Comparative Analysis of Buying Behaviour of Mobile Phones Among Gen-Y (1981 to 1996) and Gen-Z (1997 to 2013) According to the Operating System (OS)

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Abstract:- This research is to study the mobile phone purchasing behaviour among two generations which are Gen-Y and Gen-X and their mobile operating system affiliation (iOS or android).As smartphone ownership moves closer to global saturation, it raises many questions about what the future of smartphones will look like and what future consumers, especially younger generations, are looking for.Gen Z (born 1997-2012) grew up in a fully immersed digital world. Their first experience with a phone is more likely to be a smartphone, and subsequent purchases will come from the position of an experienced smartphone user. Therefore, the influences and decisions during their buying journey look very different than those of Gen X and earlier generations.More than other generations, Gen Z and Gen Y's main criteria for choosing a smartphone are design/colour and multimedia capabilities such as Internet browsing, music, video, etc. Let us not forget that these generations maximize the average number of activities performed on their smartphone. It is their device of choice for most activities via tablet, laptop, or desktop.For Gen Z, the camera is especially important, with three out of five smartphone owners buying it for this reason, specifically the quality of the rear camera and app features. Just over 50% of Gen Y buy their device for a camera and are more likely to look for dual lenses and low-light photo quality.In many markets; such as the US, urban China, the UK, France, Germany and Australia, the iPhone traditionally appeals to most brands.However, over the past five years, the share of iPhones among Gen Y has decreased in favour of Android brands (US, urban China, and France), while it has increased in others (UK, Germany, and Australia).However, in 2022, android held a share of 95.26 percent of the mobile operating system market in India. Apple's iOS followed, a distant second, with a market share of 3.92 percent.With the help of primary data, we would like to advance our research. The primary information we got by doing primary research would allow us to get credible and direct answers from the two generations themselves.

Keywords:- IOS, Android, Features, Gen Z, Gen Y, Smartphones, Age, Technology.

I. INTRODUCTION

Operating systems are an essential part of mobile devices and have a significant impact on how Generation Y (Millennials) and Generation Z (Post-Millennials) use their mobile devices.

Both Gen Y and Gen Z are considered digital natives in terms of user experience and have high expectations for the usability of their mobile devices. The entire user experience, which includes usability, responsiveness, and reliability, is heavily influenced by the operating system of mobile devices.

Gen Y and Gen Z primarily rely on mobile apps for communication, entertainment, and productivity, according to app availability. A mobile device's operating system controls which apps are offered and how they work, which can have a big impact on the user experience.

Based on the app's security and privacy, Generation Y and Gen Z realize the value of privacy and security because they were born into the digital age. The range of security and privacy features available on mobile devices, such as biometric authentication, encryption, and permission controls, depends on the operating system.

Both generations place a high value on customization and the ability to personalize their devices to suit their interests. The degree of customizability, including the choice of wallpapers, themes, and app icons, depends on the operating system of the mobile devices.

Generation Z and Millennials grew up with mobile technology at their fingertips. Besides the cameras in their phones, most people do not even use landlines or cameras. The big smartphone makers are fighting for their loyalty as they make up more than half of the population and many consumer purchases. In this analysis, we compare the consumer demographics of iOS and Android customers, considering the Gen-Y and Gen-Z generations.

With a 72% share of the global mobile operating system market, compared to iOS's 28% share, Android is the market leader. With a 32% market share, Samsung leads all smartphone manufacturers worldwide, followed by Apple (28%). Although Apple and Samsung dominate the smartphone market, it is important to note that other OEMs represent 40% of the market. Chinese manufacturers, including Huawei and Xiaomi, have expanded over the past

few years. The first step will be to compare the purchasing behaviour of mobile phones, i.e., smartphones based on the operating system (iOS or Android) by generation.The research shows a dramatic generational difference: while Gen Z primarily focuses on iOS phones, the older generation used Android and iOS smartphones about equally.

As smartphone ownership edges ever closer to global saturation, it prompts many questions around what the future of smartphones will look like and what future consumers, particularly younger generations are looking for. Coronavirus will undoubtedly have an impact on consumer decisions, which we are currently tracking and should understand better in the coming weeks.

Gen Z (born 1997-2012) have grown up in a fully immersed digital world. Their first phone experience is more

likely to be smartphone and subsequent purchases will come from the position of an experienced smartphone user. Therefore, the influences and decisions throughout their purchase journey look quite different than that of Gen X and earlier generations. In the US today, 95% of mobile phones owned by Gen Z and Gen Y (born 1981-1996) are smartphones, this is even higher in EU5 and urban China, each at approximately 97%.

