Factors affecting the purchase and repurchase intention smart-phones of Vietnamese staff

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ABSTRACT

Smart-phones become a phenomenon in the modern society with many functions and characteristics, which can help people working in an office in the jobs. The researcher would like to know what features could mostly influence to the officers buying and repurchasing intention. This research study used questionnaire survey as a method to collect information from customers. The results of this research have shown that there was a relationship between independent variables (price, brand, design, quality, and feature) and the dependent variable. Our finding with our proposed solutions in this study can be used as a good reference source for the business or Smartphone manufacturers in Vietnam.

1. Introduction

Obviously, smartphones now become important devices when we are coming to the modern technology arena. All over the world, smartphones develop at a rapid pace that everyone can afford to buy one. In Vietnam, the figures have shown that Vietnam became the second faster-growing smartphone market. Vietnam has more than 135 million mobile phone subscribers and 35 million mobile users, out of which over 18 million are using Smartphone.

The Fig. 1 shows the number of Smartphone users in Vietnam. The number of Smartphone users increased from 1.5 million (2010) to 18 million (2014). At the beginning of 2014, the number of users was 18 million and expected to reach 28 million at the end of the year. According to the market researchers the number of users continues to increase in the next years, especially the market researchers are expecting to reach 38 million Smartphone users by the year 2017.

Currently, there are many brands, models and designs make consumers very difficult to choose a smartphone. When a person has an intention to buy a new or change his/her smartphone, he/she has to consider many factors e.g., brand, color, price, functions, reputation, duration and so on. Thus, we would like to test which determinants affecting to

the purchasing and repurchasing intention of customers when they want to find a new smartphone. We take the context in Vietnam. We propose two research questions:

1. What factors affect to the purchasing and repurchasing intention of smartphone?
2. Which factors affect most to the purchasing and repurchasing intention of smartphone?

1.1. Dependent variables

We can define purchase intention is an action of customer to purchase a certain product or service. Purchase intention is an important aspect not only for customer but for marketers as well. In other definition, we can understand purchase intention is what the customers think and will buy (products or services that they want to buy). Moreover, customer's purchase intention also shows that if customers have an increase in purchase intention means that will have an increase in the possibility of purchasing. In addition, customers' experience about Smartphone and their actions to get hold of a Smartphone that they want have substantial effect to buying decision. There is an important element can affect to the purchase intention of customer is perceived value. Moreover, the businesses see purchase intention as a measure for forecast of customers' purchase intention and as we know, the final step in the buying decision of customer is always the idea of intention to products or services.

Whitlark et al. (1993) define purchase intention as a purchase probability associated with an intention category at the percentage of individuals

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that will actually buy product. Ghosh et al. (1990) stated during that purchase intention is an effective tool used in predicting purchasing process. Once the consumers decide to purchase the product in a certain store, they will drive by their intention. However, purchase intention might altered by the influence of price, quality perception and value perception (Zeithaml, 1988; Grewal et al., 1998). In addition, consumers will interrupted by internal impulse and external environment during the purchasing process. Their behavior will drive by the physiological motivation that stimulates their respond that bring them to the retail store to fulfill their need (Kim and Jin, 2001).
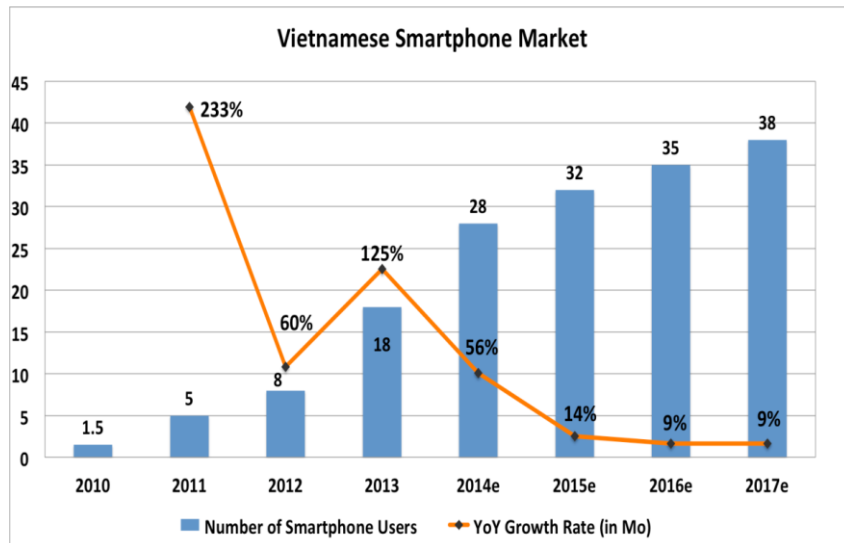

Fig. 1: Vietnamese smartphone market

Besides that, purchase intention is the implied promise to one's self to buy the product again whenever one makes the next trip to the market (Fandos and Flavian, 2006) and depicts the impression of customer retention. Furthermore, previous studies (Pavlou and Gefen, 2004) have found that purchase intention as a key factor really influences consumers' actual buying behavior and the purchase intention may influences transaction activities in the future.

1.2. Independent variable

1.2.1. Brand

"A brand is a name, term, sign, symbol, or design or combination of them, intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of the competitor" (Kotler, 1994). We can base on brand of each product to identify or appreciate the seller or manufacturer. In addition, under trademark law the brand name will be granted exclusive rights to the use in perpetuity for seller or manufacturer. If the sellers or manufacturers want to have more consumers know about them, they have to how to build their brand, and do not treat a brand only as a name. Nowadays, more and more the seller and manufacturer with famous brand, if the sellers want to exist on the intense market, they need develop a deep set of meanings for the brand. Moreover, a professional marketer of the businesses needs some ability such as create, maintain, protect and specially enhance their brand.

