍸 𝍸 IIII |

Table 1

Presenting the result of Tally marks

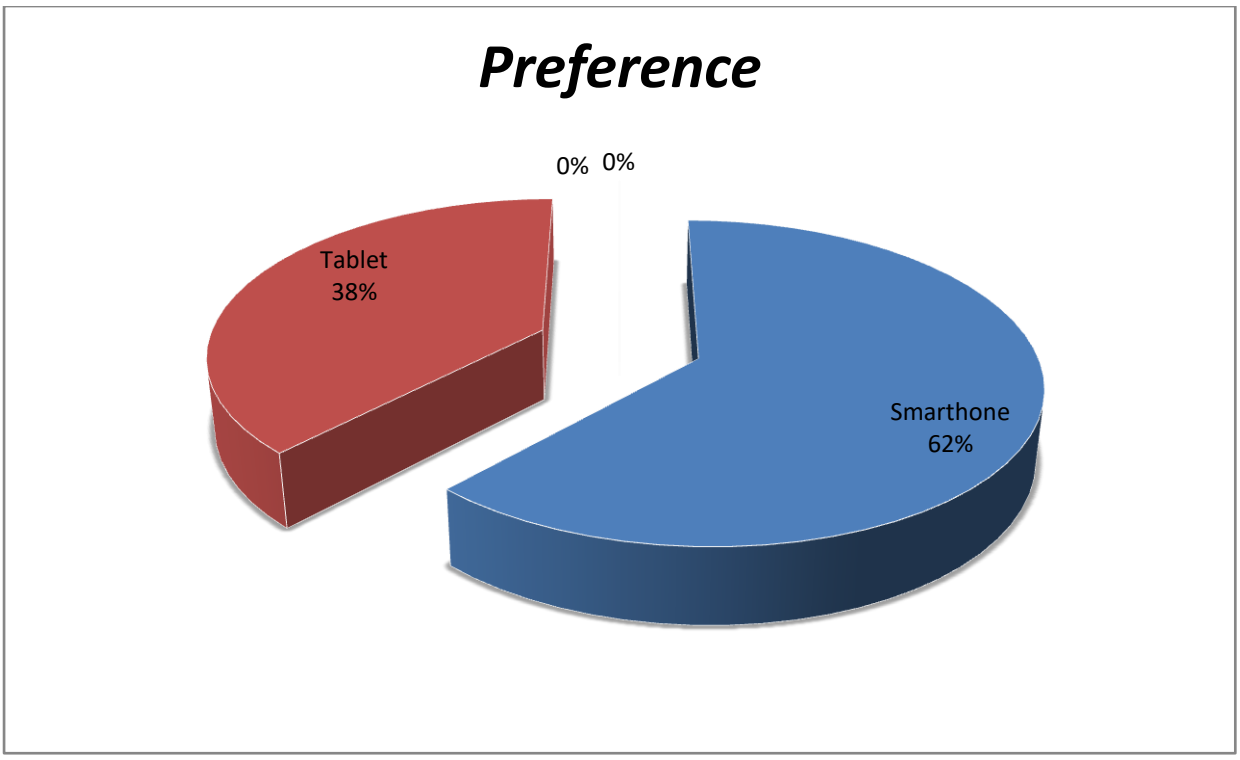
| | Preference |
|---|---|
| Smartphone | 31 |
| Tablet | 19 |

Table 2

AppendixA. Here, tables represents a total preference of compared products. Smartphone preferred 31 out of 50 people, and tablet preferred 19 participants out of total 50 people.

Mean of Smartphone: $\bar{X} = \frac{\sum_{i=1}^{i=n} X_i}{n}$ 31/50=0.62

Mean of Tablet: $\bar{X} = \frac{\sum_{i=1}^{i=n} X_i}{n}$ 19/50=0.38



## Interpretation

From above pie diagram, we can see that the tablet users are less than smartphone users among fifty participants who are from different gender and age groups. The difference between those products is 24 %. Therefore, the major interest belongs to Smartphone rather than tablets.