Compared to three years ago, there has been a rise in Gen Z smartphone owners making handset purchases themselves, increasing their control over purchasing decisions. In 2019, 68% of smartphones owned in EU5 (UK, France, Germany, Spain and Italy) were self-purchased compared to 62% in 2017. Self-purchase has also increased among Gen Y.
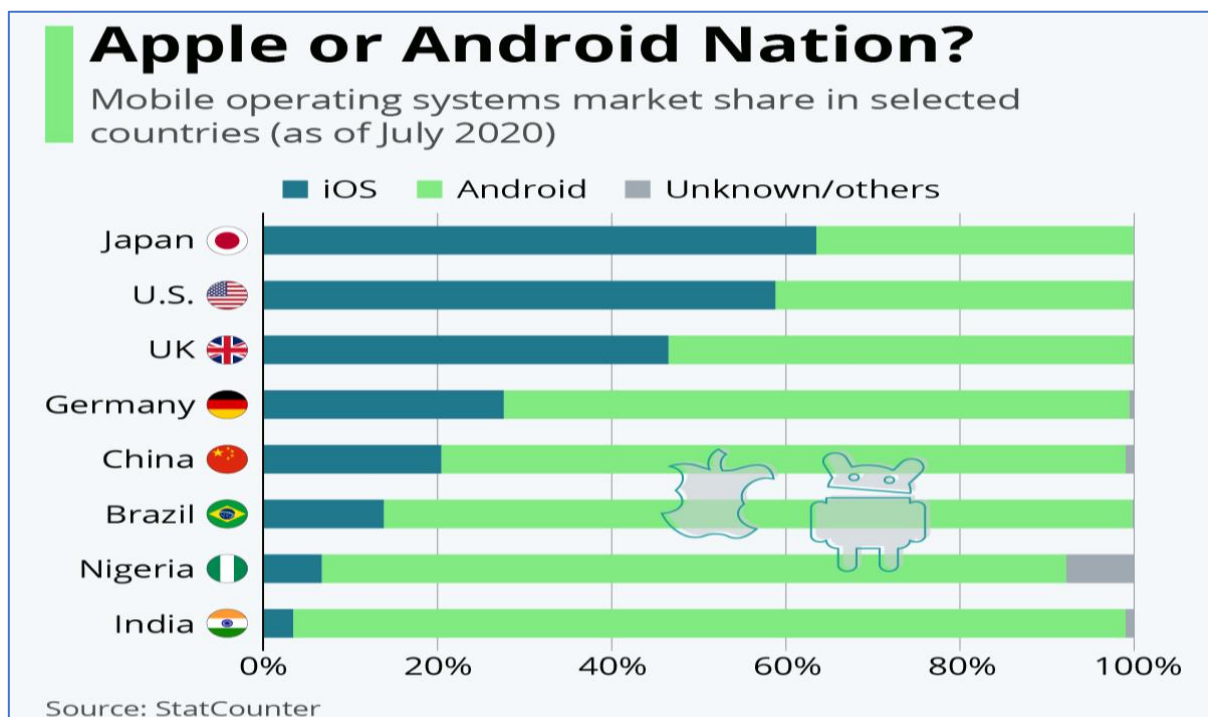

Fig. 1: Apple or Android Nation

A. *So, whether a first-time or replacement purchase, what are self-purchasing Gen Z and Gen Y smartphone buyers looking for?*

More than other generations, the main criteria Gen Z and Gen Y have for choosing a smartphone are design/colour and multimedia capabilities such as internet browsing, music, video, etc. Let's not forget, these generations are those who maximise the average number of activities performed on their smartphone. It is their preferred device for most activities over tablet, laptop, or a desktop.

B. *When it comes to handset, Gen Z on average have more reasons for purchasing.*

In the EU5 for Gen Z the camera is especially important, with three out of five smartphone owners buying for this reason, specifically for the quality of the rear camera and app features. Just over 50% of Gen Y purchase their device for the camera and are more likely to look for dual lens and quality of photos in low light.

In the EU5 Gen Z are also more likely to be choosing their device for the new technologies i.e., face recognition and 5G capability, whereas Gen Y are choosing for quality of the hardware i.e., material and speed of processor.

While desirability is still true in the US and Australia, early upgrade options also trigger purchasing. The global prevalence in trade-in schemes has increasingly influenced Gen Z and Y's purchase. This enables consumers to access the latest devices and manage their budget. Should this behaviour be carried forward into future purchasing we can expect to see replacement cycles shorten.

In urban China, compared to earlier generations, Gen Z and Gen Y are more likely to be driven by a desire for the latest model or a newer device rather than a need to change i.e. experiencing functional issues with their device, like slowing down.

C. What about brand preference amongst Gen Z and Gen Y?

In many markets, such as the US, urban China, Great Britain, France, Germany and Australia, iPhone has traditionally appealed above most brands.

However, in the last five years among Gen Y iPhone share has decreased in favour of Android brands (US, urban China, and France), while in others it has increased (Great Britain, Germany and Australia).

In the EU5 overall Gen Y are more likely to be Android owners and this cohort are disproportionately more loyal to Android than iPhone than Gen Z (Gen Y Android to iPhone loyalty ratio 117 vs. Gen Z 105).

Despite the squeeze from Huawei, iPhone managed to achieve higher levels of loyalty among both cohorts than the year before. Retaining customers is particularly important for iPhone in Europe as loyalty to Android is high, regardless of cohort. In the event of declining loyalty, winning lost customers back to iPhone would be more challenging, particularly among Gen Y where loyalty is as high as 95%.

In EU5 Gen Z share is more concentrated among the top three brands (iPhone, Samsung and Huawei) 77% vs. Gen Y at 74% and in the last three years this trend has increased across all generations. While over a third of this share continued to be iPhone, 3 percentage points were lost and Huawei was the only main brand to gain share.

D. So how should a brand go about engaging and communicating with these different generations?

Gen Z need a visual engagement – they get their information through watching influencers, video reviews, product launch events and social media.

Gen Y are more likely to lean on network providers by visiting a network website.

As innovation becomes less of a differentiator, brand cache becomes of paramount importance and understanding which messaging and positioning will appeal to which segment, whether for customer acquisition or customer retention, is vital. The challenge manufacturers face now and in the future with Gen Z and Gen Y will be in leading with true innovation that drives desire to match the expectations of experienced smartphone users, all the while making such devices accessible.

In short, Gen-Y (born between 1981-1996) and Gen-Z (born between 1997-2012) tend to prefer different operating systems. Gen-Y may lean towards Apple's iOS, while Gen-Z may prefer Google's Android OS. When choosing a phone, Gen-Y tends to prioritize user experience and reliability, but Gen-Z wants personalization and cost-effectiveness first. Regardless of operating system, both generations tend to prioritize features such as camera quality, battery life, and storage capacity when choosing a phone. Brand loyalty also affects purchasing decisions, with some people being more willing to continue with the operating system or manufacturer they previously used. Also, peer influence and

social media have an impact on consumer behaviour as both generations are influenced by the suggestions of friends and influencers on various social media platforms.