A product is something that is made in a factor; a brand is something that is bought by a consumer. A competitor can copy a product, a brand is unique. A product can be quickly outdated, a successful brand is timeless" (McQuiston, 2004). Brands are more than just names and symbols. They are a key element in the company's relationships with customers. Brands represent customer's perceptions and feelings about a product and its performance – everything that the product or the service means to customers.

Branding helps buyers in many ways. Brand names help consumers identify products that might benefit them. Brands also say something about product and consistency buyers who always buy the same brand know that they will get the same features, benefits, and quality each time they buy. Branding also gives the seller several advantages. The seller's brand name and trademark provide competitors for unique product features that otherwise might copy legal protection. Branding helps the seller to segment markets. Building and managing brands are perhaps the marketer's most important tasks. The businesses can use the brand for customers to identify the company's image and distinguishing them from other competitors in the market.

In the field of technology, brand of Smartphone is the most important thing that consumers always consider when they want to buy one. Some people said that they would not buy Smartphone if it were not a famous brand. Therefore, it is important to remember that brand is one of the factors that bring success and benefit for the businesses.

1.2.2. Design

Product design is the way to make a product with shape as the designer or manufacturer want. The process includes the planning; testing, produced, bring it to market. Bring products to market and consumer with the purpose is how customers reaction to new products. Design is the complex step and it is not an easy task in manufacturing because it is the important step can decide to the success of manufacturer. This complex process helps to make a new product and it will be sold in the market, consumers welcome or reject.

The designers want to make a good product, they have to spent many time and money. Firstly, they need draw the ideas about product that they want or you can say they built their product from the ideas. Secondly, from the ideas make it become a tangible product and improve it if necessary. The combination of the factors makes a new product such as color tone, shape and size. Smartphone in beautiful design and eye-catching will attract consumers at the first sight. Therefore, the manufacturer should make Smartphone with varied color, designs, and focus on office staff group. Moreover, the manufacturers should consider to production cost to produce economically product.

1.2.3. Price

In the narrowest sense, price is the amount of money charged for a product or service. More broadly, price is the sum of all the value that customers give up to gain the benefits of having or using a product or service. Over all, price has been the major element affecting purchase intention. Moreover, price remains one of the most important elements that determine a firm's market share and profitability. Price is the only element in the marketing mix that produces revenue; all other elements represent costs. Price is also one of the most flexible marketing mix elements. Unlike product features and channel commitments, prices can be change quickly. In business, smart managers treat price as a key strategic tool for creating and capturing customer value. Price has a direct impact on a firm's bottom line. More importantly, as part of a company's overall value proposition, price plays a key role in creating customer value and deciding customer purchase intention.

Price is one of the first factor that many customers consider when want to buy a Smartphone. Price is exchange value which consumers are willing to pay in exchange for the benefits of using a commodity. The price from the marginal cost plus direct costs for exporters such as transportation costs, costs of market research and check the financial viability of customers, the cost of international communications, product improvement cost. Prices are expressed in the currencies of commodity value, meaning that the amount payable for the goods. On the broad sense that is, the amount paid for a commodity, a service, or a certain property. Prices of goods in general are generous changes revolve around value. When supply and demand of a commodity or an articulated the prices reflect and conform with the value of such goods, such cases rarely occur. Prices of goods will be higher than the value of the goods if the supply is lower than demand.

However, Price is the cost that consumers can best determine, and thus plays an important role in their decision. For example, in a recent study of consumers selection of an outlet at which to make a purchase, price was consistently stated as a major influencing factor. Such a finding is consistent with the feelings of retailers themselves, who indicate price is an important selection criterion for consumers.

Nowadays, Smartphone's demand is increasing quickly in worldwide and this demand is affect by many factors. Price is one of those factors, which affects the purchase intention of consumers directly. Price makes consumers think should they get this specific product or a similar product for a cheaper price. It has a positive impact on behavioral intentions. Price is one tangible cue from which consumers form expectations. If we look at the Smartphone's market, we find the price of the different Smartphone varies differently. Some are expensive and some are cheap. There is an active relation between price and consumers satisfaction. Consumers tend to pay a higher price for a product if they are satisfied with that. Furthermore, sometimes they buy high priced Smartphone to demonstrate their social status. The level of price is found to positively affect behavioral intentions mainly because price establishes image of the brand in the eyes of the consumers.

Price is an important concern of many customers when they want to buy a Smartphone. In addition, this is a core issue of customer purchase intention. Two products have equal feature, the customer will choose the product with lower price. Even the same product, consumer will think and compare between price policy and promotion of each store. Therefore, low price is a good way can attract customer very effectively.

1.2.4. Product feature

Product features are specific design characteristics that allow a product to perform certain tasks. Each product has private features and it make product become difference with other product. The consumer based on product features to distinguish this product with other product. For example, you can distinguish a Smartphone with a normal mobile based on some follow features:

- The Smartphone has camera
- The Smartphone can be connect with the internet
- You can use the Smartphone to relax such as play game, listen to music, and watch film.

The success of manufactures are to make a product with features that consumers always mention and it is the product will stand out than competitors' product. In general Smartphone field, the manufacturers will exist if they can make a difference Smartphone with competitors such as long battery, high quality camera, access internet with fast speed.

With Smartphone, product features includes many characteristics such as software applications, operating system, camera feature, internet access. It's important to remember the customers buy products that include the features they want. So the business should focus on the product features that customers are expecting and give good product to satisfy customer needs, they will be successful in the market with highly competitive. The features of product are always important because they provide the customers with some suggestion about how well the product will deliver its benefits. The most important thing that business can understand about the features of product is giving good product and price to customers.

1.2.5. Product quality

Quality refers to the overall characteristics of a product that allow it to perform as expected in satisfying customer needs. The words as expected are very important to this definition because quality usually means different things to different customers.