Data into Tally Marks

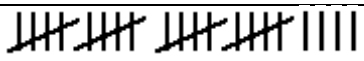
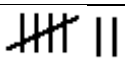
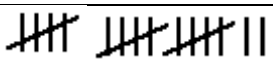
| | Do you use the product every day? | |
|---|---|---|
| | Yes, always | No, not every day |
| SMARTPHONE |  |  |
| TABLET |  |  |

Table 3

Presenting the result of Tally marks

| | Do you use the product every day? | |
|---|---|---|
| | Yes, always | No, not every day |
| SMARTPHONE | 24 | 7 |
| TABLET | 17 | 2 |

Table 4

AppendixB. Here, tally mark and it's conversion tables represents the daily usage of preferred products among 50 people.

- ✓ The 24 out of 31 people use their product every day, but 7 out of 31 are not daily users of SMARTPHONE.

Mean coefficient of daily users of Smartphone: 24/31=0.774

Mean coefficient of NOT daily users of Smartphone: 7/31=0.226

- ✓ The 17 out of 19 people use their product every day, but 2 out of 19 are not daily users of TABLET.

Mean coefficient of daily users of Tablet: 17/19=0.895

Mean coefficient of NOT daily users of Tablet: 2/19=0.105

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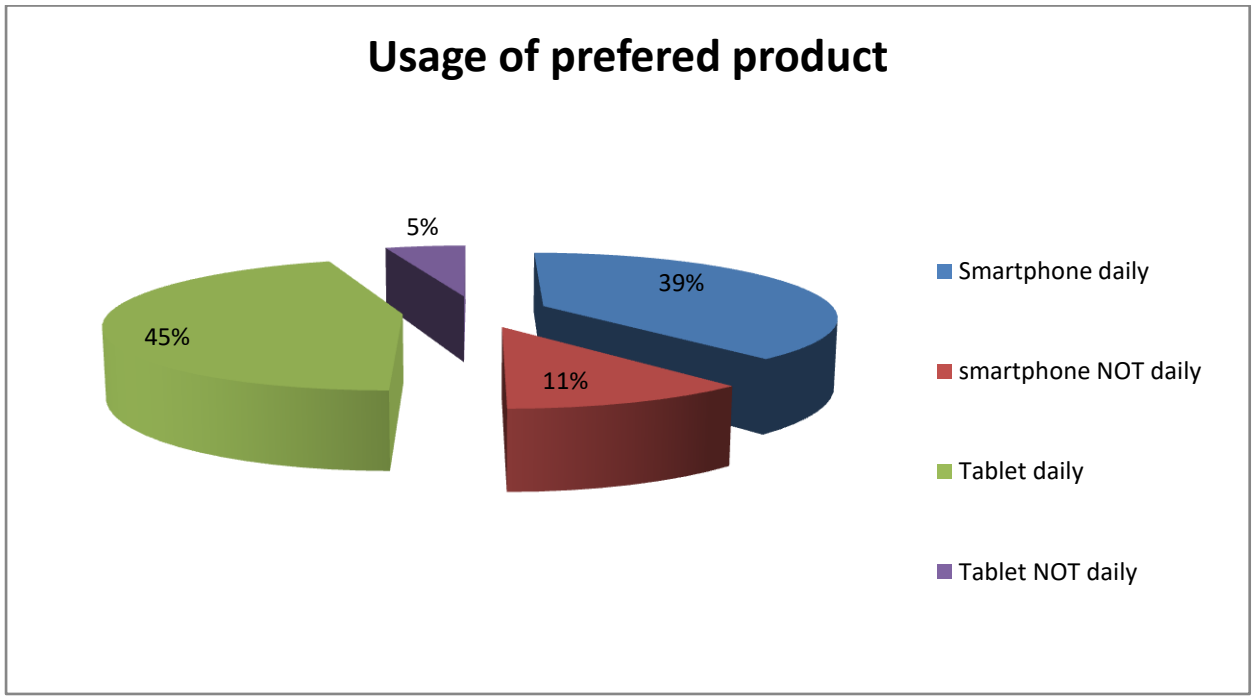



**Interpretation of the above pie diagram**

Here, we can see that the percentage of daily usage of **tablet** is 45% and Smartphone daily usage is 39%. It represents the value of using tablet is more than Smartphone, but the number of those who do **not** use their **Smartphone** is more than the tablet users.