II. OBJECTIVES

- To Identify and evaluate variables influencing Gen-Y and Gen-Z purchasing decisions for mobile devices with different operating systems.
- To Understand the similarities and contrasts between Gen-Y and Gen-Z purchasing patterns for mobile devices with different operating systems.
- To find out which mobile operating systems (iOS or android) are preferred by Gen-Y and Gen-Z and the reasons for their choice.
- To evaluate the effects of brand loyalty, cost, features, and user experience on Gen-Y and Gen-Z purchasing decisions for mobile devices with different operating systems.

III. LITERATURE REVIEW

- **(Solomon, 2019),** Buying behaviour is defined as the process consumers go through when making a purchase decision.
- **(Kang & Kim, 2017; Chen & Liao, 2014),** Understanding the factors that influence this process is essential for companies to develop effective marketing strategies and gain competitive advantage. Studies have shown that brand loyalty, price and user experience are some of the most significant factors that influence consumer purchasing decisions when it comes to mobile devices.
- **(Kang & Kim, 2017),** Brand loyalty refers to the emotional attachment that consumers have to a particular brand. Studies have shown that brand loyalty is a significant factor in consumer purchasing decisions when it comes to mobile devices.
- **(Chen & Liao, 2014),** Another important element that influences consumers' purchasing decisions is price. Customers are often willing to pay a higher price for goods that provide special features and benefits.
- **(Jiang &Benbasat, 2007),** User experience, which includes the ease of use, design, and functionality of a mobile device, is also a significant factor that influences consumers' purchasing decisions
- **(Financial Times, 2023),** According to the article, iPod has successfully captivated Gen Z in the US to the point where younger consumers fear social exclusion if they do not own an iPhone. This tendency will enable the tech giant to increase its market share across a variety of product categories. According to recent data from Attain, an AdTech analytics platform, Gen Z users – those born after 1996 – make up 34% of all iPhone owners in the US, compared to 10% for Samsung. The tech giant's dominance among younger consumers is a notable shift from earlier generations of Americans, who are more evenly split between Android and iOS mobile devices, according to market data.

- **(Wall Street Journal, 2023),** According to them, Apple's (iOS) strong hold on Gen Z buyers is due to how much younger users prefer the iPhone's design, Airdrop photo-sharing feature and — importantly — its camera.

- **(Altaf Hussain Aureejo, Ikhtiar Ali Ghumro, Hassan Jawad Soomro 2020)** The Smartphone Buying Behavior of Two Generations X and Y Mediated by Brand Image investigates the influence of brand loyalty on mobile phone purchase intention among Gen Y and Gen Z. The study also explored the mediating role of brand image in explaining this relationship. The findings of this study provide valuable insights into the marketing strategies that can be employed to target these two generations.

- **(Muddassir Khadar 2020)** UNDERSTANDING THE PATTERN OF ONLINE CONSUMER BUYING BEHAVIOR OF GEN Z - AN EMPIRICAL STUDY states that Gen Z prefer to do an extensive research before deciding to purchase online. They are more tuned to Instagram as the social media channel for getting information on deals. Their online spends are not connected to their household incomes and they are not influenced by celebrities.

- **(Anders Parment 2013)** Generation Y vs. Baby Boomers: Shopping behavior, buyer involvement and implications for retailing states Consumer motivations and purchase engagement often lie below the surface of age; we could gain a deeper understanding by considering generational cohorts.

- **(Parment, 2011)** Generational cohorts have different experiences which influence their values, preferences and shopping behavior.

- **(Howe, 2000; Meredith et al., 2002; Zemke et al., 2000; Lancaster and Stillman, 2002)** Age has long been used as a segmentation variable but, as we will see, it does not address the 'why's' of consumption and consumer motivation. Marketing according to generational cohort delves below the descriptive surface to understand motivations associated with age .

- **(Ganlari, Deka, & Dutta, 2016)** In the case of smartphones, technical factors such as product performance, which includes hardware and software integration, file transfer, display, camera performance, and so on, play a big role in purchase decisions.

- **(Harpuneet Singh Kohli, Sujata Khandai, Anju Gulla 2020)** Smartphone Operating System Preference Based On Different Personality & Lifestyle Traits Of The Consumer states that psychological factors play a negligible or very minute role in identifying a person's mobile OS preference. Differences though minor are visible in terms of iOS users being slightly more extraverted & neurotic along with having a status seeking & fashion-oriented lifestyle.

- **(Stephan Böhm 2015)** Impact of the Mobile Operating System on Smartphone Buying Decisions: A Conjoint-Based Empirical Analysis : The choice of OS not only commits consumers to essential technical features, but also has implications with regard to the user interface or availability of applications in the associated App Stores.

- Both the latest high-end IOS and Android take high-resolution images and have similar camera parts. However, some Gen Z members appreciate the iPhone's colour rendering of images and think Apple has a better camera for everyday use. Additionally, many members of Gen Z believe that iPhones are inherently "cooler" than Android devices.

IV. RESEARCH METHODOLOGY

The research was carried out from two points of view, which is the decision to buy a mobile phone
- By Gen Y and Gen Z usage
- Operating system selection preference with Gen Y and Gen Z security in mind
- Future consumer preferences

Primary data was needed for the research. Primary data target groups included teenagers and people in the workforce. For consumers of Android and iOS users, data was collected across India with a sample size of 150. From a consumer perspective, an informal and unstructured questionnaire was created to find out which operating system consumers would prefer when choosing a smartphone. As the purchasing power of consumers is increasing daily, we also considered how likely iOS users are to outnumber Android users in the future versus now, which further helped in developing a structured questionnaire.

V. ANALYSIS AND INTERPRETATION

An effort has been made in this study to research about Comparative Analysis of Buying Behaviour of Mobile Phones Among Gen-Y (1981 to 1996) and Gen-Z (1997 to 2013. Analysis and interpretation were performed on data obtained from all 163 respondentsfrom various locations. We used an Excel tool to create various charts and chi square analysis of variance.