The concept of quality also varies between consumer and business markets. Consumers consider high-quality products to be reliable, durable, and easy to maintain. For business markets, technical suitability, ease of repair, and company reputation are important characteristics. Unlike consumers, most organizations place for less emphasis on price than on product quality. One important dimension is consistency. Consistency of quality refers to the degree to which a product has the same level of quality over time. Consistency means giving consumers the quality they expect every time they purchase the product.

Quality is the satisfaction of market demand with the lowest cost. Therefore, the product or service that does not meet the needs of customers, it is considered poor quality. Along a similar purpose, product satisfies consumer demand for higher quality higher. Product quality is form during the study, implementation and production preparation, is guaranteed in the process of production and is maintained during use. Generally, it is believed that quality products are those products or services scrumptious; to achieve the level of the region or the world and meet the expectations of customers with cost may be acceptable. If the production cost is inconsistent with the price of the market, the customer will not accept its values, which means that the sale price higher than the price that customers take money in exchange for the characteristics of the product.

Nowadays, when competition is intense and price-competitive in a market environment, product quality is also an important element that customers want to consider when buying a Smartphone. Customers are always finding the reliable products that they are looking forward and want to gain it. Moreover, different customers have different expectation, so it is difficult to meet the customers' expectation on quality.

For a better perspective of a product quality, it is necessary to study on the product quality perception and to understand on product design gaps between 'how things ought to be' and 'how things are' from a customer's point of view. This is because of the nature of product quality perception itself which is a complex phenomenon involving social, cultural, economic and technical aspects (Wankhade and Dabade, 2006).

1.3. Study model

The conceptual framework tested in this paper contains constructs that have demonstrated theoretical support. The framework examines the factors that would possibly affect the purchase intention. The schematic diagram of the theoretical framework in figure is to show the relationship between the dependent and independent variables. Purchase intention is the dependent variable in this research. The dependent variable is analyzed in this research in order to find out the answer, what are the factors that affect to purchase intention of office staff. This study will be tested five independents variable: price, brand, design, quality and feature as possible variable that are believed to have influenced towards the dependent variable (purchase intention).

1.4. Hypotheses development

Based on some literature review and theoretical framework above (also shown in Fig. 2), some hypothesis will establish:

H1: There is a positive impact of brand on Smartphone purchase intention of office staff in the North of Vietnam.
H2: There is a positive impact of price on Smartphone purchase intention of office staff in the North of Vietnam.
H3: There is a positive impact of product design on Smartphone purchase intention of office staff in the North of Vietnam.
H4: There is a positive impact of quality on Smartphone purchase intention of office staff in the North of Vietnam.
H5: There is a positive impact of feature on Smartphone purchase intention of office staff in the North of Vietnam.
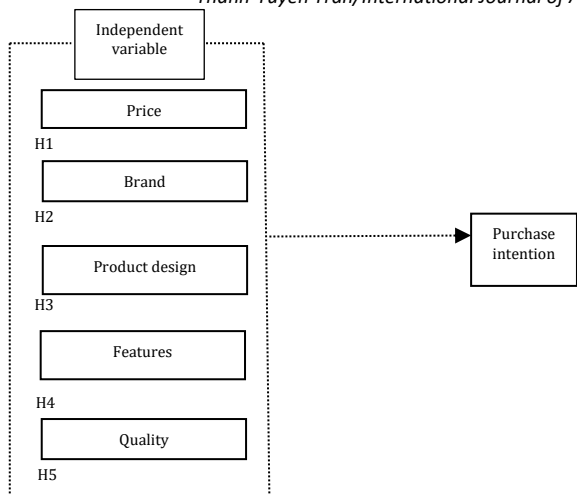
Fig. 2: Theoretical framework

2. Data collection methods

Data collection is a term used to describe a process of preparing and collecting data. Data collection is playing an important role in this study. In addition, the purpose of data collection is to obtain information, keep on record, make decisions about important issues, and pass information on to others. In the research, if researcher wants to have data for their study, they will use many methods to gather information. Therefore, if they want their research result exactly, they must select the method carefully. In this study, we want information more exactly; we used the primary data and the secondary data. We used the surveys questionnaire about customer demand and the research about Smartphone market. In addition, the information collected is called the primary data. Besides that, we also use some old information that the previous researchers studied and used. The information is called the secondary data.

In this study use five-point Likert scale to collect responses from respondents (1=Very unimportant, 2=unimportant, 3=normal, 4=important, 5=very important) for all question. Because the research study is about the elements affecting Smartphone office staff so the items of the questionnaires include decision-making reasons/factors: price, brand, design, quality and feature.

2.1. Primary data

In this research, we used survey questionnaire to collect data from customers and it helps us know about hobby, style, and demand of customer on Smartphone purchase intention. There were 250 copies of survey had distributed in the North of Vietnam. There were 22 questions distributed for office staff and their answers helps us how to supply good product for them.

3. Descriptive analysis

The purpose of descriptive analysis is to summing the result that collected from the survey questionnaire. In the descriptive analysis, we will

analysis about some of demographic characteristics of office staff who took part in the survey that got from the survey. It includes gender, age, marital status, and income.

Respondent demographic profile: To understand the elements affecting Smartphone purchase intention of office staff in the North of Vietnam, had 250 copies of servey questionnaires were designed and sent to respondents. After collected, some questionnaires are rejected because it not enough information or the respondents did not fill the data and had 87questionnaire are rejected (35%) so had 163 (65%) questionnaires can be used to analyzed.

Look at Table 1 and Fig. 3, you can see the number of respondent is 163, it includes 104 male and 59 female, percentage of male is 64%, female is 36%. The number male participated examination more than female. The number can explain that the amount of male have trend and hobby about Smartphone more than female so they participated in responded more than female. Based on this information, the business can focus on the potential gender is male.