Data into Tally Marks

| | SMARTPHONE | TABLET |
|---|---|---|
| Gender Male | 𝍸𝍸 | 𝍸𝍸 |
| Gender Female | 𝍸𝍸 𝍸 | 𝍸 |
| Age 18-28 | 𝍸𝍸 𝍸𝍸 𝍸 | 𝍸𝍸 𝍸 |
| Age 29-39 | 𝍸 | 𝍸 |
| Age 40-50 | 𝍸 | - |

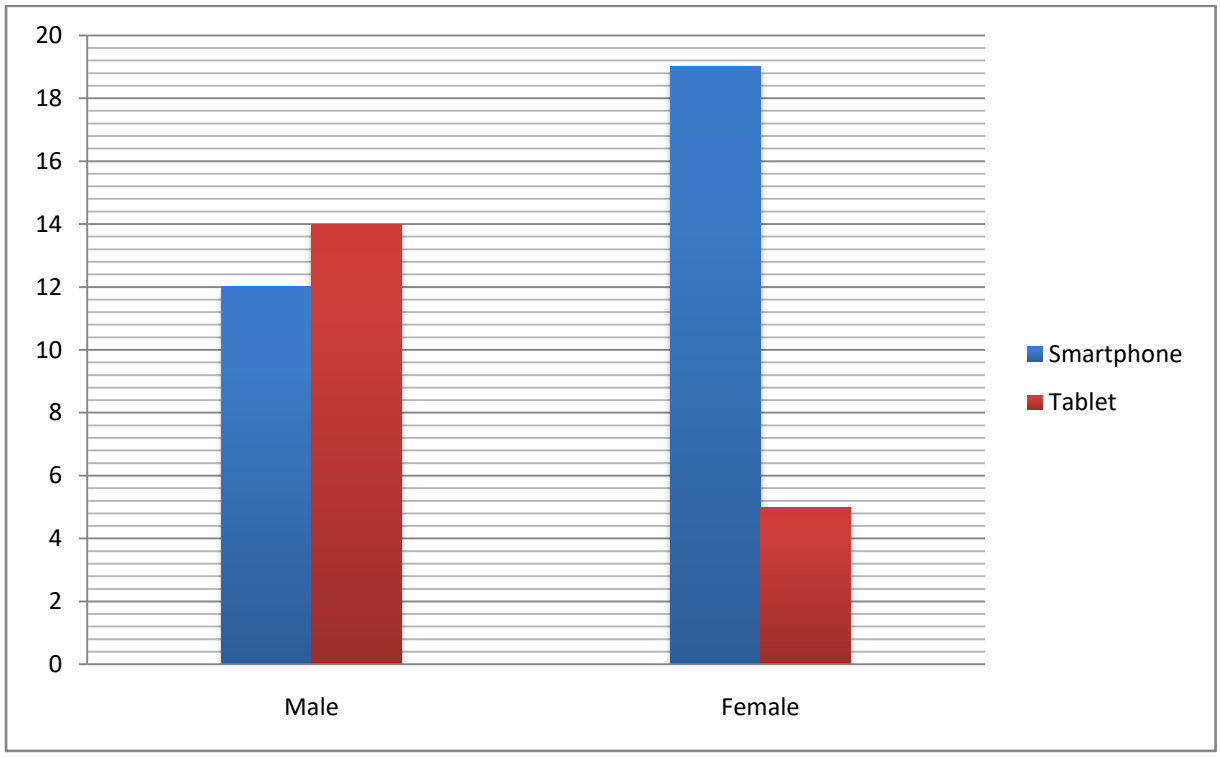
Table 5

Presenting the result of Tally marks

| | SMARTPHONE | TABLET |
|---|---|---|
| Gender Male | 12 | 14 |
| Gender Female | 19 | 5 |
| Age 18-28 | 25 | 16 |
| Age 29-39 | 5 | 3 |
| Age 40-50 | 1 | - |

Table 6

AppendixC. Here, tally mark and it's conversion tables represents customers gender and age groups among 50 people.