VI.　DATA INTERPRETATION

Table 1: Age of Respondents

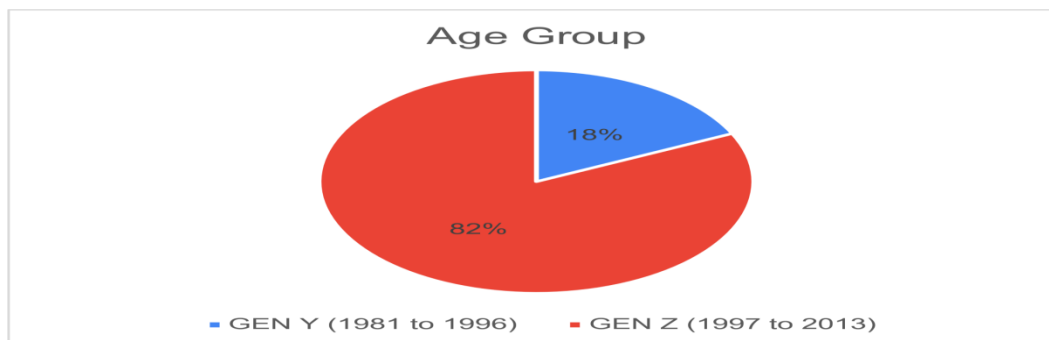| AGE	No. Of Respondents
Gen Y (1981 to 1996)	29
Gen Z (1997 to 2013)	133

Chart 1: Age of Respondents

The evidence from this pie chart demonstrates that many survey respondents, i.e., 133 in total are from generation Gen-Z, whereas, received 29 responses from generation Gen-Y.
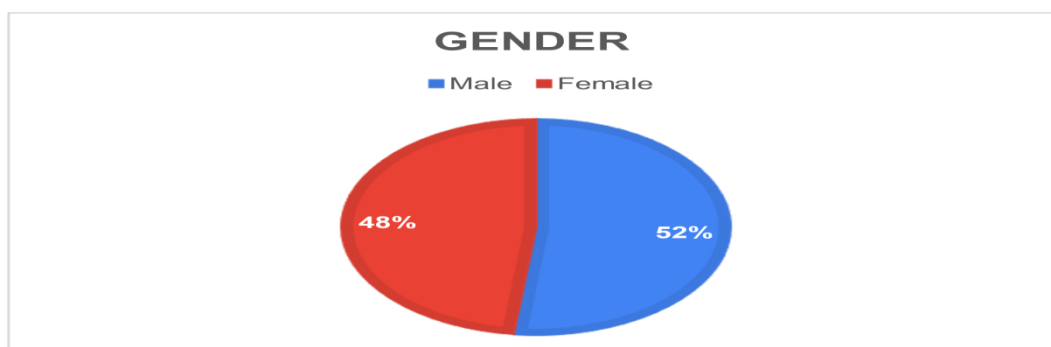
Table 2: Gender of Respondents

Gender	
Male	52%
Female	48%

Chart 2: Gender of Respondents

The data from this pie chart shows that 52% of respondents were male OS users and the remaining 48% were female OS users. This suggests that the replies were demographically fairly distributed.

Table 3: Occupation of Respondents

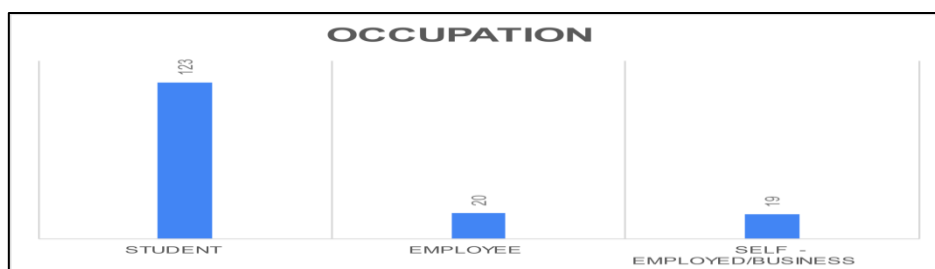| Occupation	
Student	123
Self Employed	19
Employee	20

Chart 3: Occupation of Respondents

The survey has facilitated three levels of occupation responses i.e., student, employee, and self-employed business. Among the three 123 respondents are students, 20 are employed under others and 19 respondents are indulged in their own business or self-employed.

Table 4: Education of Respondents

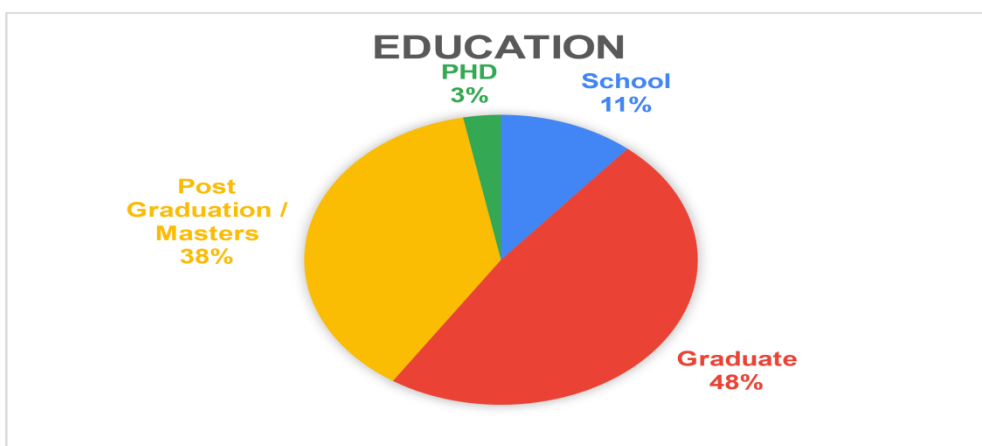| Education	
Graduate	48%
Post Graduation/Masters	38%
PHD	3%
School	11%

Chart 4: Education

The information from this pie chart reveals that 48% of respondents are OS users who have graduated, 38% of them have a master's degree as their highest level of education, 3% have a PHD, and the remaining 11% are OS users who are still in school. This shows that the responses were evenly distributed across all demographic groups.