Table 1: Respondent's Gender

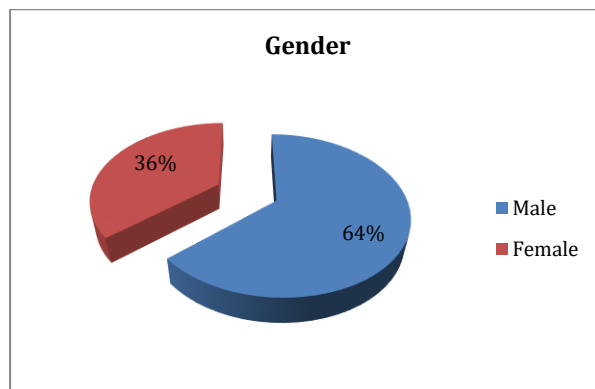| Gender		
Gender	Frequency	Percent
Male	104	63.8
Female	59	36.2
Total	163	100.0

Fig. 3: Respondent's gender

Table 2 and Fig. 4 shows the result respondent's age and the number participated from 22 to 30 year old is the greatest which take up 46.6% of the number of respondent. The age from 30 to 40 year old, take 34.4% of the number of respondent. The age from 40-50 year old, take 12.9% of the number of respondent and the last, the age above 50 take 6.1% of the number of respondent. This number is the smallest among the group of the age.

Table 2: Respondent's age

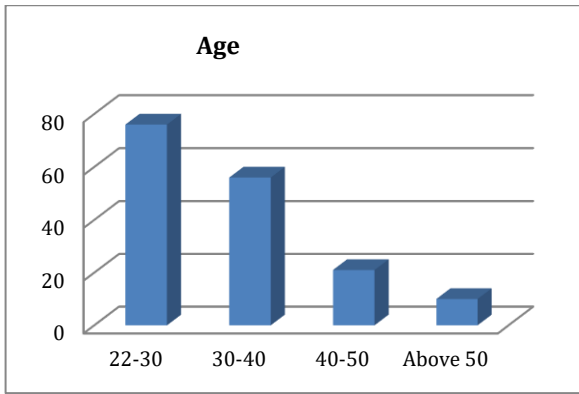| Age		
Age	Frequency	Percent
22-30	76	46.6
30-40	56	34.4
40-50	21	12.9
Above 50	10	6.1
Total	163	100.0

Age

Fig. 4: Respondent's age

The number of age from 22 to 30 years old is the biggest, the age from 22 to 30 are the young people group who want to follow their hobby. The young people always follow the modern technology and the Smartphone is the one of it. Some young people said that they use their phone all the time. They use Smartphone every time, everywhere, it is checking emails, playing game, and their phone is all they need to get about. That is a reason makes the Smartphone's users become more than normal phone. This age group is the people who do not have many things to think, they can use money to buy something that they want; it's also a reason make the number buying Smartphone more and more. Increasingly Smartphone are becoming more affordable and accessible to young people.

At the age of 30 to 40 are mature age, almost of them are married. They have to spent time and money for their family. However, their hobbies with modern technology are still higher than other age group for example the age group from 40 to 50 years old or above 50 years old. Therefore, the number using Smartphone is also high.

The age from 40 to 50 years old who are busy with the work, family and the relationship. They do not have time to follow the modern technology. Moreover, this age group thinks that it is waste of money if they spent money to buy a Smartphone because they have many important things have to buy than it.

The number of age above 50 years old is very small because some below reasons:

- They just want a simple phone
- They think that Smartphone is very difficult to use
- They think that it is very expensive and feeling waste of money
- They think that Smartphone is not suitable with their age.

Table 3 and Fig. 5 shows that the respondent's marital status participated the questionnaire surveying with 56.4% is single and 43.6% is married. According to the trend of actual life, the single people always have much free time to find and follow their hobby. Therefore, it can explain that why the number single people participated to answer the questionnaire more than married people did.

Table 3: Respondent's marital status

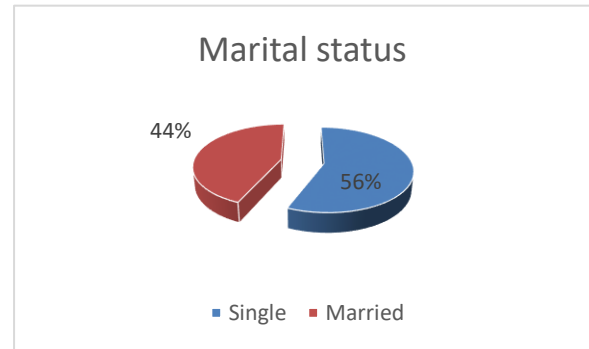| Marital status		
Marital status	Frequency	Percent
Single	92	56.4
Married	71	43.6
Total	163	100.0

Marital status

Fig. 5: Respondent's marital status

Look the Table 4 and Fig. 6 we can see the respondent's income. The number of office staff with income from 2.000.000-3.000.000 VND is 7.4%. After that, income from 3.000.000 to 4.000.000 VND is 44.8%, the income from 4.000.000 to 5.000.000 VND is 33.1%, and the last income over 5000000 per month is 14.7%. The number of people in-group from 3.000.000 to 4.000.000 VND is biggest. The second is the number of people in-group from 4.000.000 to 5000000 VND. In Vietnam, that money can buy a Smartphone; it means that the Smartphone market will develop in Vietnam, the number of people buy Smartphone will be very much.

3.1. Reliability test

Data has conducted a number of statistical tests to make sure its reliability and validity before conducting any analysis on the results. Cronbach's Alpha is the most common measure of internal consistency. In this part, we has devised twenty two-questions questionnaire to measure how important of Smartphone with office staff. Each question was a 5-point Likert item from "very unimportant" to "very important". The scale was chosen as Cronbach's alpha coefficient of 0.6 or higher.