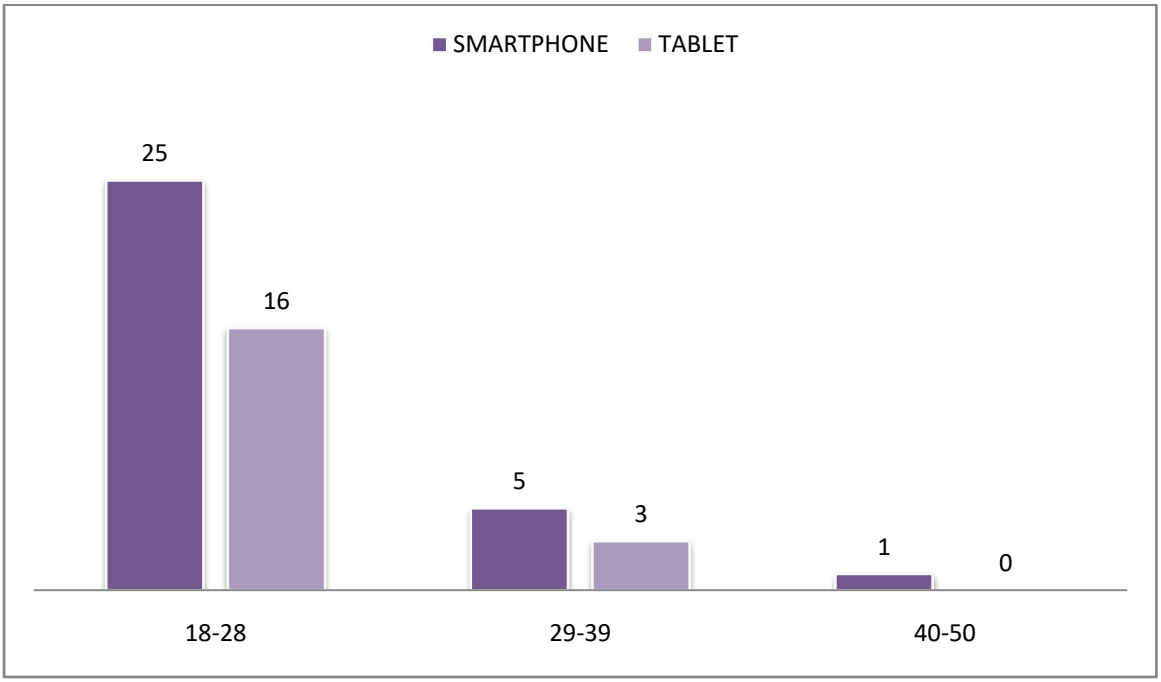



**Remark:** On the basis of the above diagram, we can easily conclude that men have more interest in Tablets than women, but less usage of smartphone than women.

I divided the total customers age into three major intervals, such as

| | Smartphone | Tablet |
|---|---|---|
| **18-28** | 25 | 16 |
| **29-39** | 5 | 3 |
| **40-50** | 1 | - |

The graph shows the choice of preferred products among age intervals:




## Interpretation

From the above chart, major participants belong to age of 18-28 years, 25 out of 41 have chosen Smartphone and rest 16 out of 41 have chosen tablet. But those who belong to 29-39 age group, 5 out of 8 for Smartphone and rest 3 have chosen tablet. In the age group of 40-50, there was only one participant who voted for Smartphone. Therefore, we can see that in the different age group of people ended up with higher interest in SMARTPHONE.