Table 5: Monthly Expense of Respondents

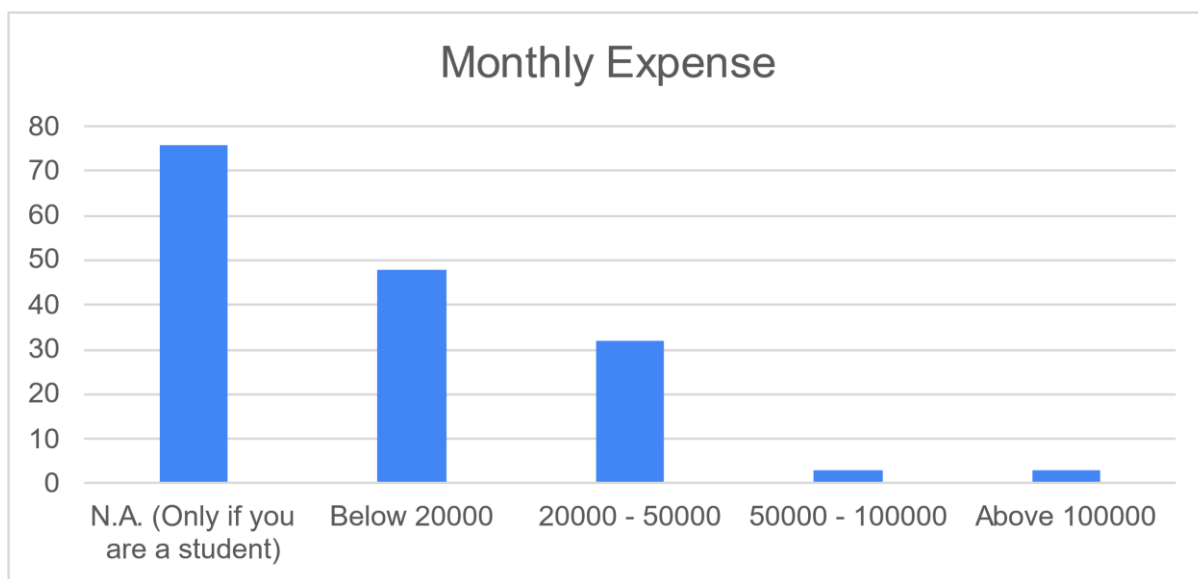| Monthly Expense	
N.A. (Only if you are a student)	76
Below 20000	48
20000 - 50000	32
50000 - 100000	3
Above 100000	3

Chart 5: Monthly Expense

In the above chart the X axis consists the monthly expenses of the respondents of the survey in Indian Rupees. Whereas in the Y Axis we have the number of the respondents corresponding to their monthly expense amount.

Table 6: Which mobile operating system do you currently use?

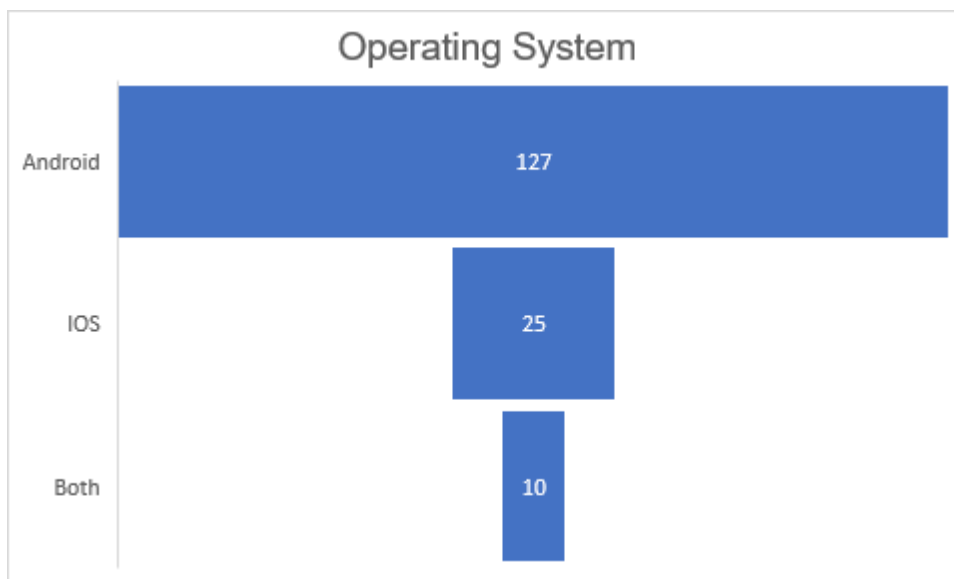| Operating System	
Android	127
IOS	25
Both	10

Chart 6: Operating System

The above chart shows the number of users of the different operating systems among the generations Gen-Y and Gen-z. We can infer from the chart that 127 respondents are Android users, while 25 of the responses are from ios users and lastly 10 respondents are the users of both the operating systems.