Table 4: Respondent's income

Income		
Income	Frequency	PPercent
VND 2000000- 3000000	12	7.4
VND 3000000-4000000	73	44.8
VND 4000000-5000000	54	33.1
Over VND 5000000	24	14.7
Total	163	100.0

In this section, Cronbach's alpha, which is a model of internal consistency, based on the average inter-item correlation, was calculated in this part to confirm that all items were measuring the same construct. In this study, we separately conducted six reliability tests. The first five reliability tests are named price, brand, design, quality and feature. The

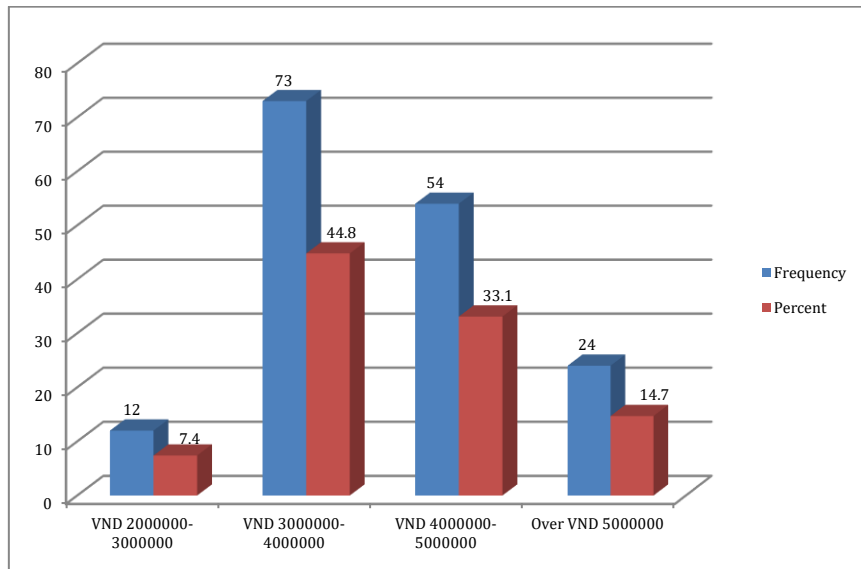last is purchase intention will be conduct. The results of six separated tests were summary in Table 6.

Fig. 6: Respondent's income frequency

Table 5: Result of reliability test

Factor	Corrected Item-total Correlation	Cronbach's Alpha
Price	0.656 0.626 0.674 0.602	0.818
Brand	0.495 0.633 0.532 0.490 0.448 0.634 0.753	0.751
Design	0.608 0.516	0.808
Quality	0.640 0.618 0.529	0.763
Feature	0.660 0.801 0.693	0.847
Purchase intention	0.663 0.697 0.701	0.828

Take a look the Table 5 with label is Result of Reliability Test; we see that all value of the elements is over 0.5, it means that they are affected with Smartphone purchase intention. We can see the Cronbach's Alpha values are price, brand, design, quality, feature and purchase intention with the coefficient are 0.818, 0.751, 0.808, 0.763, 0.847 and 0.828 respectively.

3.2. Exploratory factor analysis (EFA)

In the part I used appreciate the items of the questionnaire (19 items) are suitable or not for factor analysis, I used Kaiser-Meyer-Olkin (KMO) and Barlett's Test of Sphericity.

For the KMO statistic, Kaiser (1974) recommends a bare minimum of 0.5 and that values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb**.** For these data, the value is 0.731, which falls in into the range of being good, so we should confident that the sample size is adequate for factor analysis.

Based on EFA method, KMO have high values (close to 1.00) indicate that a factor analysis may be useful with the data. If the value is less than 0.05, the results of the factor analysis probably will not be useful. The results of KMO and Bartlett's Test are shown in the Table 7 which indicated KMO is $0.731>0.5$ and significant is lower than 0.01 and therefore factor analysis is appropriate.

Table 6: Value of KMO

KMO value	Degree of common Variance
0.90 to 1.00	Marvelous
0.80 to 0.89	Meritorious
0.70 to 0.79	Middling
0.60 to 0.69	Mediocre
0.50 to 0.59	Miserable
0.00 to 0.49	Don't factor

Table 7: KMO and Bartlett's test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.731
Bartlett's Test of Sphericity	Approx. Chi-Square	1263.355
	df	171
	Sig.	.000

As Table 8 shows, factor analysis was used to verify define underlying factors in the scale of 22 items to understand about the elements affecting Smartphone purchase intention of office in the North of Vietnam. The set of 19 items related to the independent variables (price, brand, design, quality, and feature). You can see the Cumulative explained that variance is 64.969% and the price factor explained 14.109% of the variance, the second factor is 13.674% of the variance, the third factor is 13.659% of the variance, the fourth factor is 12.440

of the variance, and the last factor is 11.117 of the variance.

Some items (it is the number of variables) can explain each factor. Factor matrix after rotation has five factors as following:

- Price factor has four items and each item has affected to Smartphone purchase intention of office staff and it appreciated the important of price when customer wants to buy a Smartphone.
- Brand factor has five items that talk about something related the brand of Smartphone and what do they affect to purchase intention? The

business can base on that to give appropriate brand to customer.
- Design factor has four items and all of them shown about the demand of customer with Smartphone that they want to buy and the factor affects to Smartphone purchase intention.
- Quality factor has three items that express quality of Smartphone that customer wants. Moreover, the factor help the business know how to make customer satisfy about their product.
- Feature factor has three items and they indicate the important of feature, which feature make customer think about when they want to buy a Smartphone.