Correlation between Smartphone and Tablet based on the age differentiation calculated by below formula

$$r = \frac{\sum(X_i - X_{mean})(Y_i - Y_{mean})}{\sqrt{\sum(X_i - X_{mean})^2}\sqrt{\sum(Y_i - Y_{mean})^2}}$$

| | Smartphone | Tablet |
|---|---|---|
| 18-28 | 25 | 16 |
| 29-39 | 5 | 3 |
| 40-50 | 1 | 0 |
| **correlation** | | **0.999777** |

Since the correlation coefficient is approximately **0.9998,** it is called VERY HIGH DEGREE OF CORRELATION

Let, **Smartphone** frequency is X, and let's find CUMULATIVE FREQUENCY.

| Age (years) | X (frequency) | Mean of age | Cumulative frequency |
|---|---|---|---|
| **18-28** | 25 | 23 | 25 |
| **29-39** | 5 | 34 | 25+5=30 |
| **40-50** | 1 | 45 | 30+1=31 |
| | | | fc=31 |

$$Q_1 \text{ position} = \frac{(f_c + 1)}{4}$$ Q1=(31+1)/4=8

$$Q_2 \text{ position} = \frac{2(f_c + 1)}{4}$$ Q2=2*(31+1)/4=16

$$Q_3 \text{ position} = \frac{3(f_c + 1)}{4}$$ Q3=3*(31+1)/4=24

$$\text{Interquartile range} = Q_3 - Q_1$$ Q3-Q1= 24-8 = 16

**Standard deviation and population variance of Smartphone**

| x | X(midvalue) | F | FX | X-x' | (X-x')^2 | F(X-x')^2 |
|---|---|---|---|---|---|---|
| ***18-28*** | ***23*** | ***25*** | ***575*** | ***-2.48387*** | ***6.169615*** | ***154.2404*** |
| ***29-39*** | ***34*** | ***5*** | ***170*** | ***8.516129*** | ***72.52445*** | ***362.6223*** |
| ***40-50*** | ***45*** | ***1*** | ***45*** | ***19.51613*** | ***380.8793*** | ***380.8793*** |
| | | **31** | **790** | | | **897.742** |

| | |
|---|---|
| **mean** | **25.48387** |
| **median** | **5** |
| **Var** | **448.871** |
| **st.dev** | **21.18658** |

Let Y be the frequency of **Tablet** and Cumulative frequency calculation:

| Age(years) | Y (frequency) | Mean of age | Cumulative frequency |
|---|---|---|---|
| 18-28 | 16 | 23 | 16 |
| 29-39 | 3 | 34 | 16+3=19 |
| 40-50 | - | 45 | 19+0=19 |

fc=19

$$Q_1 \text{ position} = \frac{(f_c + 1)}{4}$$ Q1=(19+1)/4=5

$$Q_2 \text{ position} = \frac{2(f_c + 1)}{4}$$ Q2=2*(19+1)/4=10

$$Q_3 \text{ position} = \frac{3(f_c + 1)}{4}$$ Q3=3*(19+1)/4=15

Q3-Q1= 15-5 = 10

$$\text{Interquartile range} = Q_3 - Q_1$$

**Standard Deviation and population variance of Tablet**

| x | X(mid value) | F | FX | X-x' | (X-x')^2 | F(X-x')^2 |
|---|---|---|---|---|---|---|
| *18-28* | *23* | *16* | *368* | *-1.73684* | *3.01662* | *48.26593* |
| *29-39* | *34* | *3* | *102* | *9.263158* | *85.80609* | *257.4183* |
| *40-50* | *45* | *0* | *0* | *20.26316* | *410.5956* | *0* |
| | | **19** | **470** | | | **305.684** |

| | |
|---|---|
| **mean** | **24.73684** |
| **median** | **3** |
| **Var** | **152.8421** |
| **st.dev** | **12.36293** |

Smartphone and tablet are highly recommended products not only in India but also the rest of the world. Among 50 users of Smartphone and tablet gathered different choice, belonged in different age groups and gender.

Based on the basis of brief interpretation, appendix and remarks of every chart, diagram, and tables, we see that the higher interest and usage durability etc voted for Smartphone rather than Tablet. In a gender basis, we can reach in conclusion, most women participants use Smartphone and most of the male participants use tablets than Smartphone. On comparison of the age group, we concluded that every group had a higher interest in Smartphone than tablet.

In the end, preference of SMARTPHONE is much higher than TABLET in the Indian economy. Therefore Smartphone is the most popular INSTRUMENT among customers.