Table 7: Usage of OS of Respondents

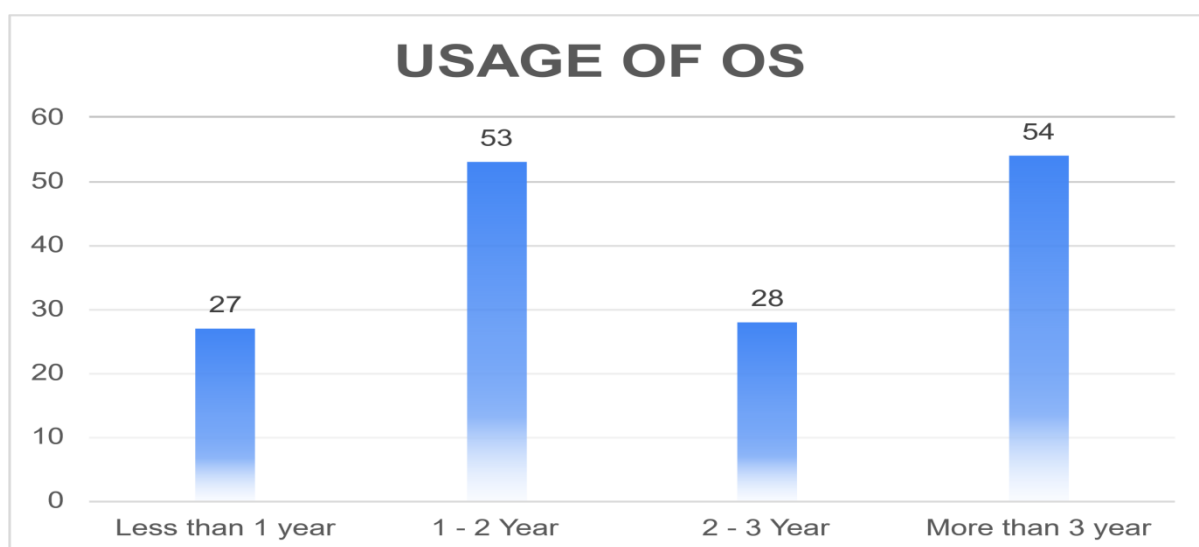| Usage	
Less than 1 year	27
1 - 2 Year	53
2 - 3 Year	28
More than 3 year	54

Chart 7: Usage of OS

According to the above mentioned graph, 54 of the survey participants have been using their current mobile operating system for more than three years, 53 have been using it for one to two years, 28 have been using it for two to three years, and 27 have only been using it for less than a year.

Table 8: How often do you use your mobile phone?

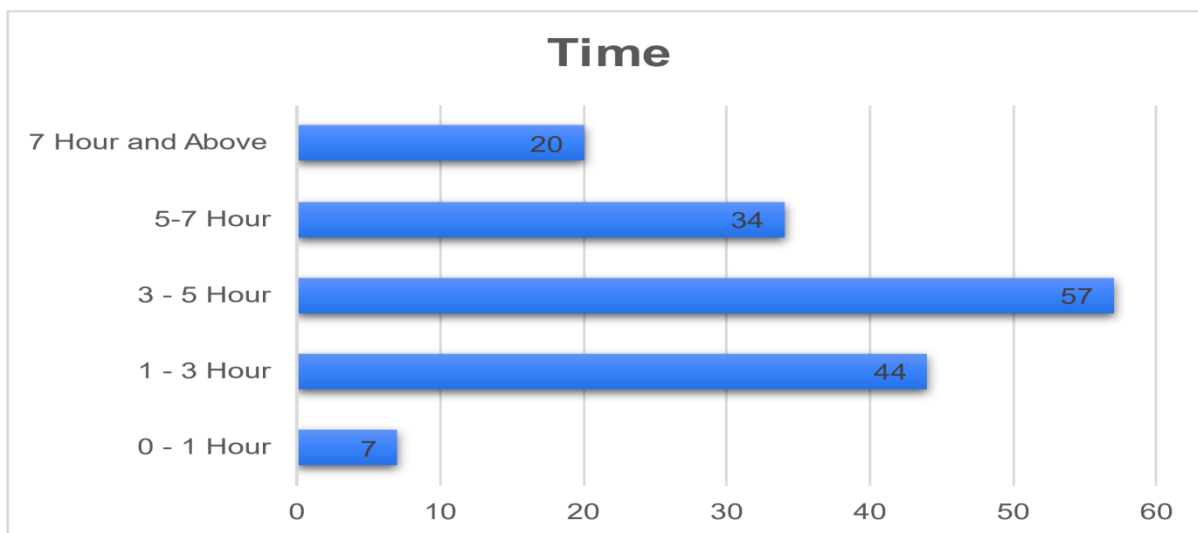| Time	
0 - 1 Hour	7
1 - 3 Hour	44
3 - 5 Hour	57
5-7 Hour	34
7 Hour and Above	20

Chart 8: Time

According to the above graph, 54 survey participants use their mobile devices for three to five hours per day, 44 for one to three hours, 34 for five to seven hours, 20 for more than seven hours per day, and 7 for less than an hour.

Table 9: How much important is the operating system when you are purchasing a mobile phone

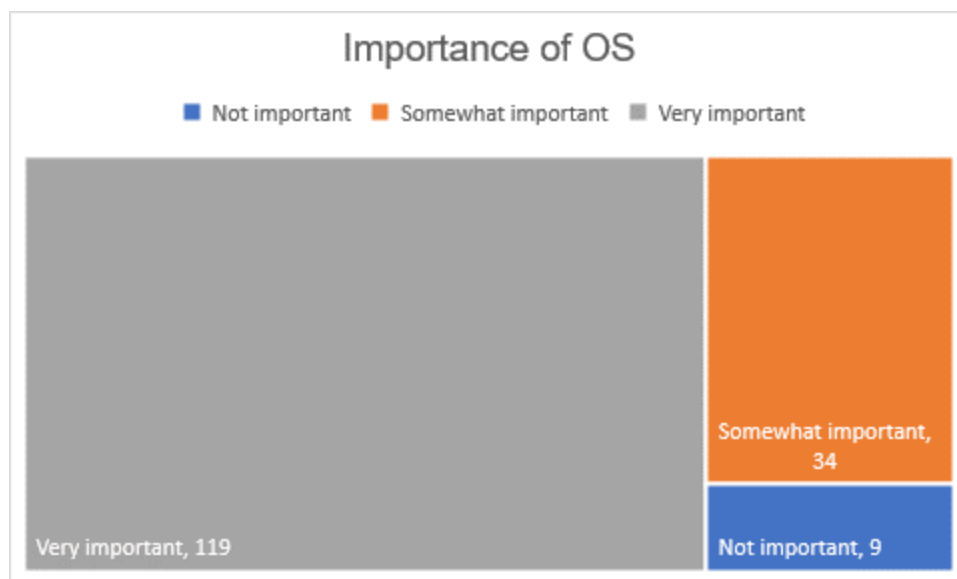| Importance of OS	
Not important	9
Somewhat important	34
Very important	119

Chart 9: Importance of OS

This suggests that, in contrast to 34 respondents who believe it to be only slightly significant, 119 respondents think the operating system of the mobile device is a very important consideration when buying a mobile phone. The operating system is not viewed by 9 respondents as being a key consideration when purchasing a mobile phone.