Table 8: Exploratory factor analysis

Factor	Items	Factor loading	Total	% of Variance	Cumulative %
Price	How important do you think price when you purchase a Smartphone?	0.763			
	The price of a Smartphone is very important to me	0.675			
	The price of Smartphone should not be too higher than the price of mobile	0.805			
	If price of Smartphone is not expensive I would buy one	0.666	2.664		
	How important do you think brand is When you purchase a Smartphone?	0.692			
Brand	Brand is very important to me when buying a Smartphone	0.798			
	I will not buy a Smartphone with normal brand	0.725			
	I'm happy to pay more for the famous brand of Smartphone	0.684	2.598	13.674	27.693
	My friends would appreciate me if I bought a famous brand	0.633			
Design	If a Smartphone is more attractive I will buy	0.786			
	Product design of Smartphone is very important to me	0.862			
	Product design of Smartphone make me have intention to buy it	0.728	2.363	13.659	41.352
	Product design is the first element I want to consider when buying a Smartphone	0.726			
Quality	How important do you think quality when you purchase a Smartphone?	0.189			
	Quality is the first element I think about when I buy a Smartphone	0.784	2.363	12.440	53.792
	I think quality of the Smartphone is better than mobile	0.674			
Feature	I want to buy a Smartphon with intelligent and outstanding features	0.828			
	Feature is very important to me	0.916	2.124	11.117	64.969
	Features of Smartphone make it difference with mobile	0.840			

3.3. Correlation analysis

In this part, before conducting linear regression analysis, I would like to look at the correlation coefficient to check the relationship between the dependent variable with the independent variables and the relationship between the independent variables. If the correlation coefficient between the dependent variable and the independent variables is highest, we can conclude that it have a strong relationship. Similarly, if the system due to the correlation between the independent variables is highest, multi-co linearity may occur.

To know and understand the elements affecting Smartphone purchase intention, we conduct correlation analyses in analyzing. The correlation is used test the relationship between five independent

variables, it includes price, brand, design, quality and feature and the dependent variable is purchase intention. In the Table 9 shows the results of the correlation analysis.

Table 9 above is a result of correlation matrix and it shows Pearson's correction coefficient between the measured variables exploring the relationship and significance levels of variables (price, brand, design, quality, and feature) and purchase intention.

The price variable has the greatest correlation with dependent variable (purchase intention) with Pearson Correlation value = 0.744, sig = 0.000, followed by quality variable with Pearson Correlation value = 0.452, sig = 0.000; design variable with Pearson Correlation value = 0.374, sig = 0.000; feature variable value = 0.329, sig = 0.000; brand variable with Pearson Correlation value = 200, sig = 0.011.

Based on the result, we can understand that price has the greatest correlation with purchase intention, followed by quality, design, and feature. The lowest correlation with purchase intention is Brand variable.

3.4. Regression analysis

The study use simple regression analysis to test the relationship among price, brand, design, quality, and feature and purchase intention. The F value used to test the significance of the regression model and examined first. When the p value of F test is not significant at the level 0.05 (p>0.05), the model is considered insignificant and the null hypothesis that there is no linear relationship between dependent variable and independent variable was accepted. The aim of this section is to forecast the changes in the dependent variables (purchase intention) in response to change in the independent variables (price, brand, design, quality, and feature).

Table 9: Pearson's correlation between variables

Dependent Variable: Purchase intention			
Factor	Pearson Correlation	Sig.	N
Price	.744**	.000	163
Brand	.200*	.011	163
Design	.374**	.000	163
Quality	.452**	.000	163
Feature	.329**	.000	163

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 10 is the results generated from the multiple linear regression analysis of the relation between five factors, it includes price, brand, design, quality, and feature on purchase intention.

Table 10: General multiple linear regression analysis

Independent variable	Dependent Variable Benefit			
	Unstandardized Coefficients B	Standardized Coefficients Beta	t	Sig.
(Constant)	5.335E-017		.000	.000
Price	.609	.609	9.360	.000
Brand	.123	.123	2.416	.017
Design	.120	.120	2.194	.030
Quality	.073	.073	1.212	.227
Feature	.133	.133	2.524	.013
R²	.599	Sig.	.000	
Adjust R	.587	St Error	.643	
F	46.964			

Based on result from Table 10, it shows that:

1. R square is the percentage of the response variable variation that is explained by a linear model. In this case, R square value was 0.599, which means 59.9 percent can be explain.
2. The significance of the regression model was 0.000 < 0.05 (P value <5%), which indicated that applied model is good enough in predicting outcome variable. Based on Table 11, the above results show that the positive relationship between quality and purchase Intention is not significant (sig = 0.227>0.05), which do not have any impact on the Smartphone purchase intention of office staff in term of regression analysis. That means this dimension do not support to purchase intention and it should eliminate it.
3. There are four factors as follow: price, brand, design and feature significantly affected dependent variable purchase intention.

Now, we will explain the factor affect dependent variable:

1. The result of regression analysis shows that price factor has the greatest impact to purchase intention of Smartphone among office staff in the North of Vietnam. A Coefficient Beta is 0.609 with a very low significant level (sig) is high reliability. It shows that the price factor has directly affected to purchase intention of Smartphone or we can say the price factor has affected to purchase intention. Price factor affected dependent variable (purchase intention) and it has Standardized Coefficients Beta is 0.609 with sig value is 0.000 <5% which mean that purchase intention variable will increase 0.609 if Price variable increase 1 unit.

2. The second factor affecting Smartphone purchase intention of office staff in the North of Vietnam is brand factor. The result show Standardized Coefficients Beta is 0.123 with low significant level (sig) is high reliability. It means that the brand factor has directly affected to purchase intention of Smartphone. Brand factor affected dependent variable (purchase intention) and it has Coefficients Beta is 0.123 with sig value is 0.017<5% which mean that purchase intention variable will increase 0.123 if Brand variable increase one unit.

3. The third factor affecting Smartphone purchase intention of office staff in the North of Vietnam is design factor. General multiple linear regression analysis show that Coefficients Beta is 0.120 with low significant level (sig) is high reliability. It shows that the design factor has directly affected to purchase intention of Smartphone. Design factor affected dependent variable (purchase intention) and it has Standardized Coefficients Beta is 0.120 and sig value is 0.030<5% which mean that purchase intention variable will increase 0.120 if Design variable increase 1 unit.