Table 10: When it comes to security, which operating system do you think is more secure

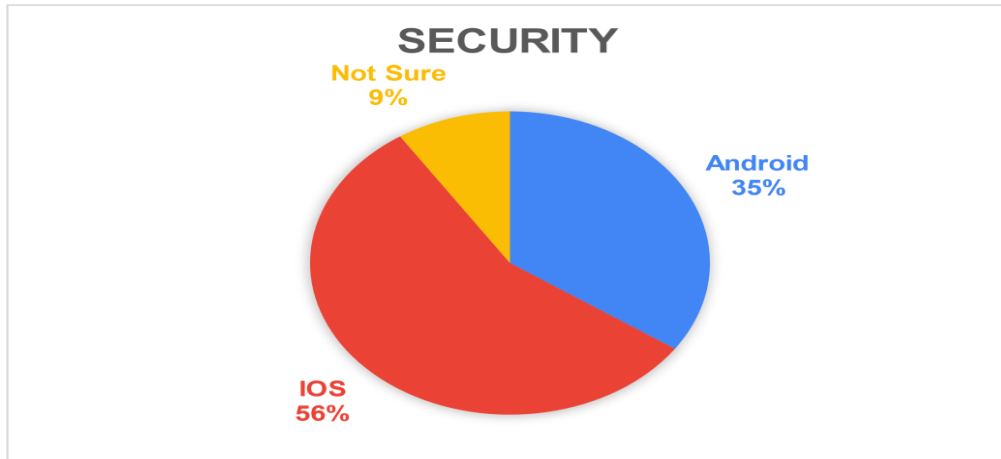| Security	
Android	56
IOS	91
Not Sure	15

Chart 10: Security

In terms of security, 56% of respondents said they believed iOS to be a more secure operating system than Android, while 35% said the opposite. While 9% of people are unsure of their decision.

Table 11: Have you ever considered switching to a different operating system? If yes, which one

Switching of OS	
Android	40
IOS	50
No	72
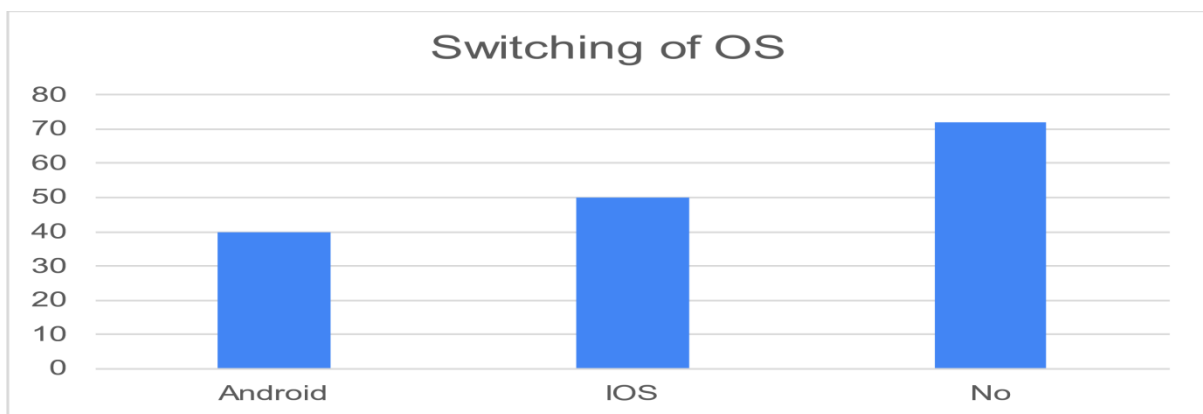
Chart 11: Switching of OS

When asked whether the respondents ever considered switching to a different operating system, 50 of them chose to switch to ios, 40 chose to go for Android while the remaining 72 chose to stay loyal to their current os.

Table 12: Would you consider purchasing a mobile phone with a different operating system in the future

Consider of Purchasing different OS in Future	
Yes	115
No	47

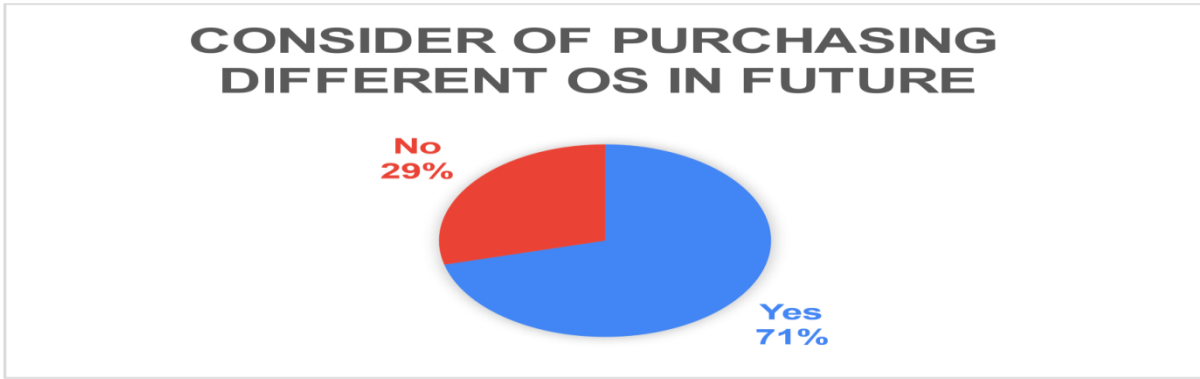**CONSIDER OF PURCHASING DIFFERENT OS IN FUTURE**

Chart 12: Consider of Purchasing different OS in Future

According to the pie chart above, 71% of respondents would like to consider purchasing a mobile phone with a different operating system in the future, while 29% would prefer to continue with their present os.

Table 13 and Table 14 show the chi-square test between Age and the mobile operating system do you currently use.

- H0 Age and the mobile operating system do you currently use are Independent
- H1 Age and the mobile operating system do you currently use are Dependent

Table 13: Cross table of Age and the mobile operating system do you currently use.

Observed(fo)	Android	Both	IOS	Grand Total
GEN Y (1981 to 1996)	21	4	4	29
GEN Z (1997 to 2013)	106	6	21	133
Grand Total	127	10	25	162

Table 14: Expected Frequency with p value for chi-square test

Expected(fe)	Android	Both	IOS	Grand Total
GEN Y (1981 to 1996)	22.734568	1.7901	4.47531	29
GEN Z (1997 to 2013)	104.26543	8.2099	20.5247	133
Grand Total	127	10	25	162
p-value	0.169858			

Table 14 shows the expected values for the chi square test along with p values. The null hypothesis is accepted here as p value is more than 0.05. So it is concluded that there is no association between Age and the mobile operating system do you currently use.

Table 15 and Table 16 show the chi-square test between Gender and How much does security influence your decision when choosing a mobile operating system.

H0 Gender and How much does security influence your decision when Choosing a mobile operating system are Independent

H1 Gender and How much does security influence your decision when Choosing a mobile operating system are Dependent

Table 15: Cross table of gender and How much does security influence your decision when Choosing a mobile operating system

Observed(fo)	Not Important	Somewhat Important	Very Important	Grand Total
Female	**5**	20	53	78
Male	4	28	52	84
Grand Total	9	48	105	162

Table 16: Expected Frequency with p value for chi-square test

Expected(fe)	Not Important	Somewhat Important	Very Important	Grand Total
Female	4.333333333	23.11111111	50.55555556	78
Male	4.666666667	24.88888889	54.44444444	84
Grand Total	9	48	105	162
p-value	0.539712			

Table 16 shows the expected values for the chi square test along with p values. The null hypothesis is accepted here as p value is more than 0.05. So it is concluded that there is no association between gender and How much does security influence your decision when Choosing a mobile operating system.

Table 17 and Table 18 show the chi-square test between Age and When it comes to security, which operating system do you think is more secure

- H0 Age and When it comes to security, which operating system do you think is more secure are Independent
- H1 Age and When it comes to security, which operating system do you think is more secure are Dependent

Table 17: Cross table of Age and When it comes to security, which operating system do you think is more secure are Independent.

Observed(fo)	Android	IOS	Not sure	Grand Total
GEN Y (1981 to 1996)	10	18	1	29
GEN Z (1997 to 2013)	46	73	14	133
Grand Total	56	91	15	162

Table 18: Expected Frequency with p value for chi-square test

Expected(fe)	Android	IOS	Not sure	Grand Total
GEN Y (1981 to 1996)	10.02469136	16.29012	2.685185	29
GEN Z (1997 to 2013)	45.97530864	74.70988	12.31481	133
Grand Total	56	91	15	162
p-value	0.470743			

Table 18 shows the expected values for the chi square test along with p values. The null hypothesis is accepted here as p value is more than 0.05. So it is concluded that there is no association between Age and When it comes to security, which operating system do you think is more secure.

VII.   CONCLUSION

A comparison of Gen-Y (born between 1981 and 1996) and Gen-Z (born between 1997 and 2013) mobile phone purchasing patterns in relation to operating system (OS) can draw several conclusions. It is important to keep in mind that these findings are based on broad samples and may not apply to every member of these generational groups.

Here are some significant findings:

A. Preferences for operating systems:
- **Gen-Y:** Millennials, often known as Gen-Y members, have an operating system choice that is generally more varied. They may be more receptive to alternatives like Android, iOS, or Windows Phone.
- **Gen-Z:** In contrast, members of this generation often show a stronger preference for certain operating systems. Largely due to the widespread use of iPhones, Gen-Z tends to prefer iOS (Apple) over other operating systems.

B. Brand loyalty:
- **Gen-Y:** Millennials may exhibit greater brand loyalty than Gen-Z consumers. When considering factors such as familiarity, ecosystem integration, and personal taste, people may continue to use a particular brand or operating system that they have been using for some time.
- **Gen-Z:** On the other hand, members of this generation are usually more willing to try new products and operating systems. Depending on features, trends and peer pressure, they are more inclined to migrate between operating systems.

C. Technological awareness and adaptability:
- **Gen-Y:** Millennials tend to have a higher level of technology awareness and adaptability because they were the first smartphone users. They feel more comfortable exploring the features of different operating systems.
- **Gen-Z:** Although Gen-Z are also quite comfortable with technology, they tend to absorb new features and innovations more quickly. They are more likely to experiment with the latest OS updates and features.

D. Influencing variables
- **Gen-Y:** Millennials' choice of operating system can be significantly influenced by aspects such as user experience, app availability, customization options, and general functionality.
- **Gen-Z:** When choosing an operating system, Gen-Z may be more influenced by social media trends, online ratings, and app popularity among their peers.

E. Privacy and security protection
- **Gen-Y:** With an increased awareness of privacy and security, millennials are more likely to consider these aspects when choosing an operating system. They may prefer options with better security and privacy.
- **Gen-Z:** Like Millennials, Gen-Z is aware of privacy and security issues, but may be more willing to give up some privacy for convenience or other vital reasons.

It is important to note that these observations are based on broad samples, and that within each generational cohort, personal tastes can still vary widely. Additionally, due to advanced technology and changing market conditions, the preferences and behaviours of these generations may be constantly changing over time.

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