4. The fourth factor affecting Smartphone purchase intention of office staff in the North of Vietnam is feature factor. Look at the regression analysis result, we can see the factor has Coefficients Beta is 0.133 with low significant level (sig) is high reliability. It means that the Feature factor has directly affected to purchase intention of Smartphone. Feature factor affected to dependent variable (purchase intention) and it has Standardized Coefficients Beta is 0.133 <5% which mean that purchase intention variable will increase 0.133 if Feature variable increase one unit.

5. Based on the result of the study, we can know that price, brand, design and feature are very important. They affect to purchase intention of office staff when want to buy a Smartphone.

4. Hypothesis testing

By running the linear multiple regressions, we can measure the effect level of each independent variable (price, brand, design, and feature) with dependent variable (purchase intention). We will explain base on the results of the regression analysis, and test the hypothesis proposed. Linear regression equation helps us to form conclusions from the study that the elements affecting Smartphone purchase intention of office staff in the North of Vietnam include: price, brand, design, and feature. Since all the independent variables are measured by 5 likert scale up, it is clear that the level of importance of each element for purchase intention.

Table 11: Summary of hypothesis testing

	Research Hypotheses	Supported	Not Supported
H1	There is a significant influence from brand towards purchase intention of Smartphone among office staff in the North of Vietnam.	✓	
H2	There is a significant influence from price towards purchase intention of Smartphone among office staff in the North of Vietnam.	✓	
H3	There is a significant influence from product design towards purchase intention of Smartphone among office staff in the North of Vietnam.	✓	
H4	There is a significant influence from quality towards purchase intention of Smartphone among office staff in the North of Vietnam.		✓
H5	There is a significant influence from feature towards purchase intention of Smartphone among office staff in the North of Vietnam	✓	

4.1. Respondents' demographic and purchase intention

We are going to consider the relation between respondent's demographic characteristic and the purchase intention. In this section, we use one way Anova to compare the mean score of multiple group: gender, age, marital status, income.

Hypothesis:

- H0: There is no impact from gender towards purchase intention of Smartphone among office staff in the North of Vietnam.

- H1: There is an impact from gender towards purchase intention of Smartphone among office staff in the North of Vietnam.

Table 12 shows the output of the ANOVA analysis. We can see that the significance level is 0.044 which is below $\alpha = 0.05$, therefore, there is a statistically significant difference in the number of gender with purchase intention or we can say the result shows that different gender has effect on purchase intention. This means that the gender has an impact towards purchase intention of Smartphone among office staff in the North of Vietnam.

Table 12: Descriptive statistics of purchase intention by gender (ANOVA)

Purchase intention					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.053	1	4.053	4.132	.044
Within Groups	157.947	161	.981		
Total	162.000	162			
Gender (One-way ANOVA)					
	Frequency	Percent (%)	Valid Percent	Cumulative Percent	
Valid Male	104	63.8	63.8	63.8	
Female	59	36.2	36.2	100.0	
Total	163	100.0	100.0		

Hypothesis:

- H0: There is no impact from age towards purchase intention of Smartphone among office staff in the North of Vietnam.
- H1: There is an impact from age towards purchase intention of Smartphone among office staff in the North of Vietnam.

Table 13 one-way ANOVA shows that the sig value is 0.033. This value is less than 0.05. Because of this, we can conclude that there is a statistically significant difference between the age variable and purchase intention variable. There is an influence between the ages of customer with purchase intention of customer, different age has affected on purchase intention. It means that the young people have trend buy Smartphone more than old people. There are some reasons can explain for that:

- The young people want to express themselves
- They want to become a modern people
- They want to follow their hobby and the modern technology

Table 13: Descriptive statistics of purchase intention by Age (ANOVA)

		Frequency	Percent	Valid Percent	Cumulative Percent
			Age		
Valid	22-30	76	46.6	46.6	46.6
	30-40	56	34.4	34.4	81.0
	40-50	21	12.9	12.9	93.9
	Above 50	10	6.1	6.1	100.0
	Total	163	100.0	100.0	
			Purchase intention		
		Sum of Squares	df	Mean Square	F	Sig.
Between Groups		8.656	3	2.885	2.992	.033
Within Groups		153.344	159	.964		
Total		162.000	162			

Hypothesis:

- H0: There is no impact from marital status towards purchase intention of Smartphone among office staff in the North of Vietnam.
- H1: There is an impact from marital status towards purchase intention of Smartphone among office staff in the North of Vietnam.

Look at the Sig value of Table 14, we have the significant value is 0.045, it is less than 0.05. We can conduct that there was a significant difference between marital status and purchase intention and it means that different marital status has effected on purchase intention. The table shown that the number of single person took part in responded the questionnaire survey is more than the number of married person. Marital status affects to purchase intentions because of some follow reasons:

- The single person has much free time to find research and follow their hobby.
- The single person does not worry about their finance too much.
- The married person have to spent time for their family don't have much free time to find, research about the Smartphone
- They have to spent money reasonably

Table 14: Descriptive statistics of purchase intention by marital status (ANOVA)

		Frequency	Percent	Valid Percent	Cumulative Percent
			Marital status		
Valid	Single	92	56.4	56.4	56.4
	Married	71	43.6	43.6	100.0
	Total	163	100.0	100.0	
			Purchase intention		
		Sum of Squares	df	Mean Square	F	Sig.
Between Groups		3.991	1	3.991	4.067	.045
Within Groups		158.009	161	.981		
Total		162.000	162			

Hypothesis:

- H0: There is no impact from income towards purchase intention of Smartphone among office staff in the North of Vietnam.
- H1: There is an impact from income towards purchase intention of Smartphone among office staff in the North of Vietnam.

Table 15 shows that among different group of income, significant level is 0.12 which is lower than $\alpha = 0.05$, we accept H1. It means that there is an impact from income towards purchase intention of Smartphone among office staff in the North of Vietnam.

5. Summary

Through the survey conducted, there are four main factors affecting Smartphone purchase intention of office staff in the North of Vietnam. They are:

- Price factor
- Brand factor
- Design factor
- Feature factor

The above factors are very important for the businesses or Smartphone manufactures to have proper strategies and actions to produce and give Smartphone that suitable with office staff and consumers in many aspects. Moreover, it helps the businesses can meet customer expectations in order to gain market share in Vietnam over its competitors.

In this research, we test the reliability through Cronbach's Alpha system and factor analysis EFA. The result shows that all of factors have Crobach's Alpha > 0.6 so they meet requirement and have high reliability. Therefore, these scales will be used to analysis.

ANOVA test by the author has showed that different groups of gender, significant level is 0.044; among different group of age, significant level is

0.033; among different group of marital status, significant level is 0.045; among different group of income, significant level is 0.012 which are all less than alpha 0.05 which means that there is different by group of gender, age, marital status, income which has affected purchase intention.

Table 15: Descriptive statistics of purchase intention by Income (ANOVA)

		Income			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2000-3000	12	7.4	7.4	7.4
	3000-4000	73	44.8	44.8	52.1
	4000-5000	54	33.1	33.1	85.3
	Over 5000	24	14.7	14.7	100.0
	Total	163	100.0	100.0	
		Purchase intention			
		Sum of Squares	df	Mean Square	F
Between Groups		10.689	3	3.563	3.744
Within Groups		151.311	159	.952	
Total		162.000	162		

6. Conclusion

When social develops, technology also develops, it is development of Smartphone, and it becomes a part very useful and indispensable in our life. It can replace computer or laptop and it is very convenient. Nowadays, many people seem Smartphone is tool in working or relax. The demand of Smartphone increase very fast and it became a common need of every people so the Smartphone market is a potential market and the business need to invest.

The aim of this study is to find out the elements affecting Smartphone purchase intention of office staff in the North of Vietnam. Some influencing elements that affect office staff purchase intention are price, brand, design, quality, and feature. After knowing the elements affect purchase intention, the next purpose of this study is to understand what elements will affect purchase intention of office staff. Based on the survey result that we collected in the North of Vietnam, we knew that great of the office staff use Smartphone in working and relax.

By using descriptive analysis we had an overview of the demographic statistics and based on the respondent's replies, the mostly the number using Smartphone of office staff in the North of Vietnam is male with 64%, there were more single consumers than married consumers, and it took 56%. It means that the single people do not worry about money to buy something for their family than married people. Based on respondent's age result, the great number of consumers using Smartphone is in-group from 22 to 30 years old, it up to 47%. Office staffs with a month income from 3.000.000 to 4.000.000 VND is largest with 45%.

To test the reliability, we used Cronbach's alpha system and factor analysis. The result shown in Table 8 indicated KMO is 0.731>0.5 and significant is lower than 0.01 and therefore factor analysis is appropriate.

We used ANOVA test to know different group gender, age, marital status, and income affect or do not affect purchase intention. And the result shown that among different group of gender significant level is 0.044; among different group of age significant level is 0.033; among different group of marital status significant is 0.045; among different

group of income level is 0.012 which are all lower than 0.05. It means that different gender, age, marital status, income have affected purchase intention.

In conclusion, the research found main elements affect Smartphone purchase intention are price, brand, design and feature. The businesses or Smartphone manufactures can base on this research to emphasize those elements to attract more office staff, more other consumers and develop the Smartphone industry in Vietnam. The business should give some strategies and some solutions such as:

- Low price
- Famous brand
- Design with eye-catching
- Unique feature

7. Research implication

Based on the information gathered from the research on elements affecting Smartphone purchase intention of office staff in the North of Vietnam, this study provides some implications may be useful for the business and manufactures want to increase the demand of Smartphone among office staff target market. Nowadays, the office staff and other consumers want a Smartphone with famous brand, lower price, and good design and so on. It helps the business, manufactures to make further improvements, and used marketing strategies to increase the sales of Smartphone. According to the result of the research, Price has the highest significant affecting Smartphone purchase intention of office staff in the North of Vietnam. So, the businesses and manufactures are suggested to increase the office staff's purchase intention by the ways such low price. In addition, the businesses can base on the research to give famous Smartphone brand. It is an important thing because there are many the consumers think that famous brand brings to more high quality products or it shows that they will feel confident when they have a famous Smartphone brand.

Based in the research done, Design has the significantly impact on purchase intention of

Smartphone among office staff in the North of Vietnam. Therefore, Smartphone companies can focus on the design of Smartphone such as the size, shape, button placement, color, and other decorative. They are the first thing that many consumers use to make a snap decision right away, on whether they buy or do not buy. Moreover, the color of the Smartphone is very important because the female always attend to its.

According to the research done, Features of Smartphone has the significantly impact on the purchase intention of Smartphone among office staff in the North of Vietnam. It is necessary if the manufactures expand Smartphone office software, it can helps office staff in working many work such as word processing, sent and receipt email, finding information. There is an important factor that manufactures need improve is increase the battery life of the Smartphone because the office staffs have many work need to do in one day.

8. Research limitation

There are some limitations in this study. Firstly, the result may not be comprehended for the businesses because the samples only collect on one area and one subject of Vietnam which is in the North of Vietnam with subject is only office staff. It cannot stand for whole population in Vietnam.

Secondly, there are only five independent variables in this study and there might have other factors, which did not take in to. Those factors that were not included in this study may be the influential forecasters of purchase intention of Smartphone among office staff in the North of Vietnam. In addition, there is a limitation for the study is only used of survey questionnaire because some below reasons:

- It may be lack validity
- The respondents may not be understand the question and they can randomly select an answer to complete the questionnaire
- The respondents do not spent much time and effort in completing the survey.
- There are many responses from the respondents because different people would have different views based on their understandings.
- All of these could reduce the accuracy and preciseness of the results and it makes the research will be untrustworthy.

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